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Systemic Risk in Public Sector Outsourcing Contracts.

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ABSTRACT

The research presented in this thesis responds to a call towards the expansion of current perceptions of risk in complex organisational settings. Observing the literature, it becomes apparent that risk in projects is frequently treated as independent, thereby disregarding the interrelatedness or ‘systemicity’ of these risks, and/or any other causal dynamics. The systemicity of risk is therefore of fundamental importance to this research, particularly in terms of its definition which is sparsely covered within the literature, making it a suitable first research question. In addition to this, where a project represents an undertaking that has commissioned for by a permanent organisation, and is to be delivered by a temporary organisation, the verdict as to whether or not the commissioned project is deemed as being successful is heavily dependent upon the project’s ability to protect against unwanted risk. At the forefront of the commissioned project is the contractual relationship that has been established between the buyer and seller, which sets out the obligations of the contracting parties. Since the contract governs the legality and functionality of the project, it must therefore be designed to balance and mitigate risk effectively.

To improve knowledge and awareness of the risk dynamics encased within a project’s legal documentation, multiple methods of analysis have been incorporated within the research design in order to extract meaningful data from a sample of MOD case studies, each of which comprise of a set of framework contracts, project documentation and interviews. In doing so, the thesis identifies the extent to which public sector organisations like the MOD account for systemic risk in their contracting procedures and reveals the shortcomings in the design and implementation of these fundamental legal agreements. Whilst the core methods introduced within this thesis represent well-established and justifiable qualitative methods (such as hermeneutics), the research provides a novel methods contribution through the development of a visual mapping tool. Throughout the research process, the visual tool has demonstrated its capacity to equip the contract writer with greater insight into the dynamic characteristics of risk that are inherent within a contract. Triangulating the data that was extracted using multiple methods, a set of key findings were deduced which reveals the current flaws that originate in the front-end phase of the project, the structural design choices made when constructing (or implementing) the formal contract and the unrealistic relational expectations that underpin the contractual agreement. As a result, it is believed that the research has contributed new knowledge to both the academic and practitioner realms, yet recognises that there is scope for further research to be undertaken. It is envisaged that such future research would benefit from further piloting, expanding the application of the research methodology towards other complex organisations within the public sector, whilst testing the robustness of the newly developed risk mapping tool.

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CHAPTER 1

INTRODUCTION

1.1. Research Background

Since the outset, the parameters surrounding this research have developed considerably, beginning with the focal refinement of the study, which has subsequently directed the research context towards the specialist area of defence service commissioning. The motivation for this research is therefore predominantly based upon the requirement for further research, as motivated by the apparent gaps in academic literature. The research itself is positioned within the UK's defence environment, thereby making it a study that has been subjected to security parameters. Throughout the research, compliance with UK legislation and the defence departments' security compliance procedures have been fully enforced, protecting the anonymity interests of the research sponsor. In line with this, all information contained within this thesis has undergone the requisite approvals prior to its publication, to ensure that it preserves and complies with the security standards.

Today, business remains responsive to exogenous and endogenous change, whether it be shifts in technology innovation, business processes, competition or governance. Corresponding with this underlying change dynamic, the very way in which trade is undertaken by the modern organisation has seen considerable development over time. Increasingly, public sector organisations have started to exhibit traits that would have previously been considered characteristic of private sector organisations, closing the gap between the two sectors. Indeed, in a bid to operate more efficiently, significant transformation in the public sector has been observed, and is well documented within the academic literature (see Chapter 2).

Public sector organisations (and in particular, the defence organisations) traditionally operated in-house with the interest of maintaining capability and protecting vital information. Changes within the external business environment however, soon prompted justification for the outsourcing of certain activities between the public and private sector, on the premise that greater efficiencies could be achieved. The relationships established between the public and private sector follow a traditional supply and demand structure, whereby the permanent organisation recognises a requirement or demand for a good or service to be provided by a

supplier. Formally establishing such a relationship involves the support of a formal contract, a document which governs the legal obligations of both parties under civil law.

Today, contracting lies at the heart of the service commissioning process in many public organisations. The contract represents a crucial instrument that formally reflects an agreement made between the buyer and supplier. From the point of view of the industry supplier, the contract embodies a key element of the reward it receives for supplying services. For both contracting parties, a contract also provides a means of risk mitigation and management. In general, the contracting environment is not immunised from the impact of uncertainty, and regularly faces uncertainty when defining the specific nature of the deliverable, the delivery process and schedule, and the agreed consideration/payment. In this way, the arrangements made between the buyer and the seller may take a variety of forms, subject to the nature of the requirement. The contract is therefore likely to show degrees of variation with respect to the terms and conditions inserted into the formal document. Depending on the design of the contract, a firm will face different sorts of incentives and obligations to deliver. Failure to comply with the contract, slippages of schedule, and questions around quality may call for legal or other forms of dispute resolution to ensure its requirements are met. While formal contracts tend to imply the potential for an adversarial and arms-length relationship between the buyer and its suppliers, difficulties around specifying the contract fully at the outset and the costliness of litigation suggest that relationships which embody greater collaboration between the parties, are perhaps more expedient.

1.1.1. Research Focus

Furthering the overview already presented, the research aims to build insights that contribute new knowledge in terms of defining the requisite contractual structures and governance mechanisms that currently exist as a platform for building robust contractual relationships. Risk to contractual arrangements and their overarching projects represent a crucial management topic in the project management sphere, since elimination and mitigation of unwanted risk dictates the level of success or failure a project may encounter throughout its life cycle. The project management sphere currently treats risks as independent, managing these through a simplistic 'risk register' and thus disregarding the interrelated characteristics of risk. A core focus of this thesis therefore brings to light the importance of understanding the true dynamics of risk and its capacity to behave systemically. To better identify the systemic nature of risk in the public sector environment, a number of real project cases will be analysed, selected from a cohort of live service commissioning contracts from within the defence sphere. In doing so, the research aims to identify and explain the characteristics of risk across a projectised environment, departing from the archaic treatment of risk as

independent and moving towards a contemporary conceptualisation of risk. To make a complete assessment of the impacts of systemic risk in this context, a sample of formal contractual documentation (i.e. the contract and supporting documents) will be incorporated, together with the analysis of a set of interviews that are to be undertaken with a sample of key personnel from both sides of the buyer-supplier arrangement. In doing so, it is envisaged that synergies between the initial intentions of the project and how the project has progressed through the life cycle will become evident, assisted through the acknowledgement of important contextual information (the full research plan will be presented in Chapter 6 and Chapter 7 of this thesis). From this, it is envisaged that the contractual and/or project documentation underlying these public sector projects may be enhanced, and later implemented by the public sector in a way that is able to better mitigate the onset of undesirable risk.

1.2. Research Literature

As already submitted in the research overview section (1.1) of this thesis, to reach this level of understanding, the research must acknowledge the relevant contributions made in the existing literature. A significant body of knowledge from multiple academic disciplines contributes to the motives underpinning this research, together with guidance from the public sector and private practitioners. The research intends to examine the MOD's requisite contractual, relational and/or governance mechanisms, whilst specifically observing their capacity to withstand the systemic risk associated with service commissioning. A broad range of themes can be extracted from the core research topic, reflecting the potential contributions that can be made both in theory and in practice. These themes can be identified as five sets of literature, which can then be systematically broken into secondary streams of knowledge, the balancing of which provides considerable challenge to the research.

The first core literature area provides important contextual background to the research, an essential component for consideration when understanding the characteristics that underpin the research environment and the factors which may influence how the overall findings may be interpreted. Furthermore, by examining the existing public management literature, important distinctions can be made in terms of the definition of service commissioning, its roots and where apparent gaps in its current understanding may lie, particularly in terms of the favoured mechanisms used to achieve commissioning outcomes.

The second core literature area is that of contract law, which incorporates fundamental insight into the contracting mechanisms adopted in procurement decisions, establishing key discussions into their plausibility and effectiveness when enforcing the binding parameters of

the agreement. The third body of literature relates closely to contract law, yet draws on the foundations of economic theory to provide a comprehensive discussion of the influence that the contracts' completeness and associated behaviours might play on the contractual arrangement. Together, it is assumed that the two contract related bodies of literature provoke the requirement for further investigatory validation in terms of the extent to which a contractual arrangement (in terms of its legal structure and economic behaviours) might alleviate (or exacerbate) the level of risk that is inherent to the service being commissioned.

The fourth literature area to be covered adheres to the view that: when commissioning for a service, the contractual procedure adopted represents a component of an overarching project. It is therefore essential that project management literature is drawn upon, specifically in terms of the risk and complexity of these arrangements. Under this body of literature, the essential concepts of risk and uncertainty are covered in order to better understand the characteristics of risk, before providing a discussion of the definition of systemic risk – a form of risk that remains generically undefined. Finally, an element of systems thinking literature is incorporated within the literature survey in order to provide definitional clarity on the terms systemicity and complexity. Specifically complexity is prescribed in order to understand its parameters in terms of its categorisation (i.e. low complexity, high complexity). Through consideration of complexity theory, a link can be made between the complexity of the service commissioning and how this might relate to the risk encountered in the service commissioning arrangement.

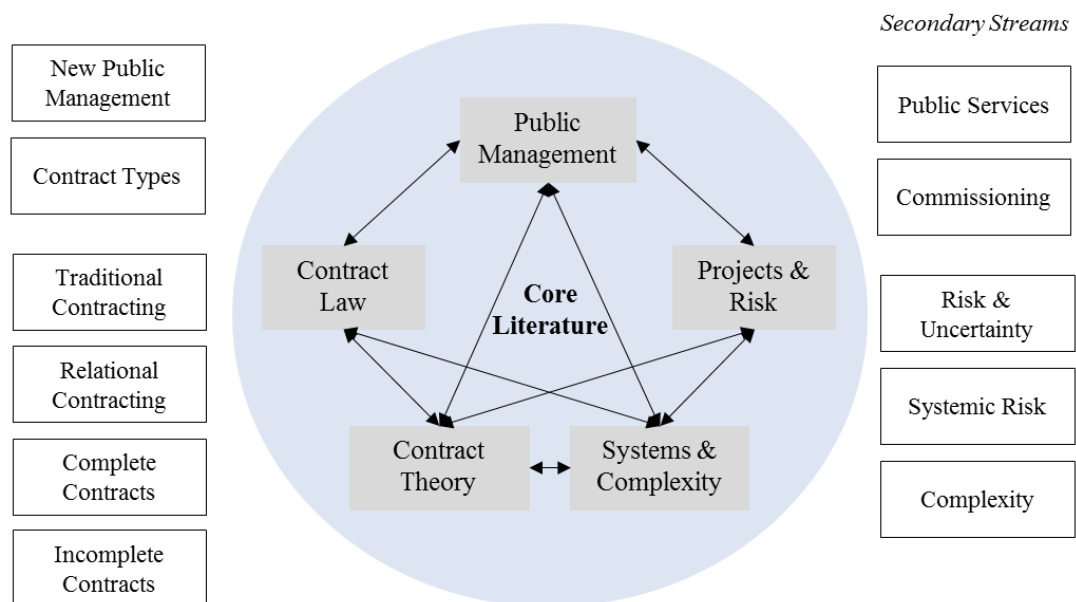


Figure 1: Core literature themes and sub-themes.

1.3. Thesis Structure

The thesis comprises of a number of structural components that are presented in a sequential order. Providing an overview, the thesis begins with a literature survey, which identifies a number of gaps in existing knowledge. From this, the research design is developed through consideration of existing approaches to research and theory in Chapter 6, and further refined in Chapter 7 which finalises the research design choices to be implemented throughout the study. Chapter 7 therefore, begins by defining a set of Research Questions, before identifying and justifying a methods approach that would be most suited to answering those questions. The data analysis and presentation of the case study findings will then be presented in Chapters 8-10, separated by case area. Finally in order to cross-examine the research findings, these will undergo a triangulation process, before reaching a final discussion in Chapter 11, which draws together the prominent themes surrounding the research and discusses these in relation to the pre-specified research questions. The details of the content covered in each of the chapters is detailed in the following sections, which provides a description of the prominent themes and considerations accounted for in each chapter of the thesis.

Chapters 2-5: Literature Review

Chapter 2 begins with a contextual interpretation of the current public sector, and presents a discussion of recent Public Management reform efforts, before steering towards the practice of commissioning. Having set the scene, Chapter 3 brings in the nature of procurement mechanisms and the resultant contractual choices that have been heavily influenced by public management reform, and enforced with the incentive of mitigating risk. The contracting mechanisms are then expanded upon by incorporating contract theory, focusing specifically on the comprehensiveness of the contract and the behaviours this provokes. Finally, the concluding section presents a discussion of risk and complexity literature and aims to understand the meaning behind the term and the reasons for adopting new systemic methods for managing risks in complex settings.

Chapter 6: Research Design – A Theoretical Application

The research design chapter sets out the aims of the research and describe the methods to be employed in order to ensure that these overarching aims are reached. The validity of the methods and tools adopted are discussed before determining how these can be used to extract the information essential for achieving the research aims. Where there is opportunity for method improvements, an additional method is developed and incorporated into the research analysis, as presented in Chapter 7.

Chapter 7: Research Design - Refining the Research Design

Following the discussion of the theoretical rationale for undertaking this research, Chapter 7 aims to build on Chapter 6 through further refinement of methodological theory and further, by applying the methodological choices to the research context. In addition to this, Chapter 7 will introduce a new tool to the methodological process. This section of the thesis therefore introduces a novel visual mapping tool, before discussing its purpose, its integration alongside other analysis tools, and, interpretation of its components.

Chapter(s) 8-10: Research Findings

The research findings draw on the results gained from the analysis of four service commissioning case studies. Each case area examined within the research will be separated by chapter – Chapter 8 contains the Science and Technology Service (STS) area, which consists of two case studies, separated in sections A and B, and later triangulated into a common set of STS findings in Part C. Chapter 9 then presents the findings from the examination of the Health and Social Service (HSS) case area. Finally Chapter 10 presents the final case area for Computer and Related Services (CRS). Each of the findings chapters follow an identical format, reflecting the research design. The chapters therefore aim to provide a descriptive account of the empirical findings, relative to their independent case study boundaries. The findings chapters will therefore first consider the findings independently, before cross-examining these to unveil any commonalities between the cases. Finally, the most prominent findings (based on their reoccurrence) will then be discussed, and framed by theory in Chapter 11.

Chapter 11: Discussion - Theoretical Framing of the Findings

The main conceptualisations discussed in the literature survey chapters of this thesis will be interpreted in conjunction with the case study findings, as evaluated in Chapter(s) 8-10. Accordingly, this Chapter aims to base the findings through undertaking a richer discussion and interpretation of the findings through a theoretical lens. The chapter will therefore begin by presenting the core themes that emerged from the triangulation of all three case area findings, in order to implement a focused discussion. Beyond this, the chapter will consider the emergent key themes, relative to the surrounding context, definition, and existing understanding of the phenomena from both academic and practitioner perspectives. Not only will this provide reinforcement of any existing knowledge, but it further identifies where gaps in knowledge might exist, prompting a requirement for further research. Furthermore, the final section of this chapter will revisit the research questions to this thesis, in order to restate the research objectives and to provide answers to these pivotal questions.

Chapter 12: Conclusion

The purpose of this final section is to explicitly identify the contributions that have been made both to the academic environment and beyond this, in the wider public sector. Such contributions will be discussed in terms of the theoretical, methodological and empirical knowledge offerings, before providing suggestions of suitable opportunities for the conduction of further complementary research. In addition to this, the research will be reflected upon in this Chapter in order to consider the robustness and validity of the research findings, and to reflect personally on the process, from the perspective of a researcher. In doing so, the chapter will evaluate any shortcomings of the methods approach adopted in the research design and will identify how the process might be improved upon if a similar study were undertaken in the future.

CHAPTER 2

LITERATURE SURVEY

New Public Management

2.1. Setting the Scene: NPM Reform in the UK's Public Sector

The opening chapter of this literature survey examines a number of fundamental concepts that have been established and developed within the sphere of public administration. As identified in the introduction: the research draws a focus towards the commissioning of defence services, making the public sector an integral topic within this research. Chapter 2 therefore aims to provide essential background to the thesis through the examination of pertinent public administration concepts which may offer important contextual insights into the motives that underpin the public sector's purchasing methods and procedures. The public sector is responsible for the provision of a broad spectrum of public goods and services, which are controlled through central strategies, policies and governance structures in order to achieve optimal economic outcomes. As government has evolved over time, scholarly discussions have posited a number of fundamental arguments aimed towards establishing best practice in the way that civil servants are managed, since it is the government's civil service whom must enact the policies that have been set by the government at that moment in time. Most notably within the UK, traditional public management has encountered new developments based largely on the management tools and approaches borrowed from the private sector. The prominence of this development in the 1980s, coined as 'New Public Management' (NPM) presented a new wave of public administration within government organisations, and in particular, reformed the way in which the public sector delivered its public goods and services. Although the core purpose of this thesis is to investigate the nature of systemic risk in public sector outsourcing contracts, in order to fully explore this phenomena, a fundamental understanding of the underlying context within which public sector contracts are based must first be addressed.

Over the last three decades many government systems across the world have engaged in public reform efforts, driven by an incentive to cut the costs of government and make it work better for its citizens. During this time, the UK's central government became a focal point for discussions in the public management realm following its adoption of a NPM variant, which was undoubtedly favoured over the Progressive Public Administration (PPA) in which it succeeded. Much of the literature consistently denotes NPM as being a reform that originated

during the 1980s, which at the time, made it a transformation of influential proportions, particularly given its three-decade-long reign in the British Government. Despite there being a general consensus among proponents of NPM that the reform began to surface during this time, some level of debate still remains regarding the true extent to which NPM has actually infiltrated the British Government, and, perhaps more importantly, why a government reform so disparate from the traditional bureaucratic model emerged. By understanding how NPM rose in prominence during this period and the reasons surrounding it, a greater contextual understanding surrounding how its main features began to penetrate the public sector and what aspects of NPM still reside in the UK's current strategy for public management may be obtained.

2.1.1. Defining NPM: A Multi-faceted Approach

Many attempts across the public management literature fail to offer a concise definition of NPM. Considering the definitions discussed among key proponents such as Hood (2005) where a shift in terminology from public administration towards public management emerged; there also appear to be a number of elements underlying the meaning of NPM. This conforms to a common characteristic of NPM, where it is recognised that there is obvious difficulty in encapsulating all of NPM's elements into a succinct phrase (Pollitt, 2003). Dunleavy and Margetts (2000, p. 13) provide one example of an accurate, yet concise definition: "disaggregation + competition + incentivization", yet such conciseness downplays the true nature of NPM, which is comprised of many more sub-components than the definition submitted by Dunleavy and Margetts would lead one to believe.

In fact, many of its proponents submit that NPM may contain as many as seven to ten key facets "Most commentators have associated NPM with approximately seven dimensions of change" (Hood, 1995; p. 95). In an analysis of ten countries (which expands across three continents), Pollitt and Bouckaert (2000) hold that whilst some countries may adopt elements of NPM reform, such governments are very selective with regards to which facets they implement, thus highlighting NPM as being only a partially adopted public management reform. Likewise, Hood (1995) draws on a theme of 'variation', and like Pollitt and Bouckaert (2000), acknowledges that there is no logical necessity for a public management system to change in all seven respects at once. In this way, the public sector appears to select particular features from an NPM menu, depending on which features at that moment in time are of interest within the national economic and political arena. That is not to say that NPM has not been firmly implemented as a public reform, in fact, evidence shows that NPM has been broadly adopted across a number of countries and over a significant period of time. In some cases, this acknowledgement has led to the labelling of NPM reforms as a 'global

phenomenon' (Osborne & Gaebler, 1992). Without completely dismissing this seemingly bold statement, many scholars agree that NPM has lasted too long and has led to too many institutional changes to be dismissed merely as a passing fashion – yet, as most would agree, to call it a revolution may be a bit of an exaggeration (Pollitt, 2003; Dunleavy & Hood, 1994; Hood, 1995; Hood, 2000).

Extending this well documented idea of a multi-faceted NPM and exploring the three broad 'themes' put forward by Dunleavy and Margetts (2000), the true nature of NPM and its underlying influence on the tools and methods adopted in the UK's public sector can be better understood. The first element of the definition, namely 'disaggregation' denotes the separation of something into its components or parts. Extend this into the context of organisational disaggregation, and themes of delayering, quasi-markets or purchaser/provider separation prevail (Dunleavy & Margetts, 2000). The NPM feature of 'delayering' is perhaps the most direct departure away from the traditional bureaucratic structure, imposed by government reform. It differs by shifting away from the large, multipurpose, hierarchical departments that are characteristic of a PPA structure, and instead holds a preference for lean, flat and autonomous organisational structures (Pollitt, 2003). In 1988, the UK created a 'Next Steps' agency process for implementation across the civil service, which prompted the "organisational separation on a vertical dimension between the *department*, primarily responsible for strategic issues including policy, and the *agency*, responsible for specific tasks and with some autonomy in use of its resources" (James, 2004; p. 75). Such a move was based upon the need for greater efficiencies, and the resultant specialist agencies were created in order to exert an arms-length dimension of control (Pollitt & Talbot, 2004). For example, in the Ministry of Defence, this feature of NPM had begun to infiltrate the structural design of the department, and by April 1992 "15 science and technology establishments had been translated into Executive Agencies" (James *et al.*, 2005; p. 156).

2.1.2. NPM: Paving the way for Commissioning Services?

Perhaps a more significant contributor of NPM's decentralising component was its focus on the broadening and blurring of the boundaries between the public sector, the market sector and the voluntary sector (Pollitt, 2003). Such a shift from 'in-house' production methods towards a structure where the private sector contribute to the delivery of public services is considered to have brought greater effectiveness and efficiency to central government. As will be discerned later, commissioning services appear to have been implemented in practice as a result of the UK's adoption of NPM reform, steering the way government think about management practices away from rigid structures, supported solely by in-house production methods, towards effective engagement with the private and third sectors. The case of the UK

offers clear indicators of NPM reform adoption, particularly through the involvement of contracting-out, which has enabled the private sector firms to submit bids for the provision of a service within the public sector. This particular feature therefore not only stems from the idea of ‘decentralisation’, where the public body begins to branch out to the private sector by restricting competition to outside suppliers only, but also falls under NPM’s recurrent theme of ‘competition’. Such increased focus on engagement with the private sector encouraged government administrators to employ “much wider-than-hitherto deployment of markets (or market-type) mechanisms (MTMs) for the delivery of public services” (Pollitt, 2003; p.28). Subsequently, UK competition policy in the 1980s brought in ‘compulsory tender’, enabling the public sector to secure the provision of a public service at the lowest cost available (Domberger & Jensen, 1997).

Furthermore, the shift towards engagement with the private and third sectors has caused a change in the way the public sector allocates its incentives. The third feature presented in Dunleavy and Margetts (2000) offers a definition of NPM which acknowledges this aspect, yet the facets surrounding such ‘incentivisation’ may be expanded upon by looking at more detailed accounts of NPM provided by the literature. Another obvious influence that NPM reform has had on commissioning services is perhaps more recent than the other elements already discussed. A change to the public sectors sourcing decision has resulted in a shift towards offering transparency to its citizens (or the consumer of a public service). Subsequently it has been argued that citizens therefore have a right to know that their money is being spent efficiently, effectively and economically (NAO, 2016). In accordance to these ‘three Es’, the government is somewhat incentivised to satisfy its citizens, and with this, a shift towards quality and *outcome* based approaches have prevailed.

A particular focus of NPM reform has been the shift in the focus of public management systems from providing contractual or relational incentives based upon inputs and processes, towards a new focus on outputs, and, more importantly: *outcomes*. The output versus outcome debate is one that has become prominent in the field of project management, escalated by the differences found between the APM and PMI definitions of the terms (for an in-depth discussion of this debate, refer to Section 5.4.1 in Chapter 5. Osborne and Gaebler (1992) have further supported the alignment of central government with the private sector, adopting the principle that ‘governments should steer, not row’ and focuses on the presumption that government interests should lie in *what* is being delivered, rather than drawing too much of a focus on *how* they can be delivered: “after all, those who steer the boat have far more power over its destination than those who row it” (Osborne & Gaebler, 1992; p. 32). Subsequently, the departure of government responsibility away from ‘rowing’ and towards ‘steering’ has

enabled government to operate as a skilful buyer. It provides a way for government to utilise competitive forces among service providers, respond to changes of circumstance flexibly and account for the quality of performance. Following the establishment of these principles, Bovaird *et al.* (2012) identify this so-called government ‘steering’ to hold analogous meaning with the term ‘commissioning’ and highlight the similarities that have emerged between the two concepts.

2.1.3. Post-New Public Management

The trajectory taken by NPM provides a crucial foundation towards understanding the current strategy enforced by the UK government. Whilst such fundamental components of NPM should not be disregarded, attention should be directed towards the more contemporary strands of post-New Public Management that have emerged in government since 2000. Of particular prominence is the rise of transformative programmes, and more specifically, the potential harnessed by digital governance. Remaining consistent with the NPM models (and to some extent, the PPA models), the early literature surrounding digital governance draws strong parallels to the efficiency gains and service delivery improvements that could be achieved through the adoption of new technologies (Heeks & Bailur, 2007; Yildiz, 2007). Though there are many proponents of digital transformation, several variations in stance have arisen among scholars in the field. Dunleavy *et al.* (2006) adopt the view that digital technologies have the capacity to change the relationship between government agencies and civil society, and additionally, transform the way that government conducts its business transactions. Beyond this, other scholars discuss the synergies between digital governance by offering a refreshed approach towards the co-production of public services. Specifically, it is posited that such co-production of public services acknowledges its ability to stimulate enhanced engagement between users and citizens during the delivery of public services (Osborne, Radnor & Nasi, 2013).

Outside of academia, the developments transitioning from NPM into post-NPM have received growing attention, resulting in the introduction of the new Government Transformation Strategy (GTS) 2017 to 2020, which recognises the ever growing prevalence of digital governance together with the inherent complexities associated. Under the GTS, it is envisaged that innovative technological developments may be utilised in order to increase transparency and accountability of government policy setting, which in turn brings greater opportunity through new and improved channels for participation between government and its citizens, together with granting citizens an enhanced platform for monitoring government (Cabinet Office & Government Digital Service, 2017). In addition to this, from a procurement perspective the GTS enforces the implementation of new tools and techniques, enabling

government procurement and contracting to extract the benefits associated with digital technologies. In particular, the introduction of the G-Cloud and Digital Marketplace have been a focal point of the strategy for procurement, which together aim to challenge “traditional ways of buying digital and technology by encouraging more open markets and providing simpler forms of contracts” (Cabinet Office & Government Digital Service, 2017). In doing so, the post-NPM transformative strategy seeks to deliver greater efficiencies to the taxpayer through innovation, offers new procurement opportunities to new suppliers, whilst reducing legal challenge through default compliance throughout the procurement and contracting realms.

2.1.4. Commissioning Services for Defence

Evidently, the way in which the public sector is managed plays an influential role on the operating and commercial models employed by a central government department, such as the Ministry of Defence (MOD). Already it has been suggested throughout much of the literature surrounding public administration that the ideas underlying both NPM and post-NPM are, to some degree, comparable with the concept of commissioning due to its focus on improved efficiency and quality of outcomes. Adopting this stance, and applying it to a government department such as the MOD, two views prevail. Dunn (2010) analyses the MOD’s experience of NPM and submits that the MOD represents a complex instance that favours a traditional Weberian organisational model, where a “rigid hierarchy often appears as a key element [...] and focuses on compliance with processes rather than results” (Hood, 2000; p. 7). It is therefore stressed that in the case of the UK defence sector, the organisational structure is particularly rigid, and NPM does not prevail to the same degree that it does in other government departments such as in Health and Education (Pollitt, 2003). In this way, critics remaining sceptical of NPM’s supposed ‘global reform’ have drawn attention to the reality that in some instances, changes to public service structures were implemented late or not at all (Hood, 2000).

Beyond this, more contemporary views of the work of government demonstrate the extent to which new public administrative models have been implemented across the public sector, made observable through examination of the papers and reports published. Focusing specifically on the MOD, the National Audit Office’s Equipment Plan 2018 to 2028 recognises and responds to the defence department’s recent administrative challenges, which are centred on the critical state of the MOD’s financial budgeting. Initially introduced in 2012, the precursory Equipment Plan responded to a period of insufficient management of government finances, which led to the development of a significant gap between forecasted funding and expenditure to be incurred under the defence programme. As a repercussion to the poorly managed defence plan, the MOD experienced “a cycle of over-committed plans, short-term

cuts, and the re-profiling of expenditure, which resulted in poor value for money and reduced funding for front-line military activities” (National Audit Office, 2018). As outlined within the report, meticulous management is required in order to return the MOD to a stronger financial position, capable of offering the continued efficiencies that are strived for by the UK government, under its current administrative models. Though this may be the case, the published plan represents the UK government’s shift towards offering the taxpayer accountability and transparency of the department’s current position, which ultimately corresponds to the development of the new ways in which government operate, as influenced by NPM and post-NPM.

Furthering this, more recently the UK government has highlighted the need to incorporate transformative programmes of management (such as the Government Transformation Strategy, or, ‘GTS’), as outlined previously in Section 2.1.3. Examining the impact of the GTS on one government department in this case provides some indication as to why the defence department behaves the way it does. In particular, the strategy gives fundamental recognition towards the continued restructuring government departments, moving them further away from the top-down, hierarchical structure that previously dominated Whitehall. What this demonstrates is government’s investment in new management structures, in order to achieve a streamline, better coordinated government. In reality however, whilst some progress is being made, some departments fall short of complete disentanglement from a hierarchical management structure, which ultimately delays the rate at which transformation is able to infiltrate the department.

Turning some attention to the UK’s defence department (the MOD), despite the reported setbacks in the adoption of transformative programmes across the department, some alignment towards meeting the intentions of GTS can be discerned. In particular, the digital tools and platforms underlying the MOD’s commissioning practice are beginning to filter through the MOD’s rigid administrative structure, giving it greater impetus. Furthermore, in late 2015 the MOD announced the appointment of a new “Director of Commissioning Services” post to the head office hierarchical structure (MOD, 2015[a]). The role therefore operates across the whole of the defence organisation, overseeing the delivery of commissioning services and gives an early indication of the changing focus of the department. Given that there is no universally recognised definition of commissioning, and, acknowledging that it has been further implied that commissioning models vary between industry (Murray, 2009; Bovaird, 2012), it must be noted that the MOD do not currently impart a formal definition of commissioning. There is however, an informal definition, published as part of an internal communication announcing the new Director of Commissioning Services post:

“Commissioning is a strategic, pan-Defence approach for the provision of common enabling services; and for managing these on behalf of Defence, including the Commands, to ensure they are supplied effectively and efficiently, via appropriate operating and commercial models” (MOD, 2015[a]).

A number of academic papers draw emphasis towards the need to decipher between various commissioning-related terms (i.e. procurement and purchasing), and conclude that it would be inaccurate to denote such terms as being synonymous. Instead, the authors stress that commissioning actually incorporates aspects of the procurement cycle, which in turn encompasses purchasing (Bovaird, 2012; Wilding *et al.*, 2012). Murray (2009) adheres to this view, illustrating the subtle differences between the terms diagrammatically (Figure 2), yet expels some components (such as strategic needs assessment and prioritisation) that would otherwise be encompassed, particularly within the field of civil engineering and construction. Keeping this in mind, whilst understanding that the definitions are subject to variation in response to the nature and characteristics of the industry being observed – this research piece will be subjected to contextual confinement and therefore focuses solely on the public sector’s defence department. That is not to say that value cannot be later attained through an extended analysis of cases studies taken from other public sector departments, both nationally and internationally. However, in order to balance the requirement for knowledge generation on this topic against a three year time constraint, just one government department (i.e. the MOD) will be examined.

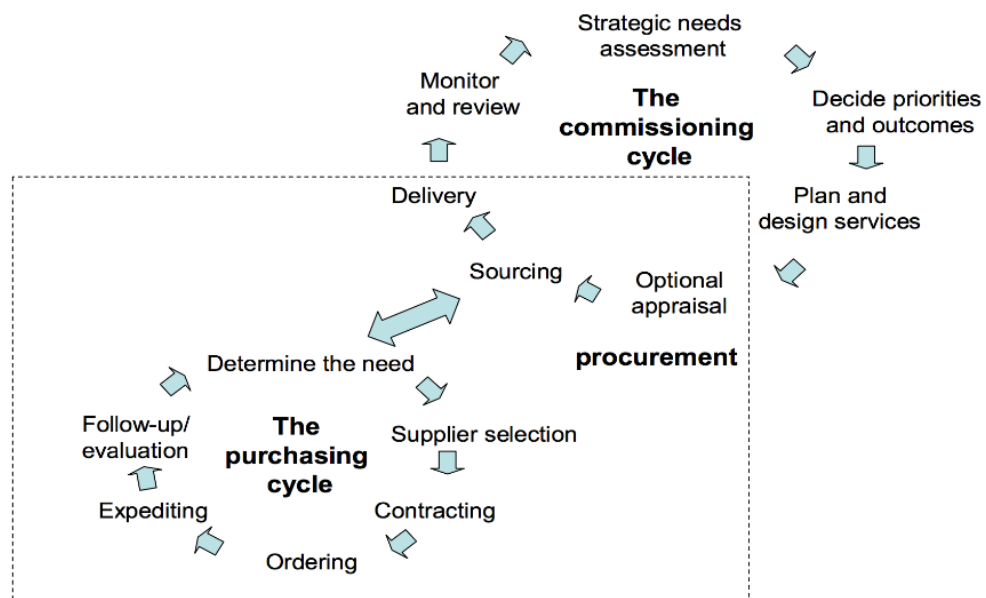


Figure 2: The commissioning and purchasing cycles, and procurement. (Source: Murray, 2009; p. 94).

2.2. Service Management

Whilst the reform efforts of NPM are widely recognised within the UK's public sector, many scholars and practitioners fail to consider the conceptual insights offered by the field of service management. Such a body of knowledge originated in the marketing domain (Gonroos, 1979), evolving into its own substantive school of logic over the succeeding decades. Having failed to draw any significant influence on public management theory over the last three decades, the importance of this theory is becoming increasingly apparent, critiquing the underlying logic of previous public reform efforts (Osborne, 2010). As already evidenced, NPM reform appears to be heavily centred on the lessons learnt from the private sector where public management choices (like NPM) have been drawn from the experience of manufacturing practice, rather than the services sector. This section of the chapter aims to provide insight into the logic underpinning the development of service management theory, a domain that elicits an enquiry into why public services should be managed differently from a public goods, and further, why such a distinction is imperative in the evolution of public sector procurement.

The service management body of knowledge originated in the marketing domain (Gonroos, 1979), evolving into its own substantive school of logic over the succeeding decades. Having failed to draw any significant influence on public management theory over the last three decades, the importance of this theory is becoming increasingly apparent in its critique of the underlying logic of previous public reform efforts (Osborne, 2010). As one would expect, the foundational knowledge borrowed from the private sectors manufacturing theory has prompted the view that limitations exist in the theoretical choices made when managing public sector services. At its source, manufacturing theory refers to the group of activities that physically change materials into saleable goods, which when applied to the public sector, becomes somewhat misaligned. Commentators drawing particular focus on the public sector sometimes begin by drawing attention to the true nature and motivations of the public sector. Normann (2002) highlights this when discussing the duties of central government to provide a public good. Public goods typically do not denote a physical or tangible product, rather the commonly provide a public *service* to their citizens.

Under similar logic, scholars are drawing an increased level of focus toward the shortfalls associated with much of the extant literature surrounding public management theory. This current logic can be derived from a large generalised body of management literature, the foundations of which are firmly planted in the private sector's manufacturing or industry experience. It therefore assumes a product-dominant logic, characterised by *tangible* outputs that are produced using discrete transactions and where the end-users consumption remains wholly separate from the production process. The provision of services differs significantly

from this, in that its production process is relational and one where production and consumption occur simultaneously, for the provision of *intangible* outputs (Vargo & Lusch, 2004; Grönroos, 2007; Radnor & Osborne, 2013). Grounding public management in such a way by applying an ill-suited logic to the service context has posed significant constraints on the deliverability of public services and reform efforts such as NPM have worsened this in its attempt to identify the ‘missing product’ rather than diverting its attention towards a wholly new service-dominant logic (Grönroos, 1998; Radnor & Osborne, 2013).

There is a need to understand the contextual scope of this research, or more specifically, an understanding of the purpose of the public sector. The role of the public sector is to provide a *public good* to its citizens, in economics the definition of the term ‘public good’ denotes something that may be consumed without reducing the quantity available to others, and which cannot be withheld from those who do not pay for it. Radnor and Osborne (2013) highlight the often inaccurate assumption which renders a ‘public good’ as being synonymous to a tangible ‘public product’. Yet the majority of public goods are in fact ‘public services’ represented by intangible, process driven provisions that are grounded on an assured obligation to deliver (e.g. defence and security, health care, education and so forth). Despite this distinction, scholars recognise that public services are not limited to solely *intangible* elements, rather, they can also include tangible components. It is however, generally stressed that such tangibility does not assume the title of a ‘public good’; instead, these represent secondary goods that can be used to *enable* the delivery of the public service (Normann, 2002).

2.3. The Enabling Service Logic

At this point, attention should be drawn to the enabling logic distinctions made in the service management literature. For the purpose of this research, we will adopt the same definition of commissioning services, as proposed by the MOD (see section 2.1.3). A specific feature of this specialised definition is that the commissioning approach taken within defence is assumed to relate to the provision of common *enabling services*. Throughout the three-decade-long discussion of service-dominant logic, a common theme endured is the concept of service enablers. These appear in varied forms, either as tangible goods which enable the services to be carried out, or, in a co-productive role where the provider delivers merely the intangible knowledge and skills required by the customer. Vargo and Lusch (2004) recognised this potential range in service delivery methods by observing these in three-fold: “Knowledge and skills can be transferred (1) directly, (2) through education and training, or (3) indirectly by embedding them in objects” (p. 9). Normann (2002) coined two opposing delivery terms, which drew attention toward the differences between a *relieving* and *enabling* service logic.

The first is centred on the more traditional practice of ‘relieving logic’, whereby the professional conducts a service for the customer. This form of relationship, also termed ‘outsourcing’ is typically associated with the industrial era of business, the logic of which was adopted to enable the customer to devote more of its resources to the core business (Normann, 2002).

More recently, as predicted by Normann (2002), a second logic known as the *enabling* relationship has grown in prominence whereby the service professional takes on an enabling role, prompting the client to become a co-producer of the service by delivering the knowledge and tools required for undertaking the task *per se* (Normann, 2002; Bovaird, 2006). A key feature of enabling services is that the transfer of knowledge increases under this logic, particularly with regards to the service provider’s offering, and furthermore, “the enabler must master both the technology and the customer’s work processes” (Normann, 2002; p. 43). It is clear that the shift towards an enabling service relationship has been prompted by the understanding of how this branch of logic contributes to a better overall resource utilisation, which in many cases, permits customers to utilise the core service effectively (Office of Government Commerce, 2007). In the case of the MOD, a recent terminological change in its Acquisition System Guidance has resulted in “Enabling Contracts” being replaced with “Framework Agreements” (MOD, 2015[b]). Considering the case of the MOD’s guidance on when to administer a Framework Agreement (which encompass: advisory services, consultancy, energy and fuel, information technology/communications, learning and development, office services, property/facilities, temporary/permanent staff, and, travel and fleet), it can be inferred that these contractual agreements play a crucial role in *enabling* the MOD and its agencies to operate their core service functions where appropriate (MOD, 2016). Though the adoption of Framework Agreements appear popular in government, the shortcomings of this method of procurement must also be made apparent to practitioners in the field. Acknowledging the official directive published by the European Union on public procurement and repealing (European Parliament & Council, 2014), a number of dis-benefits surrounding the implementation of Framework Agreements can be recognised, interpreted by both scholars and practitioners in the field. In particular, many highlight the transparency issues that can arise once the Framework Agreement has been initiated, together with the restrictions placed on competition under a Framework Agreement (Bloomfield, 2019).

Moving away from focusing solely on the defence department’s arrangements for working with others, formal guidance written by the UK’s government departments (such as Her Majesty’s Treasury Office, amongst other reputable sources) suggests that the UK’s public sector actively recognises the importance of developing and maintaining sustainable

relationships with a range of organisational partners. In particular, HM Treasury's report covering 'Managing Public Money' (MPM) identifies and provides guidance for adopting a number of partnering approaches. The report itself focuses on how a department may manage its Arm's-Length Bodies (ALBs) in particular, yet also recognises outsourcing as an alternate cost-effective strategy: "Public sector organisations often find it satisfactory and cost effective to outsource some services or functions rather than provide them internally" (HM Treasury, 2013). Whilst the report acknowledges the public sector's movement towards outsourced arrangements with the private and third sectors (a product of NPM) the report offers only a top-level checklist of items to be considered, should a public department decide to employ this approach for delivery of its services or functions.

Alongside the MPM report, HM Treasury advise other public sector departments to adhere to its compulsory "Green Book" guidance which provides a framework for the appraisal and evaluation of all policy, projects and programmes (for ease, these three areas covered by the Green Book will be referred to as 'P3') in the public sector. The guide therefore identifies the essential costs, benefit and risk considerations that must be assured against by any public sector body intervention in order to align with central government objectives. Whilst a central feature of the Green Book is centred around public spending (hence its reference to MPM), the latest version of the Green Book (published in April 2018) demonstrates a greater focus towards the principles of welfare economics, that is, it places emphasis on the social demands of the public sector's end user. The document therefore comprises of these two fundamental topics, providing best practice for the public sector interventions, beginning with the rationale for such intervention and the setting of objectives, through to options appraisal and, further, the implementation and evaluation. Through observation of the content of the Green Book, the framework appears appropriate and well aligned with the interests of central government (e.g. to deliver value for money, remain transparent, and so on). Like MPM, the document also provides some level of guidance for policy, project and programmes that represent Public Private Partnerships (as contained in Annex A4 of the Green Book), again demonstrating how central government support and facilitate outsourced arrangements. The Green Book covers an expanse of obligatory policy themes, making it extremely broad in its content. As a result, the book only touches on the risks associated with the implementation of the P3 areas, and is therefore complemented by HM Treasury's "Orange Book".

The Orange Book provides an account of the public sectors current principles and concepts for the management of risk. Like the MPM document, the Orange Book acknowledges the prevalence of working with organisational partners in today's public sector environment: "Probably all government organisations will have dependencies on contractors or other third

parties...” (HM Treasury, 2004; p. 37). In referring to the dissemination of work to partner organisations, the Orange Book offers crucial guidance to government departments to ensure that risks to contractual arrangements of this nature are mitigated where possible, and adds a new dimension to the guidance already offered by the Green Book. Both of the aforementioned reports incorporate the features of NPM, favouring contracting out to the private and third sectors, as opposed to delivering capability in-house. Whilst it is evident that the reports provide guidance to the public sector, both reports appear limited in terms of offering practical tools or frameworks that could be implemented by the public sector when contracting out – a concept that would appear logical, given the common occurrence of outsourcing.

More recently, the UK government have expanded on the foundations laid out by the Orange Book through the provision of a risk management framework. In their official publication, titled “The Management of Risk in Government: Framework” the Cabinet Office expand on the already established principles set out in HM Treasury’s Orange Book, yet submit that “whilst the principles and concepts have been implemented, the wide variety of approaches adopted by government bodies provides a clear opportunity for them to learn from one another” (Cabinet Office, 2017; p.3). Residing in this opening statement is the underlying recognition that whilst government bodies have been proactive when executing the guidance provided in the Orange Book, the approaches towards implementation vary considerably with some departments experiencing higher success rates than others. The Cabinet Office framework on managing risk therefore provides evidence of how the government have improved its risk management practices, whilst recognising that a one-size-fits-all strategy is not appropriate to a government comprised of departments of different sizes, structures and requirements.

2.4. Gap Identification and Summary

This chapter has provided a review of literature that aims to present the essential context that underpins the research. It begins with a discussion of NPM and introduces the influential government outsourcing developments made in the 1980s, before discussing how some aspects of early NPM reform remain as prevalent features in the procurement practices currently employed by public sector departments. Gaps within the literature appear as public management is explored, yet many become filled through the inception of new concepts that are able to address any prior limitations. The discussion of NPM sparked an evident shortfall based upon its focus towards the sale of manufactured, as opposed to service-based products. Addressing this apparent gap in the NPM literature, the chapter has further outlined service

management theory, a concept which is believed to have shaped the service dominant logic that underpins government service commissioning practice today.

Whilst service management theory appears to have identified and addressed an apparent shortfall of NPM theory, the literature survey chapter has exposed one further limitation, providing new motivation to the research. From a government perspective, NPM has influenced new practices to be implemented to enable it to procure its goods and services more efficiently. The literature however fails to offer specific evidence that the government procurement choices chosen are operating as intended. In particular, contradictions exist where NPM theory promotes outsourcing with industry or third sector parties to deliver on *outcomes* of the procurement, yet speculation still exists as to whether government projects are successful in implementing this outcome-based approach, or whether government practitioners still report on the performance of its outsourcing activities by measuring independent *outputs*. Such a limitation appears to originate from contradictions in the NPM influences, yet a solution might be found through consideration of cross-disciplinary literature. To determine whether this limitation may be addressed, the following chapters will present a discussion of closely related concepts that originate in the fields of contract law, contract theory and project management.

CHAPTER 3

Contract Law

3.1. Public Procurement Mechanisms

As already discussed in the previous chapter: the public sector's reform efforts of the 1980s onwards placed considerable emphasis on the requirement for contracting-out services, following a development in the governments understanding of the market as having a potentially significant role in supplementing and substituting the traditional practice of in-house provision. Underpinning this progression was the realisation that the public sector had traditionally misunderstood the range of possible relationships between actors in the market (Kettl, 1993; Boyne, 1998), and an emerging perception held that market relationships were socially constructed during the procurement process, rather than being merely a product of market conditions (Bovaird, 2006). As a result, greater focus towards the creation of mutually rewarding relationships with external contractors has emerged in public, private and voluntary sectors. The procurement mechanisms that support these new interfaces between these sectors contribute further insight into the changing nature of government procurement practices.

In addition to this, a significant proportion of the public sector's reform lends itself to the implementation of the 'best value authority' concept, which requires local government bodies to undertake procurement exercises in line with a set of predefined principles. Though the concept relates specifically to local government (and is thereby resides under the Local Government Act, 1999), it has promoted sustainable and consistent improvements to the way local government bodies operate, with particular focus on the three E's (efficiency, economy and effectiveness) and thereby bears some association with the principles adopted by wider reaching government agencies and organisations. In particular, government bodies which fall beyond the duties of local authorities still bear close similarities in terms of their requirements to undertake procurement exercises, such as in the application of whole-life costing, a standard method adopted during the analysis of the Government Major Projects Portfolio (GMPP). The following chapter aims to provide a discussion of the core considerations accounted for when new procurement mechanisms are employed in practice, the reasons underlying such change, and whether these constructs may support or constrain the contracting parties from reaching their intended outcomes.

3.2. Traditional or Modern Procurement Methods?

In recent years, the attention of the public sector has shifted towards a more collaborative and complex form of coordination in its procurement processes, with “larger numbers of players involved in both the commissioning and providing roles” (Bovaird, 2006; p. 82). In the case of the traditional in-house model of service provision, there is no involvement of external agents, whereas, traditional contracting-out involves a single commissioner of a service who is responsible for placing contracts with a range of providers for its services, based upon predetermined specifications. Such predetermination of explicit specifications is an essential component in the provision of the public sectors typically complex services, in a somewhat volatile environment. On top of this, the need to manage contract variations has resulted in public bodies becoming vulnerable to negative risks caused by the opportunistic behaviours associated with transactional contracting (Williamson 1975; Walsh 1995).

Modern developments of procurement methods can be categorised in a number of ways. Each procurement method contain their own unique benefits and limitations in the practice of public sector service provision, with many scholars and practitioners advocating the adoption of modern techniques, such as relational contracting, partnership procurement and distributed commissioning (Figure 3). It must be explicitly stated, however, that these techniques do not represent completely distinct categories of procurement methods, rather, the modern techniques exhibit ‘porous’ characteristics. Using this analogy, it can be discerned that modern procurement methods are not ‘watertight’, and instead, some characteristics may infiltrate one area from another. Aside from this, there is no evidence suggesting that one practice may be completely disregarded, and therefore certain weaknesses may prevail in some of the mechanisms chosen. As a result, this section will review the present literature on both traditional and modern procurement methods, in order to decipher the suitability of each method.

	Single, stand-alone commissioner	Many (coordinated) commissioners
Single (or unitary) provider	<i>Relational contracting</i> Traditional in-house provision	<i>Partnership procurement</i>
Many (uncoordinated) providers	Traditional contracting-out	<i>Distributed commissioning</i> Purchasing consortia

Figure 3: A range of commissioner-provider relationships. (Source: Bovaird, 2006; p. 84.)

3.3. Relational Contracting

The procurement mechanism adopted by an organisation may encompass relational contracting approaches, grounded on the intent to develop a collaborative, shared-risk environment through partnering, alliancing, joint venturing or other similar constructs. In the case of the UK, it is clear that the public sector is beginning to adopt relational contracting methods (Martin, 2002), departing from the former securities of compulsory competitive tendering (CCT) regulations. The key driver of relational contracting rests on the associated benefits of social coordination in joint procurement relationships, and its subsequent ability to avoid the traditional arms-length principle-agent prescriptions of incentives, thus prompting fewer occurrences of moral hazard and opportunism (for an in-depth discussion of these concepts, see Chapter 4). Of course, many advocate the benefits that can be reaped from building public sector and private or voluntary sector relations based on trust, communication and mutual agreements, however, this is somewhat offset by the intricacy of creating successful relationships that last. In this way, many scholars focus on the “effectiveness” of contracting in public sectors, giving evidence that contracting may only be appropriate in some situations (Bertelli & Smith, 2010). Brown *et al.* (2015) submit that there is no generic, ‘one-size-fits-all’ approach to contracting, and that the most suitable approach depends on the context and intended outcomes that underpin the contract: “sometimes it is best to focus on contracting rules, other times relationships, and yet other times it is best to find a new contracting partner” (p. 15). Therefore, despite the assumption that relational contracting contains many beneficial results, it is not the only procurement practice capable of being implemented (Coulson *et al.*, 1998) and an extensive gap between theory and practice remains in the public sector. Bovaird (2006) comments on this, identifying the public sector’s inability to approach new relationships in an “open-minded approach to sharing and a willingness to innovate” (p. 84) as a contributing fault. Klijn and Teismann (2004) further this concept, pinpointing the public sector’s rigid desire to maintain in control of decision making as a risk mitigation method, over the option of shared of responsibility.

3.3.1. Partnering

Aligning with the notion of relational contracting, partnering is an established method of procurement, employed as a fundamentally cooperative approach, which departs from traditionally rigid methods where a preference for mutual benefits and team-based coordination is applied. Such a method is underpinned by a partnering agreement, a non-contractual, yet formally structured agreement whereby each party provides the assurance that they will undertake the project in a way that reflects the best interests of the project and the project team. In this way, partnering develops a framework based upon communication,

mutual agreements, joint visions and problem solving. However, whilst such conceptualisations promote harmonious collaborations, some scholars view partnering as a method that does not guarantee any benefit to either party member (Walker *et al.*, 2002) since it fails to replace any obligation to adhere to a formal contract, and is deprived of any concrete or set incentives that are required when enhancing the mutual interests of the collective above the potentially opportunistic behaviours of an individual.

Despite this, literature from the civil engineering and construction fields provides examples of partnering and alliancing contracts that have become fully integrated as standard practice, adopted by practitioners for many years. Most notably, the engineering and construction sectors employ the PPC2000 as their standard form for implementing partnering agreements. In practice, upon selection of the PPC2000, the Contracting Authority is able to combine all of its project team under a multi-party contract which spans the entire procurement process, providing a pathway for the partnering process. Reflecting on the appropriateness of the tool, literature draws on a wide range of advantages that are associated with this medium, relating specifically to the removal of duplicated workloads for team members (saving on time and cost), open cost information for more accurate pricing, earlier input from technical and specialist expertise, and, improved performance (resulting from enhanced relationships and more open lines of communication) (Saunders & Mosey, 2005). For these reasons, the PPC2000 has become a favoured approach, considered as being the more advanced alternative to the 'New Engineering Contract' (NEC), a family of contracts which are widely adopted in the aforementioned fields, but which appear less comprehensive when compared to the PPC2000. Despite this, the NEC which encourages management centric contract execution through the advance evaluation of changes, delays and/or disruption (Telford, 2005), managing risk pro-actively and identifying it within the contract, rather than resolving the repercussions of risk as an afterthought. In addition to this, the contracting approach is considered an attractive option due to it being written in plain English, as opposed to legal jargon. Whilst this is considered to be advantageous to project managers, often enough it stimulates ambiguity and lacks specificity.

The PPC2000 is therefore considered by many as the superior alternative to NEC since it achieves terminological clarity, together with a level of integration that is not present in the NEC or any other contracting mechanism. The level of success of both contracts are apparent through acknowledgement of past and present projects across the public and private sectors. Most notably, Her Majesty's Prison (HMP), Berwyn provides a prime example of successful implantation of a PPC2000 standard form contract, which reported successful outcomes regarding cost savings from open book strategy, joint design development and risk

management throughout the timeframes set in the project’s pre-construction phase (Cabinet Office, 2014).

3.3.2. Public Private Partnerships

Since the early 1980s, Public Private Partnerships (PPPs) have been implemented in the UK to develop better relations with industry actors, forming part of the wider policy of privatisation (Sadka, 2007; Parker & Hartley, 2003). Under a PPP, a government authority enters a long-term contractual arrangement with a private supplier for the provision of services, and with this, the supplier takes responsibility for building infrastructure, financing the investment and maintaining the project (Iossa & Martimort, 2015). Despite the growing use of PPP, evidence on the performance of this type of procurement mechanism remains mixed, and scholars continue to debate as to whether a PPP approach represents a true partnership that shares liabilities, risks and profits efficiently. Instead, it has been proposed that PPPs disguise traditional contracting projects (that are funded by standard budgeting processes), as a new project, permitting the project to be off-budget (Spackman, 2002). Sadka (2007) however argues that this may have been the case during the early stages where PPPs took the form of Private Finance Initiatives (PFIs), and, in many instances, PPPs have developed into “partnerships aimed at properly pricing scarce public resources and efficiently sharing and managing risks” (Sadka, 2007; p. 2). Of course, the PPP initiative provides a number of benefits relating to: public cost savings, better use of the resultant ‘freed-up’ capital, improved access to technology and innovation, and, more efficient project management. Despite these advantages, a level of concern may still be associated with PPPs since it is unclear whether or not a PPP approach will equip government bodies with the sufficient methods required for closing the public-private sector gap.



Figure 4: PPP arrangements spectrum. (Source: World Bank, 2015)

3.3.3. *Private Finance Initiatives (PFIs)*

Figure 4 illustrates the different mechanisms that fall into the public-private partnership bracket. Observing the fifth band on the right-hand side of the diagram, a number of public-private mechanisms that operate under private finance are displayed. In the UK, the term “private finance” project is used, and, as Arrowsmith *et al.* argue, “sometimes the terminology used internationally is “concession” or “license” arrangements. They are also often referred to by the acronyms, such as “BOT” for build-operate-transfer projects...” (2000; p. 396). In recent years, the UK public sector has drawn a focus towards private finance options: “over the last fifteen years, private finance has become the predominant method by which public authorities procure infrastructure in many sectors” (NAO, 2011; p. 12), moving away from traditional procurement methods and towards the procurement of services using a somewhat ‘hybrid’ alternative (Linarelli, 1998). The UK’s adoption of private finance in projects is particularly advanced, following the launch of the governments PFI in 1992. In essence, PFI arrangements invite the private sector to design, build, finance and operate facilities, based upon the output specifications drawn up by the public sector (Corner, 2005). The cost of the contract is usually then recouped through a number of committed revenue payments for the use of the facilities delivered, over the duration of the contract. Once this contract expires, and depending on the contractual agreements made, the asset either continues to be held by the private sector, or is transferred over to the public sector.

The benefits of PFI contracts can be observed in both public and private sectors, and as already touched on - the repayment of contracts served by PFI is usually agreed based on the revenue that results from the building of the project. In the case of the public sector, the allocation of all its resources needed to finance the project during the initial stages is avoided, allowing it to undertake other opportunities, which it may not have been able to do, given its budgetary restrictions. By offering flexibility in the repayment schedule (Figure 5), it enables the public sector to initiate more and better projects, which in principle should also cost less due to the private sector’s ability to achieve greater efficiency in the design and management of the goods or service contracted for. Central to this theme of value for money is the allocation of risk, where the risk is placed with those who are more capable of managing it. Extending from this view, the PFI contract offers better performance incentives amongst private management, stimulated by the transfer of risk. In fact, the payments made to the private contractor are only initiated once the public sector have received an adequate level of service, and will only continue in the future, once the performance criteria is met.

The literature provides discussion of a breadth of advantages associated with PFI, yet the implementation of a PFI contract is not without its limitations, owed to restrictions associated with the nature of the environment in which the contract is placed. Throughout this section, a recurrent theme surrounding project uncertainty, prompted by the projects inherent complexity has prevailed. In practice, PFI contracts tend to be long-term in nature, often between 25-30 years in duration. In the circumstance where the public sector body is characterised by a range of complex projects, such as technologically advanced projects, there is a risk that the contract may become unsuitable for the changing business needs over the life of the contract. Furthering this idea, in order for the public body to revise the specifications of the project, contract amendments would need to be formalised through contract change procedures, which would require a complete renegotiation of the contracts terms and pricing arrangements, together with associated costs. In this instance, not only does contractual amendment result in time delays and additional administrative costs, but it also can be seen to put the public sector in a weakened position for negotiation.

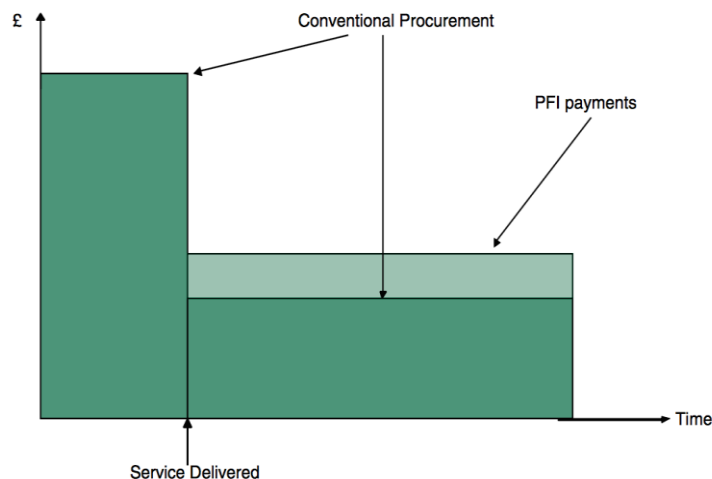


Figure 5: Timing of payments under PFI and conventional procurement. (Source: Public Accounts Committee, 2003)

As previously mentioned, the PFI contract has an inherent capability to provide incentives to the private contractor, a feature that is in short supply within traditional procurement approaches. Though this may be the case, applying a PFI construct does not eradicate the possibility that the contractor may not manage the transfer of risks well, neither does it guarantee that the core business risks transferred will remain in the remit of the private organisation (Public Accounts Committee, 2003). It seems that the success of PFI projects, like its traditional counterparts, is varied in practice. Some of the literature on the subject looks

at the functionality of these contract types, examining real cases for their effectiveness in risk transfer between the public and private sector parties: “the success of the Private Finance Initiative cannot be judged solely of itself, but in relation to the record of conventional public sector procurement projects, which is not good” (Corner, 2005; p. 53). Whilst in theory the PFI construct may appear to elicit a number of advantages to the public sector commissioner, some may argue that it is not necessarily robust enough to provide for the flexibility required in environments that are characterised by inherent complexity. In addition to this, recent plans to abolish PFI (and PF2) contracts have been announced by Chancellor Philip Hammond, following high profile PFI project failures and thus indicating that PFI type contracting is no longer considered to be an effective mechanism within the public sector. Though this may be the case, it is anticipated that PPP’s will continue to be implemented within the public sector, however it is expected that these will vary in form, whilst accounting for a context that is shrouded by greater complexity.

3.4. Framework (Umbrella) Agreements

Already this chapter has presented an overview of the current traditional and relational contracting literature, identifying a number of atypical contract types that reside in these categories. Whilst a distinction can be made between these two contracting types, the literature extends beyond these two forms of transaction, making a distinction between traditional contracts, relational contracts and “umbrella” or “framework” agreements. As previously discussed, traditional contracts (e.g. ‘standard form’ contracts) representing straightforward transactions are recognised as being less desirable methods of contracting in the current, rapidly changing business setting due to the monetary and time related costs associated with drafting these contracts. Furthermore, the nature of these immediate contracts are criticised for their inflexibility, which separates them from the reality of contemporary business arrangements (Mouzas & Furmston, 2008). Beyond traditional contracting, relational contracts (or ‘incomplete contracts’, see Chapter 4), appear to be theoretically robust in terms of their depth of coverage across contract theory literature (Baker, Gibbons, & Murphy, 2002; Blois, 2002, 2003; Furlotti, 2007; Harrison, 2004). Despite this, a number of scholars criticise the practicality of translating relational contract theory into enforceable agreements (Mouzas & Blois, 2013), with many questioning the theoretical assumptions made under the relational contracting doctrine (Bernstein, 1992; Barnett, 1992; McKendrick, 2002). Increasingly, scholars have highlighted the lack of empirical research undertaken on contracting methods (Mouzas & Furmston, 2008; Mouzas & Blois, 2013), given the evidence base, it is well recognised that businesses are shifting towards the adoption of new contract types, such as umbrella agreements or framework contracts (Mouzas, 2006; Mouzas & Ford, 2006; Mouzas

& Blois, 2013). Underpinning this logic is the contextual consensus that business is increasingly influenced by rapid change, complexity and uncertainty. To respond for this change, new contracting methods beyond that of relational and traditional contracting must be better represented in research output, and further, in practical settings.

Moving away from immediate contractual decisions, businesses are entering into new types of contractual arrangement like that of “umbrella agreements” or “framework contracts” (N.B. the terms will be treated as synonymous for the purpose of this discussion), a phenomenon which “constitutes a paradigm shift” (Mouzas & Furmston, 2008; p. 38). Formally, a framework agreement represents “an agreement between a contracting authority and one or more suppliers, contractors or service providers the purpose of which is to establish the terms, in particular with regard to prices and, where appropriate, the quantity envisaged, governing the contracts to be awarded during a given period” (Bovis, 2005; p.64). In other words, framework agreements are considered as being “constitutions” of contracts, that is, they are “arrangements that do not predetermine future selection processes”, instead they represent the framework of future selection processes (Mouzas & Furmston, 2008; p.39). Much of the academic literature reaches an agreed consensus on the advantages underlying agreements of this form, predominantly highlighting how they enable cost reduction in terms of minimising the time and effort spent on the selection, management and overseeing of single transactions. In addition to this, they provide greater certainty in terms of the conditions in which exchanges may occur, and, offer a platform for continued interfacing and coordination, which also lends itself towards mitigating information asymmetry (Mouzas & Furmston, 2008; Mouzas & Blois, 2013).

Despite the apparent advantages of framework agreements in simplifying and facilitating the complexity of the contracting process, a number of limitations have also be recognised. Such limitations are associated with the rigidity of English law, which at present does not account for the requirement for dynamic and flexible contracting in the current organisational setting. In particular, Mouzas & Furmston (2008) describe the three critical limitations which relate to the enforceability of umbrella agreements, in the context of English law. The first relates to the agreements being considered void due to the lack of certainty underpinning the content of the contracts, which in the eyes of the courts, may make it unenforceable. Secondly, it is suggested that the parties to the agreement may not display the intent to enter into a legally binding relationship, which again revokes either party’s power to administer legal action. Finally, the doctrine of consideration provides one further obstacle to the acknowledgement of framework agreements as being legally enforceable, since predetermined value is not a feature of these types of agreement. Confirming the rigidity of English law relating to

contracts, Bloomfield (2019) gives reference to the doctrines enforced by legal practitioners, which details the responsibility of the English courts to enforce the determination of a contract in terms of its incorporation of terms, interpretation and test of reasonableness. Underlying this recognition is the notion that ordinarily, a contract writer will acknowledge these doctrines when drafting a contract, to ensure that the terms and conditions underpinning the arrangement will not leave the contracting parties vulnerable to the onset of risk under the contract. However, in the case of framework or umbrella agreements, explicit or upfront confirmation of the transactional parameters (e.g. the precise technical requirements or pricing terms) are not determined, widening the gap between contemporary, flexible contracting methods and extant legislation.

3.5. Categorising Contracts by Price Terms

The type of contract adopted in the initial stages of procurement can be categorised in a number of ways: the most common way is through the identification of a set of price terms, however, quantity or delivery terms may also reviewed in this way. Practitioners and scholars in the field advocate the view that these early stages of procurement must not be confined to a single or standardised contract type, but rather, a contract must be selected based on its relevance to the scope of the project (In't Veld & Peeters, 1989). In this way, the Contracting Authority must consider factors such as requirement and performance standards of the good or service to be acquired, so that the quality is reflective of the end-user's demand and is able to meet the urgency of the requirement. Depending on these factors, a customer looking to establish a procurement agreement with a contractor, will select the contract deemed most appropriate, from an array of contract types.

3.5.1. Fixed Price Contracts

A vast amount of literature exists on the types of contracts used in public sector outsourcing, and, traditionally these have stemmed from two contract groups, namely, 'fixed price' and 'cost-reimbursement' contracts (In't Veld & Peeters, 1989; Arrowsmith *et al.*, 2000). Fixed price contracts may also be synonymously labelled as 'incentive' or 'risk' contracts (Turpin, 1989), since these types of contract represent those where the pricing arrangements incentivise the contractor to control costs. The fixed price contract therefore implies a level of risk where the contractor is susceptible to a reduction in profit or even a loss. Looking at the specific contract types available, the most basic 'Firm Fixed Price' (FFP) contract "provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract" (Arrowsmith *et al.*, 2000; p.371). The benefit of such a pricing arrangement is that maximum risk is placed on the contractor to control all costs and the

resultant profit or loss, which therefore provides a maximum incentive on the contractor to deliver the contract effectively. The FFP contract therefore works particularly well if the procurement documentation submitted in the early stages of procurement displays a reasonable level of certainty. Brown *et al.* (2015) submit that such a level of certainty in the design stages of procurement naturally evokes simple or complete contractual arrangements, such as the FFP contract. Therefore, the higher the level of certainty, the more likely the contract is to result in a ‘win-win’ outcome. Such certainty can be observed where the *purchaser* holds complete knowledge of the contracts specifications and the *contractor* is able to accurately determine in advance how the product can be produced and at what price.

However, such a ‘win-win’ scenario is more common in simple settings, where the purchaser is looking to obtain products that are easily specified (e.g. office supplies). Therefore, the literature also condones the use of FFP contracts in certain cases and makes reference to the case of complex procurement environments that are characterised by economic and market volatility. Despite the obvious benefits of these contracts when observed through a simplistic lens, FFP contracts are critiqued as the most complete yet restrictive contract (Crocker & Reynolds, 1993), masking its suitability for complex procurement arrangements, such as in the case of the defence sector’s more complex technology services.

A natural progression which encompasses the benefits associated with the FFP, whilst attempting to abolish its associated inflexibilities, is the provision of a fixed price contract together with an ‘adjustment mechanism’. A number of contracts fall within this adjustment category, however, each are based on a similar premise in that they provide for “an upward and downward revision of the stated contract price upon the occurrence of specified contingencies” (General Services Administration Department of Defense, 2005; p.411). The variation of price (VOP) clause is the most recognisable form, intended to be implemented by the Contracting Authority in the case where there is particular uncertainty contained within a fixed price contract. In some cases, the Contracting Authority may assume a proportion of the risk created by such uncertainty, or in other cases, the contractor may protect itself, requesting that there is a revision of price where uncertain contingencies arise during the undertaking of the contract. This would be written into the contract using VOP clauses. Though the VOP clause can provide a useful tool when allocating uncontrollable risks between parties, evidence within the literature and published guidance encourage the adoption of VOP under two circumstances: (1) when the contract is long in duration (e.g. the MOD’s policy quantifies this duration to be over 5 years) or in the case where (2) the environment is particularly complex and therefore shrouded by uncertainty. Furthermore, if such a contract is chosen under poor

judgment, it may eliminate high-threat risks to the extent that the contractor's incentives are also diminished.

Other adjustments within the fixed price contract, commonly adopted in government contracts, incorporate the provision of a change of specifications, allowing for alterations to be made in the contractual specifications by the Contracting Authority. With this, if these alterations provoke any additional costs to be placed on the contractor, then the provision for contract price variations would also be made.

3.5.2. Cost Reimbursement Contracts

As with the fixed price contract types, a number of variances can be identified amongst cost reimbursement contracts – to begin with, the multiple types of cost contract can be identified, all of which are based around some form of incentive arrangement: 'Cost Plus Percentage of Cost' (CPPC), 'Cost Plus a Fixed Fee' (CPFF), 'Cost-Plus an Incentive Fee' (CPIF) and 'Cost Plus No-Fee' (CPNF) contracts (Moore, 1962; Arrowsmith *et al.*, 2000). The way in which these contracts differ from fixed price contracts is based upon their establishment of the contract's total cost *ex ante*, along with a price ceiling designed to limit the contractor from overrunning on cost. The reason for this design is based around the recurrent theme of *uncertainty*, and cost reimbursement contracts are usually "used when uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to permit the use of a fixed price contract" (Arrowsmith *et al.*, 2000; p. 380). Having conducted a literature search on the subject of cost reimbursement contracts, the following section will attempt to establish the existing commonalities found across the literature on the topic of cost reimbursement contracts, whilst starting to draw out the limitations associated with the adoption of such methods.

Should the situation arise where a cost reimbursement contract is favoured above the fixed cost alternative, then two prominent variations of the cost reimbursement contracts are often called upon, namely, the CPFF and CPIF contract (Moore, 1962). In fact, the lesser-used contracts such as the CPPC contract have been almost disregarded both in academia and in practice, due to its weakness in providing effective outcomes. An example of this view can be observed in the case of the US, where the federal system abolished the use of CPPC contracts in 1941. The reason for this abandonment relates to the nature of the contract, and its apparent inability to prompt effective incentives to the contractor. In principal, the contractor is paid an amount equalling the total cost along with a profit, based on a percentage of his incurred costs. In this way, a positive relationship can be measured between the attainable profit and the cost – the greater the cost of the contracted work, the greater the profit obtained by the contractor –

steering the contractor towards waste and profiteering (Scherer, 1964; Turpin, 1989). The cost plus no fee (CPNF) contract is another cost reimbursement type of contract that is rarely used in practice, particularly if the contract is considered to contain any degree of complexity. Put simply, these types of contract rely on the contractor not receiving a fee - for example, a “cost contract” is one where the contractor receives *no fee*. Likewise, a “cost-sharing contract” is a cost reimbursement contract where the contractor receives *no fee* but is reimbursed for a predetermined proportion of its allowable costs. These contracts therefore prevail in cases such as research and development, in non-profit organisations or facilities contracts (General Services Administration Department of Defense, 2005) which, as already mentioned, often represent requirements that are simplistic and therefore easily specified.

The CPFF contract is perhaps the most commonly adopted of the cost reimbursement contracts. It is a contract whereby the Contracting Authority agrees to pay the contractor its actual costs incurred in performing the contract, plus a fixed percentage of profit on top (Guelke, 1995). The benefit of this form of contract is that it appeals to industry, since it guarantees profitability and covers cost. In return, in a competitive situation the Contracting Authority will gain a wealth of interest from potential contractors, intent on making a profit. However, whilst the competition for tender between suppliers may bring a greater choice of innovation and technology to the Contracting Authority, once underway, the CPFF contract fails to provide the incentive of cost reduction, resulting in the tendency of projects to over-run on cost (Hiller & Tollison, 1978). Furthering these implications to the CPFF contract, if the costs incurred reach the amount set by the contract (i.e. the fixed fee) then the contractor is under no obligation to complete the work.

On occasion the cost plus incentive fee contract (CPIF) is considered as an alternative when the fixed price contract is classified as unsuitable. This type of cost incentive contract prevails where there is insufficient information available in order to decipher a reasonable estimation of the project cost, which rules out the use of the fixed price contract. In such a case, a CPIF contract may be adopted, subject to careful judgment of the options available to the two parties. One method of providing an incentive to the contractor is to set a target cost and a target fee. The Contracting Authority and the contractor negotiate and come to an agreement on a target cost for the contract, prior to the work being undertaken. Within this, the two parties agree to share, (in predetermined proportions) any amount between the target cost and the end cost, attained upon completion of the work. If the actual costs equal the target costs, the contractor is paid those costs plus the pre-determined fee as profit. If the cost differs to that of the target set, the Contracting Authority pays the actual costs but the profit share is increased or decreased accordingly. Again, as with the CPFF contract, there is no guarantee that the work

stated would be completed by the contractor, since this depends on the pre-determined target estimations (Boyce, 2000). From a theoretical perspective, in the best-case scenario where a good target is set, the contractor will be provided with the incentive to complete the work, whilst keeping actual costs under the target cost to obtain a higher profit (Hillier & Tollison, 1978). However, in practice this is not always realistic - if the target is set too high, there is risk of excessive profit, set too low, and the contractor will become defeatist towards the likelihood that he will achieve any profit, thus weakening the contractor's incentive to deliver the contract within the agreed specifications (Turpin, 1989).

3.6. Price Categorisation in the Ministry of Defence

More specifically, in the case of the UK's central government department of defence (the MOD), the types of contract enforced gravitate towards a best practice that has been implemented over a significant duration of time. The Procurement Office published an updated version of the Incentive Contracting guide in March 1979, stating a preference for Fixed Price arrangements, "the MOD preference continues to be to place Fixed Price contracts whenever possible" (MOD, 1979; p. 1). Likewise, nearly thirty years later, the MOD's recent Commercial Policy Statement continues to offer guidance with an underlying emphasis on the construction of Fixed Price contracts, either taking the most basic form as a Firm Fixed Price contract (FFP) or fixed price contract with an adjustment mechanism. To be precise, the inclusion of an adjustment mechanism can be identified as a contract which encompasses a Variation of Price (VOP) clause: "MOD Policy is to incentivise its contractors to manage costs in a way which controls defence inflation. This is generally achieved by transferring inflation risk to the contractor by agreeing contract prices which are either 'firm' or 'fixed'." (MOD Acquisition System Guidance, 2015[b]; p. 2). In line with this, much of the internal guidance and scholarly literature on the topic of contracting for defence procurement has acknowledged the UK's preference towards fixed price contracts, over the cost-reimbursement contract type. However, despite this overarching preference, an extension towards incentive contracts may be used as an alternative contracting type, particularly in the case where the risk is too great to permit fixed prices, but not significant enough to provoke the use of a cost-plus contract.

Despite an obvious preference towards the adoption of fixed price contracts within MOD policy, these are not the only contract type to have been adopted by MOD commercial practitioners. In fact, according to Hartley (2002), the cost-plus contract was regularly adopted during the 1980s, yet became scarce in practice following a change in government procurement policy in the 1990s which caused a decline of cost plus contracting: "in 1980/81, cost-plus contracts accounted for 22% of all MOD contracts and this share had fallen to 1% in

1999/00” (Hartley, 2002; p. 2). In recent years however, government policy has continued to take a similar stance in favour of extending the provision of incentivised contracts, agreeing only to use cost plus arrangements as a last resort (Arrowsmith *et al.*, 2000).

3.7. Grouping Contract Clauses by Risk Category

So far the literature has presented a discussion of a range of contract types, the choice of which may be determined by a range of factors such as overarching government policy, the level of complexity surrounding the transaction, or the intended outcomes of the project, for which the contract underpins. Expanding on the latter, if the project’s intentions were to offer a collaborative platform for repeated transactions, then a framework agreement is likely to be selected as the appropriate contractual method (Mouzas & Blois, 2013). Where the requirement reflects a one-off transaction, a traditional ‘standard form’ contract may be enforced (Bloomfield, 2019). Beyond this, the selection of each contract must be determined by the design and content of the contract, all of which will vary in terms of the protective terms and conditions employed, which deter unwanted risk and uncertainty from arising. Naturally, a contract written to prompt strong inter-party relationships would require a greater focus to be allocated towards drafting the relational conditions, such as the “Obligations of the Contractor” and “Dependencies” conditions. Likewise if the contract prioritised the meticulous management of finance through the incorporation of a particular set of price terms (see Section 3.5), then the contract is likely to contain carefully considered conditions relating simply to its “Price” and “Payment” conditions (amongst others).

Currently the academic literature surrounding contract clauses gives limited recognition to the type of clauses that may be written into certain types of contract. Mouzas and Blois (2013) provide a taxonomy of clauses that extend beyond transactions which specify volume and prices and therefore demonstrates a form of contract (in this case, framework agreements) that aims to control for recurrent transactions. Likewise, Mouzas and Furmston (2008) highlight the general terms and conditions that are specific to unspecified nature of framework agreements, since these mainly comprise of clauses regarding “exclusivity, confidentiality, notification and communication systems, subcontracting, warranties, property rights, re-negotiation, termination rights as well as force majeure or hardship” (p.43). In this case, the authors also submit that these types of arrangements do not specify quantities or prices of one particular transaction. Whilst identification of contractual clauses contributes towards a greater understanding of the contract’s intentions, the current contracting literature fails to acknowledge the interlinkages that exist between the contract clauses and the type of risks that the clauses are trying to protect against. What has become apparent is that the connection between the clauses contained within a contract and the overarching type of risk associated

with these clauses remains under-researched, yet literature does exist on the two independently. The following subsections will therefore present a discussion on the types of risk categorisation that have been set in literature, in order to draw a closer link between the two closely associated phenomena.

3.7.1. The Risk Category Criteria: Existing Applications

Consumer theory represents one sphere of literature to have identified and incorporated a taxonomy of risk. In particular, the theory recognises the importance of *perceived risk* by highlighting how risk perception plays a key role in risk management practice, both in our cognitive ability to anticipate upside or downside risk, and when understanding how others might respond to risk. Jacoby and Kaplan (1972) developed a taxonomy of *perceived risk* (Table A) and explore risk reduction strategies within the realm of consumer behaviour by observing the individual and collective relationships associated with perceived risk. Jacoby and Kaplan's (1972) taxonomy of perceived risks (financial risk, performance risk, physical risk, psychological risk and social risk) appear to be seemingly fit for purpose, as evidenced by its reproduction in later work (e.g. Harland *et al.*, 2003). However, moving away from consumer behaviour theory, Lessard and Miller (2001) devise a taxonomy of risks in Large Engineering Projects and label these as: market-related risks; market and financial risk, completion risks; technical, construction and operational risks, and, institutional risks; regulatory, social-acceptability risks and sovereign risks. Since a contract's fundamental purpose is to provide risk preventing mechanisms that may be legally enforceable in the courts, it is surprising that the literature provides no risk categorisation approaches for the examination of contracts, particularly where a contract's clauses reflect certain thematic groupings (as discussed earlier, finance-themed clauses appear, as do relational clauses).

Operational Definitions of the Varieties of Perceived Risk		
Type of Perceived Risk	Operational Definition	Anchor Points
1. Financial Risk	What are the chances that you stand to lose money if you try an unfamiliar brand of _____ (either because it won't work at all, or because it costs more than it should to keep it in good shape)?	1=low chance of losing money; 9=high chance of losing money.
2. Performance Risk	What is the likelihood that there will be something wrong with an unfamiliar brand of _____ or that it will not work properly?	1=low functional risk; 9=high functional risk.
3. Physical Risk	What are the chances that an unfamiliar brand of _____ may not be safe; i.e., may be (or become) harmful or injurious to your health?	1=very safe; 9=very unsafe.
4. Psychological Risk	What are the chances that an unfamiliar brand of _____ will not fit in well with your self-image or self-concept (i.e., the way you think about yourself)?	1=low psychological risk; 9=high psychological risk.
5. Social Risk	What are the chances that an unfamiliar brand of _____ will affect the way others think about you?	1=low social risk; 9=high social risk.
6. Overall Perceived Risk	On the whole, considering all sorts of factors combined, about how risky would you say it was to buy an unfamiliar brand of _____?	1=not risky at all; 9=extremely risky.

Table A: A taxonomy of perceived risk (Jacoby & Kaplan, 1972).

3.7.2. Representation Risk

Representation risk refers to the risks associated with the interests of the parties to the contract. At this stage, what must be emphasised is that within this risk category, the interests of the parties are distinguishable from the requirements of the contract (a contract's requirements in this case being the components that the contract must contain to give it its 'contract' label). Representation risk is therefore a broad category that is capable of emerging across any section of a contract in a number of different forms, during its analysis. To better understand the nature of this broad risk, representation risk can be divided into two counterparts. The first subcomponent of representation risk relates to cases where either party display relational interests (e.g. collaboration) within the contractual arrangement, whilst the second identifies situations where information (e.g. Intellectual Property Rights) become a provision of interest of either party. Theoretically in traditional contracting, one would anticipate that representation risk would predominantly migrate from the Contracting Authority to the Contractor upon analysis of the written contract. The reason for this is that traditional contracts often have a proportionately higher level of expectation placed on the Contractor by the Contracting Authority, since they assume the role as the writer of the contract and therefore set the requirements for which the Contractor adheres to. However, moving away from the

traditional contracting assumption towards a modern relational mechanism for contracting (Bovaird, 2006), it would appear that themes accounting for inter-organisation relationships and informational interests bear some importance and should therefore be accounted during the coding process.

(a) Relational Risk

In the examples of consumer behaviour that have been touched upon in the literature section of this research piece, relational risk has been frequently described as being an existing perception of risk or extant risk that has been developed through experience. In many cases, these learnt experiences aren't confined to a relational risk category, but are filtered into other categories such as social risk and psychological risk (Jacoby & Kaplan, 1972; Harland et al., 2003). Whilst Jacoby and Kaplan (1972) recognise in their writing that psychological and social risk are commonly combined into one category known as "psycho-social risk", the authors continue to split these to reveal two distinct risk categories that complement their contextual focus on simple consumer purchasing decisions. In this case, psychological risk refers to the way that an individual perceives themselves and social risk provides an extension to that individual's perception on how others will react to their actions. Upon consideration of these two definitions within a new context, it can be argued that both of these human responses act simultaneously with one another when contextually bound to a relationship that is dependent on cooperative interventions. Taking a case of a relational contracting arrangement, a buyer (Organisation A) might choose to behave in a way that directly affects how its own organisation perceives itself, or continue to behave in a nature that is typically attuned to its reputation. Under a relational contract, there is an underlying assumption that collaboration will operate between the two firms, and in this case, the buyer will also need to consider what effect its actions will have on their partnering supplier and their associated perceptions.

Whilst the psychological and social risk separation might be useful in the case of consumer purchasing decisions, in long-term inter-organisation relationships, the characteristics are altered slightly and the two categories provide a more robust understanding of risk perception when combined under a single relational risk category. In this case, relational risk will be considered as being unique to inter-organisational cooperation, since single consumer purchasing decisions do not require frequent inter-firm collaboration. In contemporary procurement decisions, the outcome of engagement between organisations may not be simply met in a single transaction. Instead a supplier may be offered contractual exclusivity (following a rigorous selection process), providing them with access to multiple transactions within a set timeframe (as in the case of a Framework Agreement). In cases such as these, the contractual arrangement would often last for a number of years, making the relationship

between both the buyer and supplier a component with direct influence on the ultimate outcome of the arrangement. Relational risk can therefore be thought of as “the probability and consequences of not having satisfactory cooperation” (Das & Teng, 2001; p.3). Of course, in this particular definition what is deemed as ‘satisfactory cooperation’ is reliant on the subjective opinion of what the expectations of the relationship were set out to achieve contractually, and will inevitably vary from case to case.

Relationships between firms that are considered to be unsatisfactory often give rise to a network of associated problems, prompted by the potential for subtle opportunistic behaviour. Opportunistic behaviour has come to be known as the phenomenon whereby “a performing party behaves contrary to another party’s understanding of their contract, but not necessarily contrary to the agreement’s explicit terms, leading to a transfer of wealth from the other party” (Muris, 1980; p. 521). By definition therefore, the victim of opportunism must place some value on the contractual performance in order to create the correct conditions by which the opportunist can operate. By nature, opportunistic behaviour is subtle, with some forms being easier to detect than others. However, by adopting relational risk management, the vulnerable party may deter behaviours such as opportunism, provided that the costs of prevention are lower than the costs resulting from opportunistic behaviour.

Whilst the definition offered by Das and Teng (2001) provides a suitably open contribution towards understanding relational risk both in terms of mitigating opportunism and achieving satisfactory cooperation, it fails to recognise a second intra-organisational relationship component. Whilst inter-organisational relationships offer a rich source of understanding between firms, these relationships might not flourish without the stability of two strong intra-organisational relationships on both the buyer and supplier side. For this reason, a new definition proposal for the purpose of this research will refer to relational risk as:

“The allocation of risk between two parties entering into a contractual arrangement. Relational risk is therefore grounded on the presence of information symmetry and satisfactory cooperation in the inter-organisational and intra-organisational relationships formed by the contract.”

(b) Information Risk

So far this section of writing has focused on identifying the reasons for risk categorisation first by understanding the fundamental differences between simple purchasing choices and comparing these to more complex and relational structures that are inherent within strategic alliances. Information risk is a concept that is unique to inter-organisational transactions, since,

taking the example of purchasing a simple good, a consumer's decision is often made solely based on benefiting from the features of a product. In strategic alliances, the nature of the relationship changes and becomes seemingly more collaborative. In this partnership, both specialist parties come together to share knowledge in order to develop a beneficial output. As already touched upon, the incentives behind achieving a successful contract vary from party to party, yet both benefit from the throughput of knowledge associated with the work, since this contributes to the competitive advantage and capabilities held by both organisations.

Of course the transfer of advantageous information is a phenomenon that is imperative both affecting the firm's internal and external operability. Clear communication of knowledge within the firm internally enables efficiency in the functionality of the firm, since for example, senior management might better represent the views of their subordinates. Problems associated with asymmetric information arise where this level of knowledge sharing fails to operate between members of the firm, causing unnecessary ambiguity and disconnect to arise within the firm. What this ultimately leads to is the exacerbation of other closely linked mechanisms, resulting in an increased probability that other risks or issues will arise internally. Furthermore, by incorporating the relationships that transition between firms into this scenario, problems of mixed-messages and clarity may surface, causing detriment to organisational reputation. Whilst consideration of this type of information risk is an essential component in understanding how a contractual relationship might operate in actuality, another crucial factor rests on the licencing of intellectual property and other information protection legalities. When two firms come together in strategic alliance, for the purpose of obtaining new technology (whether in research or a tangible capability learnt from the development of a good), the supplier providing the innovation might behave in a way that provokes asymmetric information. Of course asymmetric information as a mechanism can work in two-fold when considering a straightforward engagement between a buyer and supplier. First, the supplier of a new technology (or 'licensee') might not willingly undertake a specific investment, without first gaining some assurance of its profitability (Gallini & Wright, 1990). Conversely, the licensee must establish the capital value of their investment into the technology, without revealing too much to the licensor (thereby running the risk of imitation). Put concisely, both problems of asymmetry were identified and summarised by Contractor (1981) as: "the licensee as the less-informed party has to be educated as to the value of the innovation without (the licensor), paradoxically, revealing too much" (Gallini & Wright, 1990). In both cases, by withholding information that is of value to both parties, potential risks (associated with finance in the first instance, and reputation in the second) may be triggered.

So far the discussion has provided an overview of the challenge of information management in relational constructs. What must be acknowledged at this stage is that information sharing between parties can be managed to some extent, by a judicious choice of the license contract. Whilst such attempts of rigid contractual control has been documented in past literature, it is uncertain how parties will behave in unique engagements, making informational risk a crucial risk category to be considered – both independently and in conjunction with relational risk pressures. In summary, information risk can be defined as follows:

“Information risk is the probability that the information circulated both internally and externally by a company will be false or misleading, allowing either party to benefit from the knowledge withheld.”

3.7.3. Performance Risk

In project management, performance was traditionally measured by three pillars: time, cost and quality. In practice, it is evident that this triad of project performance is still well acknowledged, giving performance a broad foundation. The importance of project performance can be reflected in a contract between two parties where one party passes over an incentive (often monetary) and in return, expects a level of performance which can be monitored and measured based on the three pillars of performance. In this context, there is often a perceived risk involved which needs to be carefully managed in order to avoid any shortfalls in performance, whether it be overrunning on timescales, budgets or a result poor quality control. In consumer behaviour theory (which focuses on simple purchasing decisions) a buyer might commit to obtaining a new product. To provide an example, assume the consumer is looking to purchase a new brand of toothpaste. In this particular transaction, the consumer chooses to purchase a toothpaste which costs less than the last brand they purchased. In this decision, the consumer simultaneously commits to absorbing the lower cost in return for a product that claims to fulfil a specific need. What the consumer might find, however, is that the performance of the product based on quality may not be considered as good as another almost identical product, and this would influence the consumer to not purchase the cheaper product in the future. In this simple purchasing example, the consumer absorbed a performance risk in the form of quality, in exchange for lower costs.

Whilst the literature on consumer behaviour has started to recognise the importance of risk categorisation and the interconnectivity of these risks, these represent a simple purchasing structure where the risk is a determinant of the choices made by the consumer. Although it could be argued that the producer-consumer relationship has similarities to other constructs, the risk associated with an inter-organisational relationship brings a new dimension to be

considered. Das & Teng (2001) attempt to answer this in a paper that focuses on the strategic alliances. In the paper, the writers focus purely on two overarching themes or risk categories; relational risk and performance risk. Given the inter-organisational context of the research paper, the writers focus on the collaboration between two parties and define performance risk as: “the probability and consequences that alliance objectives are not achieved, despite satisfactory cooperation among partner firms” (Das & Teng, 2001; p.3). It is within this paper that we start to see authors recognising the interconnectivity of risk categories, as shown by the evidently close connection between relational risk and performance risk in this paper. This is an important concept to be examined in this research project, since it aims to be one step closer to understanding the systemicity of risk in modern contractual choices. Indeed, unlike consumer purchasing choices, strategic alliances involve a much more complex relationship, set up as a continuous relationship between two or more parties and therefore incorporating relational concepts like trust and collaboration. Relational risk is therefore inherent to these types of strategic alliance, whereas performance risk is prevalent in almost any strategic procurement construct, making it a highly ubiquitous risk category. For this reason performance risk must be accounted for in the coding categories, since it appears not only as a trigger or primary risk, but may also influence other risk categories to cascade in a systemic pattern (i.e. a failure of performance in quality might result in the buyer absorbing higher expenditure, triggering financial risk). Performance risk will therefore be defined as:

“The risk that the intended outputs of the contract (both in terms of the deliverables and its end product) fail to perform as per the set contractual requirements, and exacerbated by unanticipated issues with time, cost, quality and relational factors.”

3.7.4. Finance Risk

Finance risk is repeatedly perceived as a fundamental risk category as a result of the way that individuals respond to fiscal incentives. Literature on incentive economics often posits that people (both as individuals, and collectively in organisations) are, to an extent, driven by financial incentives. Therefore, if it is not certain that such financial incentives may be realised to their maximum potential, or even, threatened altogether, then an individual’s decision to partake in the associated activity may be disregarded altogether. In a two-way relationship, a buyer might take on a degree of financial risk in exchange for other benefits. In the same relationship, the supplier will often transfer a portion of wealth (wealth in this sense meaning any beneficial asset, whether knowhow, control or liability) to realise the buyer’s financial compensation. Often, in contracting the finance mechanism used is of high importance and interest of both parties. It is what drives the relationship in its early stages, making it a core risk category for consideration in this research. In the context of consumer behaviour,

researchers acknowledge that financial risk has an effect on the choices made by the consumer, influencing their behaviour when making purchasing decisions. Scenarios such as those already discussed are associated with the early contractual stages, where both parties engage in a formal contractual agreement. Finance risk however continues to prevail throughout the life of the contract, responding with some elasticity to changes in the surrounding environment. In government contracting, budgets are vulnerable to constant amendment; a budgetary cut or change in associated policy can have detrimental effects on the throughput associated with a contracts' output, a risk which is often non-recoverable to the vulnerable party (the seller in this case). Finance risk can therefore operate throughout the life of the contract and can have significant influence on the early decision to undertake a contractual engagement, and influence the operation of the contract throughout the set timeframe. Both of these already discussed represent financial transactions, however, within this category, finance risk may also be associated with risk of default, financial penalties, payment, pricing and the financial implications that result from these. Put succinctly for definitional purposes, finance risk refers to:

“An umbrella term, for which a number of forms of risk associated with the behavioural response to fiscal mechanisms and their outcomes, can be incorporated. In the contractual sense, risk attributed to this category may include, but are not restricted to: (i) financial transactions (ii) risk of default (iii) remuneration, (iv) pricing, and, (v) penalties.”

3.7.5. Contract Risk

Contract risk is a term that not often incorporated within a risk taxonomy. Upon review of the existing literature, this appears to be due to its poor definition, which leaves contract risk largely undefined by any legal standards. In this case, it is believed that this lack of recognition does not infer that the risk category is insignificant, rather it clearly demonstrates the absence of research that has incorporated the physical presence (and potential loss associated) of a formal contract. Haapio and Siedel (2017) define “contract risk” as a risk, or set of risks that have the capacity to exacerbate a contract to the extent that it deviates away from the expected outcomes of either party. As inferred to in the definition provided by Haapio and Siedel (2017), contract risk may only be detected where there is good reason to execute the protective measures that have been written into the contract. Such protective measures include those which aim to safeguard the physical contract from entire failure or termination, and include clauses concerning liability, warranty and contract breach. An important distinction to be made on the topic of contract risk is that it is treated as independent from finance risk and performance risk, amongst others. If the contract were to fail due to an inability to meet finance agreements, then specific penalties will be imposed on the contract. Indeed, whilst penalties

may seem to be a feature that would be readily classified as a contract risk, the clear differences must be highlighted between the two in order to cover both areas sufficiently. Contract risk must therefore be considered as being an ultimate risk category, triggered only when the legislative position of either party or the existence of the physical contract is threatened.

For the purpose of the research study, and incorporating the limited definitions within the literature, contract risk will be defined as:

“the probability of loss arising from a party reneging on the contract, as opposed to their inability to pay. Contract risk becomes evident where The Authority’s protection clauses have reason to be executed.”

3.8. Gap Identification and Summary

At this point, it can be discerned that whilst a number of contractual choices may be selected when constructing a legal agreement for the provision of a good or service, in reality, these choices (such as the terms and conditions incorporated, the pricing mechanisms selected, and so on) are determined by the overarching procurement strategy employed by the Contracting Authority. Much of the literature considers traditional methods to be obsolete and submits that a misalignment exists between the intentions of traditional procurement and the associated public management behaviours that have materialised following NPM related developments in the UK’s public sector.

Whilst modern procurement methods appear to have been promoted by numerous scholars, and further endorsed through the application of partnering-type methods within the public sector, shortfalls become apparent when determining the effectiveness of the modern approach adopted (Spackman, 2002; Walker *et al.*, 2002). Specifically, adopting a generic construct to realise commissioning outcomes would imply that such a choice has been subjected to limitations, whether it be in training and resources, practitioner culture, availability of time (to design the contracts on a case-by-case basis), or other factors. For reasons such as those aforementioned, the commissioner is often bounded by rationality to implement a one-size-fits-all contracting approach, and thereby dismisses the complex, heterogeneous nature of the project undergoing procurement. By adopting the aforementioned modern procurement methods such as PPP and PFI, the public sector has realised new benefits that traditional mechanisms were unable to achieve, however, these methods still failed to acknowledge the importance of employing a tailored approach that primarily seeks to satisfy the intended outcomes of the commissioned project. Furthermore, it is thought that public sector

procurement would benefit from a shift towards new relational contracting methods (Bovaird, 2006) or umbrella agreements (Mouzas & Blois, 2012) by incorporating collaborative behaviours that are underpinned by trust, or repeated courses of dealing. Approaching the practice of commissioning in this way not only helps to mitigate the threat of buyer-supplier opportunism, but also rules-out other negative risk generating behaviours caused by either party.

Having examined the contractual mechanisms and overarching procurement choices employed by the public sector in recent years, the following chapter aims to expand this further by prompting a discussion of the relational and incentivised behaviours associated with third sector or voluntary sector contracting. Chapter 4 therefore presents a discussion of the existing literature that has been established within the field of contract theory by conveying the significance of understanding the unwritten behavioural characteristics that underpin a contract, and with it, rouses an early discussion of risk.

CHAPTER 4

Contract Theory

4.1. Introduction

A significant amount of literature has been composed within the field of contract theory, of which many debates have focused on the economic arguments for how a contract can be written to maximise efficiency and reduce performance risk in light of uncertainty. More specifically, contract theorists have drawn their attention towards identifying the degree of completeness that administers the boundaries of the written contract. At this stage, it is essential that a careful distinction is made between the two core strands of transactional contract: (1) complete contracts, and, (2) incomplete contracts. Whilst a significant amount of literature has contributed to the field of economic contract theory, recent work has steered its focus towards incomplete contracting, and in doing so, submits that if a contract is not complete, then by default, it must be incomplete. In order to understand and interpret the implied meaning behind a contract, it is first important to distinguish between a complete and incomplete contract (Craswell, 2005). Each contract type will be examined in turn, providing this literary section with a comprehensive and critical discussion of the existing theories and applications. The end of the chapter will present a summary by identifying the gaps in the literature that have been deduced during the review process.

4.2. Complete Contracts

According to complete contract theory, a contract may only be considered to be complete when the engaging parties can predetermine the respective rights and duties of every future state of the world into the terms of the contract through incorporation of a specific term that covers every contingency. Proponents of the complete contracting branch of contract theory (also identified as agency theorists), posit that the only limitations to reaching such completeness relate to certain behavioural concepts. The first of these denotes a concept known as ‘adverse selection’, that is, the private information that agents may hold at the time of contracting (Akerlof, 1970; Spence, 1973; Rothschild & Stiglitz, 1976; Myerson, 1979; Laffont & Martimort, 2009). Another important concept is that of ‘moral hazard’ which concerns how the contracting agents may receive new information in the future that may not be verifiable by contract enforcement authorities and further, that the parties might behave in ways that cannot be accounted for (Arrow, 1985; Hart & Holmström, 1986; Tirole, 1999). Of course, it can be assumed that where the contract is affected by such limitations, the contractual completeness

may be reduced by definition to an incomplete contract. The complete contracting literature therefore is characterised by the identification of the aforementioned economic limitations, all of which will be discussed in turn, and in doing so, a proportion of this chapter has been dedicated towards identifying the stimulants that strip a contract of its completeness. Following the discussion and definition of the two limiting factors that are central to complete contract theory (adverse selection and moral hazard), the relevant agency theory literature will be surveyed before presenting the foundational models under which these informational problems have been addressed.

4.2.1. Adverse Selection

Adverse selection introduces the concept of market dishonesty into the sphere of contract theory by implying that buyers and sellers in a market may possess different information (Akerlof, 1970). Under this assumption, the parties engaging in a transaction fall victim to asymmetric information which incentivises the party with informational advantage to participate in selective transactions. A party with better private information is assumed to act in their own self-interest to realise the greatest benefit obtainable, and does so at the expense of the other party. Early visibility of this problem stems from Akerlof's (1970) theory of "lemons" (lemons being pre-owned cars that are not in the condition assumed at first glance, that is, they are found to be defective once purchased). Upon observation of the market for used cars, Akerlof (1970) presents a classic example whereby the quality of goods traded in a market can suffer where asymmetry exists between buyers and sellers, leaving only "lemons" behind. Often in markets like these, (where sellers can enter the used car market with either defective used cars or good cars), the buyer is uninformed since there is no way of predicting factors like the history of the car, the condition of its unobservable parts and so on. Therefore for security, the buyer must assume that all cars on the market are all of an average quality. The problem here is that sellers of good quality cars will depart the market since they are offered low prices for their used cars, and as a result, the market becomes occupied by only defective cars. Since the existence of this market breakdown structure was proposed, other economists began applying adverse selection to labour markets (Spence, 1973), insurance markets (Rothschild & Stiglitz, 1976) and online stamp auctions (Dewan & Hsu, 2004). What must be acknowledged at this point is that, whilst adverse selection has provided a new way of thinking across economic theory, that is, the link between hidden information and market failure, the theory discussed thus far relates to very specific market cases. Conversely, adverse selection should not be condemned as a notion that guarantees market failure, since an outcome of this nature merely demonstrates an extreme and therefore low probability outcome of uncontrolled adverse selection. By reviewing the early literature on adverse selection theory, two shortfalls have been made apparent. The first is that whilst Akerlof (1970) was

able to identify the importance of information sharing on the state of a market, his work provided no apparent solution for the recovery of the lost surplus associated with such failure, or control methods. Secondly, whilst early literature has provided robust applications of adverse selection which have prompted better understanding of the phenomenon, such applications often apply to very specific industry cases that are characterised by a competitive market structure.

An absence of solution to the adverse selection problem was soon remedied through an application of principal-agent modelling. In general, it is assumed that hidden information inhibits a first-best allocation of resources from being realised by society, a state which could be achieved only in a world where all information is entirely symmetrical. To further refine the literature and to understand how features of the market impacted the equilibria that developed, contributions emerged which address adverse selection using: non-price signalling mechanisms (Taylor, 1999), minimum quality standards (Leland, 1979) and leasing (Johnson & Waldman, 2003). Furthermore, in response to a second critique that early adverse selection theory is bounded specifically to a market context (Akerlof, 1970; Spence, 1973; Rothschild & Stiglitz, 1976) or industry specific contracting contexts (Stiglitz, 1977; Sappington, 1983; 1984), it appears that as the phenomena has grown in its recognition amongst economic theorists, adverse selection has been used to explain much wider issues beyond that of the resale of goods and insurance in competitive markets. Where goods and services are procured outside of a competitive market, such that a directed transaction has been mediated between the buyer and supplier (Baron & Besanko, 1987), the transaction is often characterised by incomplete information and uncertain costs since the good or service is likely to be non-standardised. In comparison, taking the case of a standardised good/service, it is assumed that the relevant information is common knowledge, and risk is therefore minimised. Application of non-standardised models therefore become particularly practicable in highly specialised industries, like that of defence contracting, where the marketplace is often characterised by monopsonists.

4.2.2. Moral Hazard

Moral hazard is the name given to a central economic concept whereby one party to a transaction is incentivised to take more risks knowing that they are protected from that risk. In this scenario, it is recognised that the other party will therefore absorb the risk, often in return for remuneration or equivalent benefit. Again, information asymmetry is a central concept underlying moral hazard since the party with information advantage about its intentions is assumed to behave in a way that is detrimental to the party obtaining less information. Whilst the balance of risk sharing is at the core of both moral hazard and adverse selection, a clear

distinction can be made between the two. Moral hazard concerns the *hidden actions* of an agent, rather than the *hidden information*. To provide a classic example, a purchaser of car insurance may change their attitude to driving (in terms of safety) in order to account for the cost of purchasing the insurance. In other words, the purchaser might become a more risky driver, knowing that they are covered by their insurer.

The relationship between moral hazard and risk sharing have been explored in cases where imperfect observation or monitoring prevail (to name a few: Ross, 1973; Jensen & Meckling, 1976; Holmström, 1979; Shavell, 1979). Taking one example, Holmström's (1979) link between an individual's incentives and measurable outputs suggest that where an agent's action cannot be directly observed (hidden action), a first-best contract is not achievable. "*Pareto-optimal risk sharing is generally precluded, because it will not induce proper incentives for taking correct actions*" (Holmström, 1979, p.74). Rather, Holmström suggests that by offering a second-best contract, the firm is able to maximise profit, whilst providing the agent with a utility greater or equal to the next best alternative. In return for this second-best contract, the principal is able to extract the desired effort level from the agent, in return for a proportionately fair monetary reward.

Other solutions propose efficient risk-sharing contracts where private information and moral hazard are both absent (Wilson, 1968; Spence & Zeckhauser, 1971; Harris & Raviv, 1979). In an agency theory context, Harris and Raviv's (1979) work on the imperfect monitoring of an agent's action is presented. The monitors included provide independent information from the state of nature, allowing shirking (of effort levels) from the agent to be observed by the principal with a positive probability. This has been proven to be of little interest "*since they are essentially equivalent to observing the agent's action directly, because a first-best solution can be approximated arbitrarily closely in this case*" (Foss, 2000; p. 90). Evidently, it can be speculated that, in general, imperfect monitoring must not be expected to hold any particularly distinct traits. In addition to this, Lazear (1986; 2000) added to the rationale of induced worker effort, bringing a focus towards expanding the state of existing output-based incentives through a process whereby the firm is able to sort workers by their skill level. In this way, workers with sufficient skills would be induced to remain within the organisation and those with insufficient skills would be compelled to leave. It therefore comes as no surprise that the consensus behind improving the agent's effort and tenure through sorting have become key areas associated with agency theory and a leading rationale for the adoption of output-based incentive plans. The two leading theories presented by Lazear (1986) and Holmström (1979) are therefore both ultimately performance related rationales.

Following this, a number of research papers have demonstrated a similar positive correlation between the adoption of output-based incentives and performance as a method of controlling for moral hazard. More specifically, Banker et al. (1996) assessed the degree of sales performance in retail stores. The study agrees with the theoretical judgment that a positive result would be observed, however a main drawback to the paper is the author's inability to differentiate between the effect of the output-based incentives caused by sorting and effort level, making the precise cause of the findings unclear.

4.2.3. Acknowledging Informational Asymmetry

The central concepts already discussed provide an insight into the shortcomings of complete contracts in practice. What can be gained from the complete contracting literature is a body of influential knowledge into the behaviours of transactional facilitators (i.e. the principals and agents). Though the models presented provide a generalised or simplified representation of the intrinsic human traits held by key economic players, without consideration of these behavioural attributes, a contract would be assumed to be complete where all contingencies are entirely accounted for. If this were the case, contractual mechanisms would provide transactions with complete protection from the unknown and in doing so obliterate the need for contract renegotiation or involvement of the courts. Such a case however is unrealistic and instead, incomplete contracting literature has provided further important conceptual developments which aim to reveal a firm's motivation to engage in transactional relationships, how these are defined, and the affordances and constraints that influence this decision.

4.3. Incomplete Contracts

Upon discussion of the incentive based approaches proposed in the complete contract literature, it can be recognised that in general most long-term contracts are incomplete since they do not often deal explicitly with every possible contingency and instead, leave many aspects to be decided upon later. This assumption provides the grounding to incomplete contract theory, a subset of contract theory that acknowledges the dynamic process involved in contract decision making, such that many parties would prefer to make decisions as and when they become more pressing. The following section provides an overview of the fundamental stances taken in order to better understand the characteristics of incomplete contracting and considers the solutions posited to address the limitations of an incomplete contract.

4.3.1. The Transaction Cost Approach

Proponents of the transaction cost approach emphasise the importance of transactions between the public and private sector by addressing various fundamental concepts which question why firms exist (i.e. to reduce transaction costs), how the boundaries of the firm might be defined, and, how their operations might be governed to reduce the contracting parties' desire to act in their own self-interest (Coase, 1937; Alchian & Demsetz, 1972; Klein *et al.*, 1978; Williamson, 1975, 1979 1985). Whilst transaction cost economists present influential ideas surrounding the nature of decision-making that materialises in both markets and non-markets, the contributions made to contract theory ultimately demonstrate how transaction costs induce its contracting parties to write incomplete contracts. Following the line of thought originally put forward by Coase (1937), proponents of the incomplete contracting distinction posit that incomplete contracting removes the burden of costs that would otherwise be associated with the writing of a comprehensive contract (Coase, 1937, 2013; Williamson, 1971, 1975, 1979; Grossman & Hart, 1986; Hart & Moore, 1990). Whilst a fully comprehensive contract might be theoretically viable, authors in support of the incomplete contracting paradigm identify the inappropriateness of comprehensive contracts on the grounds of: uncertainty when pre-empting the possible states of the world, the cost of writing these in legal terms, and the threat of ambiguity when interpreting such language within the court's judicial system. Thus, under transaction cost economics, it is commonly stipulated that the parties engaging in a transactional contract will write incomplete contracts *ex ante* and that these will require renegotiation and completion as they progress through the contract lifecycle. Whilst the literature has explored various features that favour incomplete contracts, such incompleteness may also yield economic inefficiencies which are considered to stem from renegotiation delays and the onset of asymmetric information, resulting in inefficient decisions and prevention of ex post allocation efficiencies. Perhaps more prominently however, is the occurrence of the hold-up problem (see Coase, 1937; Williamson, 1975, 1979; Klein *et al.*, 1978; Grossman & Hart, 1986) whereby two parties refrain from working collaboratively in a bid to prevent the other party from gaining increased bargaining power, which could detriment their own profitability.

4.3.2. The Hold-up Problem

Klein *et al.* (1978) add to the work of transaction cost economists through consideration of post-contract opportunistic behaviour. Under the hold-up problem, it is assumed that both parties of a contract are driven by an incentive to act opportunistically (that is, in favour of their own self-interest) by appropriating the quasi-rents of their trading partner. In this case, specificity of the product or service being contracted for is of importance, since this yields an increased risk of opportunism in two potential cases; the first relates to the limitation of the

market where the sellers' investment is so specific that it is limited to a single transaction (i.e. it cannot be sold anywhere else). If this were the case, the buyer may act opportunistically and bargain with the seller to reduce the price of the asset being provided. Likewise, the hold-up problem can be experienced in reverse whereby the buyer becomes limited to a single seller due to the highly specialised nature of the asset being sourced. In this second case, the seller is in a position of bargaining power and may act opportunistically by insisting on a higher price for the asset, knowing that without it, the buyer would be held-up. In this case, opportunism can be seen to operate between the two contracting parties, however this view is unobservable to the courts in an interfirm relationship. The concept of opportunism is not a new one and the hold-up problem has been analysed in a broad number of ways in order to better understand its stimulants to provide mitigation. The intentions of Klein *et al.* (1978) was not to provide an explanation for the existence of hold-ups in their paper, rather, the paper examines the ways in which contractors may select appropriate contractual arrangements to mitigate the hold-up problem. Indeed, it is posited that the implicit reason for the occurrence of a hold-up is due to transactional ignorance of the parties when selecting appropriate contracting methods (Klein, 1996). In this way a significant amount of hold-up problem literature focuses on options for solving the hold-up problem via various transactional methods.

One solution to the hold-up problem surrounds the selection of a first-best contract (Rogerson, 1992) under which transactions within complex environments can be contracted for, provided that three necessary conditions are adopted: (i) externalities are absent (ii) there is risk neutrality, and (iii) only one investor has partially private investment information. Accordingly, Rogerson (1992) stipulates that transactional inefficiencies only materialise when any of the three conditions are not satisfied, therefore to reach a first-best solution each requirement must be present. The central question within Rogerson's (1992) paper surrounds the type of contract that should be employed in terms of its level of complexity. It is recognised here that much of the existing hold-up problem literature simplifies the nature of transactions, thereby confining them to simple contracts. Whilst some have backed the effectiveness of simple contracts (Schmitz, 2002; Hoppe & Schmitz, 2010), a larger proportion of contract theorists have devised models that examine complex contract cases. Furthermore, in the absence of externalities, complex contracts may be used to solve the hold-up problem when there are ex-ante indescribable contingencies (Maskin & Tirole, 1999). A significant limitation of Rogerson's (1992) work however is noted in that only one-shot transactions are considered, as opposed to repeated transactions which may alleviate any informational discrepancies as interfirm relationships are built. Other research suggests the construction of option contracts (Hoppe & Schmitz, 2010) to relieve the threat of the hold-up problem.

4.3.3. The Property Rights Approach

Expanding on the incomplete contracting paradigm, authors of property rights theory build on the infeasibility of complete contracts originally conferred by transaction cost economists (Coase, 1937; Klein *et al.*, 1978; Williamson, 1971, 1979) through consideration of the allocation of a firm's residual rights (Grossman & Hart, 1986; Hart & Moore, 1990). What this implies is that there is an optimal allocation of ownership (or residual) rights in circumstances that are not already specified within the contract. Proponents therefore focus on the nature of asset allocation outside of specific rights, in other words: the right to make decisions in situations that are only partially foreseeable by the contract. Accordingly, the ownership of an asset under standard property rights theory is interpreted as the right of control for the use of the asset. Another assumption which aligns with other aspects of incomplete contract theory is that: under an incomplete contract, renegotiations on the original contract are likely to occur in the future, as *ex post* information is obtained. Property rights are therefore important since the optimal allocation of assets (i.e. whether the efficient allocation is realised under integration or non-integration) determine the parties' future bargaining positions and their associated interest behaviours. What limits this early property rights work is its sole focus towards private firms. To fill this apparent gap in knowledge, applications to public firms have since shifted a focus towards the in-house versus contracting-out distinction (see Hart *et al.*, 1997; Hoppe & Schmitz, 2010).

Other limitations of early property rights theory rests on a number of theoretical assumptions embedded in the models originally presented by Grossman and Hart (1986) and Hart and Moore (1990). The most prominent of these assumptions is the existence of symmetrical information between the parties. Some economists have expanded on this by incorporating an asymmetric information dimension (Schmitz, 2006). Schmitz (2006) introduces a plausible scenario of information asymmetry to the foundations of standard property rights by demonstrating empirically how one party can realise informational superiority about a default payoff on its own. With the induction of an asymmetric variable, Schmitz (2006) is able to overturn the standard property rights theory by identifying how under joint ownership (i.e. integration), an *ex-ante* efficient agreement is always reached, a finding that overturns standard property rights theory.

4.4. Applying the Fundamentals of Contract Theory

Having examined the various lines of thought presented within the field of contract theory, a number of important theoretical considerations can be applied to the research. A particularly prominent topic surrounds the definition of a contract in terms of its degree of completeness.

What becomes apparent across the literature is that, whilst proponents of the complete contracting discipline endorse the existence of such a contract, it is recognised that informational limitations pose a more probable threat.

In this case (and in-keeping with incomplete contract literature), it would appear that in a modern business environment that is shrouded by bounded rationality, the parties seeking to establish a formal contractual relationship would benefit from employing an incomplete contract structure. The principal reason for this is based on the premise that no contract is able to specify every contingent eventuality up-front. Whilst an incomplete contract also contains some weakness (such as the aforementioned ‘hold-up problem’), an incomplete structure may be capable of generating advantageous outcomes through the incorporation of certain provisions. Examples of such provisions may include: ‘control rights’ (i.e. the decision-making rights over actions) and ‘income rights’ (i.e. the right to claim income or payment), which can be incorporated into the contract as a precautionary measure for mitigating ownership uncertainty (Wang, 2012). By tailoring an incomplete contract in such a way, the parties are able to ascertain contractual benefit that is assured by legislation throughout the contracts duration. In many cases, the Contracting Authority (or buyer) benefits from the flexible features of an incomplete contract, incorporating rigid provisions on ownership to ensure that its right to control the contract or its associated assets are not lost. Where aspects such as these are not accounted for, the Contracting Authority may become susceptible to various types of risk. Alternatively, the contractor tasked with the work is incentivised by the provision of income rights, which in this instance, indicates the contractor’s right to *payment*, upon meeting certain conditions.

It has been made apparent that with the adoption of additional protective provisions, an incomplete contract may be tailored in a way that provides desirable benefit to either contractual party. The level of benefit however rests within the remit of the Contracting Authority, who may place rigid requirements or constraints on the contractor. Where this becomes evident, the flex of an incomplete contract may be considered to have been exploited, and the contractor may forego the incentive to perform its duties optimally. Drafting the incomplete contract is therefore a careful balancing act, partly influenced by the context underpinning its purpose (i.e. its outcomes), and further, influenced by the way that the Contracting Authority governs its transactional relationship with the contractor. Of course, closely linked to this are the decisions that a firm must make in terms of its transaction costs, asset ownership and opportunism. Although this research does not aim to provide a quantitative evaluation using the economic modelling techniques explored by contract theory

economists, the fundamental theories surrounding these models provide an essential basis or stance, for which the findings derived throughout this research can be theoretically framed.

4.5. Gap Identification and Summary

The literature allows the reader to draw a distinction between the complete and incomplete contract and the relational behaviours that are repercussive of these contract types. It enables important labels to these behaviours to be understood, such as moral hazard, adverse selection and the significance of informational symmetry during the implementation of the contract.

Limitations may however be detected in relation to the constrained focus of the complete or incomplete contract literature. Evidently, the principal concern of the complete/incomplete contract distinction surrounds information sharing dynamics and how these may be better understood to enhance the success of the contract, and limit the threat of failure (in this instance, the threat of contract failure equates to a risk). Whilst contract theory recognises the presence of risk, and how it may be mitigated through better awareness of informational (a)symmetries, it fails to identify any other risk dynamics that may exacerbate a contract beyond the balancing of information between contracting parties. The research would therefore seek to contribute new knowledge which builds beyond the information sharing risks, by identifying the risk dynamics inherent to an outsourcing contract. There is therefore scope to look at a broader set of interrelated risk dynamics in order to identify the threats that may infringe on a contract, together with the relative success of the contractual construct selected. The characteristics of risk will therefore be discussed in more detail in the following literature chapter, before refining the aggregated shortcomings of the literature survey chapters into an all-encompassing set of research questions.

CHAPTER 5

Risk & Complexity

5.1. Introduction

Building on the conceptual foundations presented in the initial literary chapters, a further body of knowledge should be discussed. Chapter 5 presents a literary chapter that is of significant importance to this research and draws upon themes of risk, uncertainty and complexity. As previously identified, this piece of research is concerned with understanding the systemic risks found within a contractual system that is shrouded by differing degrees of complexity. In order to investigate these research components fully, the following chapter will elicit a discussion of risk, looking specifically at its separation in meaning from uncertainty. This definition of risk will later be revisited in this chapter when framed specifically within a systems context. In other words, risk will be examined within the boundaries of a pre-specified system, thereby directing the focus of the research towards the notion of “systemic risk”. Uncertainty (taken as being independent from risk in meaning) will be incorporated as a second sub-topic for discussion, both in relation to the wider understanding of risk, and further explored within the context of complexity.

Finally, the research piece aims to contribute novel insight towards the service commissioning setting (as opposed to the procurement of equipment) within the public sector defence department. Service commissioning concerns the contracting-out of projects to private sector organisations and third parties. Whilst service commissioning projects will undoubtedly exhibit varied characteristics, all represent temporary endeavours, a feature that underpins project management logic. Winch (2014) denotes projects as “determinate” endeavours, that is, they encompass foreseeable and pre-agreed delivery milestones and a clearly defined termination point. Taking the stance that commissioning for a service can be characterised as possessing ‘determinate endeavours’, it can be ascertained that these merely equate to a project. Given this distinction, the research must consider the core principles which populate the existing project management literature, whilst considering how other prominent topics, such as: risk, uncertainty and complexity have been managed within this field.

5.2. Categorising Risk and Uncertainty

At this point, it is necessary to distinguish between two seemingly related terms: “risk” and “uncertainty”. To achieve terminological clarity, uncertainty can be defined as a phenomenon that occurs where the possible outcomes of an event are not known in advance, making their probabilities immeasurable. Risk however, is commonly described as occurring where uncertainty has had an *impact* on a project (Williams, 2017). The two definitions presented may however be viewed to have been subjected to generalisation or simplification whilst in search for a clear-cut distinction to be made between the two terms. Rather, the understanding of risk and uncertainty may be easily complicated. Slovic (1987) takes the view that risk perception is as important as risk calculation and therefore what is perceived as being ‘known’ becomes contestable on the grounds of subjectivity. Such a view implies that one person’s risk may be another person’s uncertainty and directly challenges the somewhat simplistic separation of meanings proposed by LeRoy and Singell (1987). In what is considered to be formalised practice, a definition of “risk”, put forward by the International Organisation for Standardization (ISO) defines the term as “the combination of the probability of an event and its consequences” (ISO/IEC, 2002; p. 1). Separating out the individual components that make up this definition, themes underlying the need to eradicate uncertainty by gauging a good understanding of probability and its effects, are recognised and further replicated within much of the modern literature: “The idea of risk has two elements: *probability* and *impact*” (Williams, 2002; p. 67).

Already, it appears as though we can start to unravel some of the key assumptions made by scholars on the topic of uncertainty. As Smithson (2008) identifies, uncertainty does not belong to a particular field, rather it is discussed (often implicitly) across many disciplines. This inevitably leads to differed perceptions taking hold within different fields, with some disciplines and professions discussing uncertainty as being of one kind, whilst others think there are many kinds. Indeed, many scholars acknowledge a ‘common usage’ or existence of the term as twofold when observing the combined components that give the term its full meaning. In some cases however, particularly in the field of economics and statistics, this twofold approach is somewhat disregarded, overruled by a strong preference towards interpreting the probability element of the risk/uncertainty distinction. Given the parameters set by the definition of risk, it appears that uncertainty represents a much more vague and unpredictable phenomenon, and, as LeRoy and Singell (1987) imply, uncertainty often occurs in cases where the distribution of the outcome is unknown, and therefore unsurprisingly, the outcome itself is unknown (“unknown unknowns”). The “unknown unknown” categorisation is therefore fully juxtaposed with the concept of certainty (or a “known known”), and interpreting these visually would place both categorisations at opposite ends of a sliding scale

(see Figure 6). Whilst literature on unfathomable uncertainty or “unknown unknowns” is discussed more readily in both practice and recent literature (Rumsfeld, 2002; Kim, 2012), a vast proportion of the existing body of knowledge surrounding uncertainty also seeks to address two further classifications: (i) “unknown knowns” where the existence is recognised, but the impact remains unknown and (ii) “known unknowns” referring to risks (which can be at best described using probability methods and controlled for using the conventional risk management techniques). One further expansion within the academic literature conceptualises what Ramasesh and Browning (2014) describe as “knowable unknown unknowns” drawing attention to the failure of a project manager to recognise unknown unknowns that could have otherwise been identified. Indeed, many scholars have contributed to the interpretation and categorisation of uncertainty; however, a number of conflicting views have arisen, based upon aleatoric and epistemic perception.



Figure 6: A visual categorisation (sliding scale) of risk and uncertainty.

5.3. Interpreting Uncertainty

To better understand uncertainty, its meaning should be considered in relation to “whether probability/uncertainty attach to the material world or to beliefs about the material world” (Dow, 2012; p. 74). Over the lifespan of probability theory, which can be assumed to have emerged in Ancient Greece (Bernstein, 1996), philosophers have conjured a wide-range of debates, centred on two types of uncertainty: epistemic uncertainty (due to a lack of knowledge) and aleatory uncertainty (due to variability/randomness) (Shafer, 1976; Oakes, 1986; Williams, 2002). As expected, one body of literature takes one extreme, asserting that all probability statements are principally epistemic (de Finetti, 1974), whilst others oppose this by submitting that uncertainty is fundamentally aleatoric (Reichenbach, 1949). In such a way, Runde (1998) interpreted the work of Knight (1921) as comprising “a continuum of probability situations” (p. 541), with aleatory uncertainty positioned at one end of the scale and epistemic uncertainty at the other. Such treatment of the two uncertainty concepts as being entirely independent or polarised has been considered important by probability theorists (Carnap, 1962). Whilst the distinction between epistemic and aleatoric uncertainty forms two camps among scholars (favouring one over the other), many still acknowledge the existence of both types of uncertainty. Alternatively, Oakes suggests that the majority of literature follows the

line of thought that only aleatoric uncertainties represent ‘true’ probabilities, thus rejecting any formal epistemic use of the term (Oakes, 1986; p. 97). The distinction between the two forms of uncertainty are important in order to identify where uncertainty may be reducible through further investigation, and are therefore be discussed in greater depth in Appendix A.

5.3.1. The Probability Theory Dichotomy

As previously submitted, uncertainty may be described or measured by applying probability modelling techniques. A fundamental dichotomy, however, exists between two of the core statistical theories: the frequentist and Bayesian theories. Frequentists contest the notion that aleatory uncertainty may be measured using probabilities, and therefore differs from the Bayesian approach, which considers probabilities as quantifying any form of uncertainty.

In order to clearly define the boundaries between the two dichotomies, Kendall (1949) identifies two core attitudes associated with probability theorists; the first (Bayesian) coins probability as being “a degree of rational belief” (Kendall, 1949; p.101) whilst the second defines probability in terms the frequency of an occurrence of an event, something that von Mises (1928) coined as “collectives”. As one would expect, probability theory continues to be greatly contested between the schools of interpretation and the frequentist approach does not escape criticism. Scholars opposing frequentist probability condemn its definition as being far too narrow, since situations may occur where an empirical collective cannot be used. It comes as no surprise that Keynes (1921) viewed the frequentist approach in this way, however, von Mises played such criticism out to be a strength and famously states how it is essential for probability to become narrowed, since it has nothing to do with epistemic propositions, like: “Is there a probability of Germany being at some time in the future involved in a war with Liberia?” (von Mises, 1928; p. 9). Turning what many perceived as a weakness into a strength, von Mises claims that probability may only be expressed as a scientific term, used only in a quantitative or mathematical sense where there is a significant set of uniform events “we shall not speak of probability until a collective has been defined” (von Mises, 1928; p. 18).

Having diluted one criticism of his relative frequency theory, von Mises’ theory is perhaps limited when defining the boundaries of collective probability. In fact, von Mises acknowledges that the meaning of the term may be imprecise in some uses: “In many cases the collective can be defined in several ways and these are cases in which the magnitude of the probability may become a subject of controversy.” (von Mises, 1928; p. 20). In the frequentist approach, probability is a property of a collective, not an element of the collective, we can therefore not speak of any particular event or “composite single event” i.e. the *fifth* toss of a coin, only that the coin may present ‘heads’ half the time in the long run (Oakes,

1986; p. 102). One further weakness of the frequentist approach to quantifying and describing uncertainty using probability techniques is in its ability to incorporate epistemic properties, such as subjective knowledge. Indeed, the Bayesian view proposes that the probability of a proposition forms a *degree of belief* in the truth of that proposition (O'Hagan, 2004). In this way, Bayesians are thought to expand the seemingly narrow frequentist approach by incorporating this subjective interpretation of probability.

5.3.2. A Pivotal View of Uncertainty

Fundamentally, both extreme views of uncertainty represent incommensurable philosophical (ontological and epistemological) positions. Attention must therefore be drawn to the mid-point between the aleatory and epistemic views discussed, and in doing so, it may be deciphered whether risks are about the world or our perception of it is a matter of human judgement, with the possibility of contestation (and the settling of contestation through the application of argument and evidence). This in itself represents a different onto-epistemological position to either extreme, in the sense that it places *judgement in the context of action* as primary, not truth (the risk is real), social construction (the risk is a shared construct) or perception (the risk is subjective). Indeed, by placing judgement as pivotal, it allows all the other attributions of risk, critical thinking and dialogue to be utilised and focused towards which attribution is the best in each context of action (Midgley, 2000).

5.4. Contextualising Risk

Having delved into the philosophical underpinnings surrounding risk; the next logical step would incorporate such underpinnings within a contextual environment. Throughout the majority of modern literature (and contrary to the frequentist views already explored), risk occurs in almost any given situation, the extent to which is based upon personal perception. It undulates in everyday activities in a casual, or as von Mises (1928) would put it: a 'colloquial sense', and it is recognised by organisations as a factor that is in need of careful management. Drawing a focus on the organisational context, themes of risk management and project management have developed both in theory and in practice. Additionally, in the opening section, it was implied that the definition of risk applied to this research study contained a two-folded meaning, consisting of a "probability" element and "impact" element. In this way, to fully understand the magnitude of risk, there is a requirement to understand the context within which such impact can be made.

5.4.1. Project Risk

It is widely acknowledged that project management has no agreed definition. Whilst many scholars have contributed definitions of project management, each additional contribution toward a definition obscures the term from reaching a widely accepted form. The Project Management Institute (PMI) have produced a Project Management Body of Knowledge (PMBOK) which provides a global standard for practitioners of project management, and perhaps offers a more generic definition of the term:

“Project management is the application of knowledge, skills, tools and techniques to project activities to meet the project requirements.” (PMI, 2013; p.5).

Such development of the knowledge, skills, tools and techniques associated with project management, however, are considered by many writers in the field as being a specialised management technique where projects are planned and controlled from a single point of authority (Buchanan & Boddy, 1992; Burke, 1993; Atkinson, 1999). Incorporating ideas of practice into the definition of project management, Atkinson identifies project management as being a “learning profession” (1999; p. 338) in which standards of practice have been developed, based upon a foundation of historical mistakes and best practice. However, scholars have identified project management to be associated with ‘unique’, ‘one-off’ and ‘complex’ tasks (Turner, 1993; Atkinson, 1999), thus making them difficult to define as a general collective. Reverting back to the idea of project management as a learning profession, it is perhaps rational to position the term as an evolving phenomenon. Furthermore, the absence of a consistent meaning is often accepted as a reason for the frequent failure of projects to perform well, as in the case of major projects. An essential factor for consideration here is that project management acknowledges a set of success criteria, which are made up of a range of components.

As with project management, there is no agreed or standard practice acknowledged when referring to project success. As Pinto and Slevin (1988) succinctly put it, until an agreed criteria can be set for governing “success” in project management, “articles, cases, and other studies of “successful” project management will remain of lesser impact simply because of our inability to fully define a concept which can mean so much to so many different people” (p. 1). An early contribution to the criteria of project success was that of the “iron triangle” (Figure 7), which identified three components of successful project management, namely: cost, time and quality (Barnes, 1988). This criteria remained popular within practice and academic writing, however, by the late 1980s, much wider definitions began to emerge as scholars began to criticise the iron triangle for its constrained application, which appears to be

based solely on measuring project management success (Pinto & Slevin, 1988; Williams, 2015).

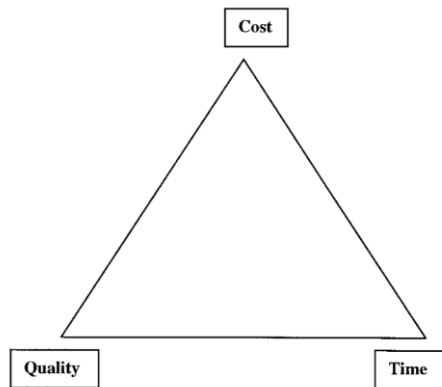


Figure 7: The Iron Triangle (Source: Atkinson, 1999; p. 338)

Despite this shift away from the iron triangle's success factors, across the academic literature, elements of the iron triangle can still be observed: some with more emphasis on particular elements than others. A definition provided by Reiss (2007) stresses the importance of the time element of the model, proposing that a project is a human activity where a clear objective is met against a *timescale*. Reiss then further extends this point of view by suggesting that, in order to achieve this, a combination of (i) management and planning, and (ii) change management should be employed in order to denote a project as being "successful".

The success factors were further extended to include other themes, with many project organisations adopting the view that project success was a product of the iron triangle success criteria, together with the added criterion of "client satisfaction". In this way, Pinto and Slevin (1988) proposed that project success was made up of two major components: the internal (project) and the external (client) element. The first component can be viewed as similar to the ideas put forward by the iron triangle, since it exercised the view that the project (internal component) itself must be technically correct and perform as intended. However, the second external component added a new dimension, which implied that "the project team must interface effectively with the client organization to maximise the likelihood of acceptance" (Pinto & Slevin, 1988; p. 6). Further developments aimed at securing a definition of project success add to the archaic project management ("iron triangle") criteria, and notions of project functionality, contractor commercial performance and project cancellation were discussed (Morris & Hough, 1987). Other recent definitions adopt sets of criteria, with the most

influential stemming from the U.S. Agency for International Development, and later, the United Nations and OECD (Samset, 2010, Chapter 2). Such a measure employed five criteria to project success: (1) efficiency, (2) effectiveness, (3) relevance, (4) impact, and, (5) sustainability. Assessing project success based upon such wide-ranging criterion almost guarantees some perception of “success” to arise among the project team. For example, Sydney’s Royal Opera House, though massively over budget and over schedule, is still classified as a project “success”, based upon the second criterion of “effectiveness” due to its iconic global presence. Again, what is perceived as being ‘effective’ is disputed by some, and in taking the opinion of the project architect; the delivery of this iconic landmark did not constitute a building that was fit for purpose when accounting for the large number of compromises made on the internal acoustics in order to save money.

Having discussed a number of key papers aimed at consolidating the definition of “success” in project management, it appears as though there is still great debate surrounding the criteria to be adopted in practice. Mir and Pinnington (2014; p. 203) describe this varied interpretation of project success, stating how: “Some conceptualise [‘project success’] as a uni-dimensional construct concerned with meeting budget, time and quality... whereas others consider project success a complex, multi-dimensional concept encompassing many more attributes”. Indeed, the lack of agreed definition poses further challenges to the need for careful consideration of the risks associated with failure to achieve a project’s success criteria. It is apparent that underpinning this argument is the need to draw on a key distinction between success in terms of *project management*, and success in terms of the *project*. Both of these may be viewed as successful in different ways, for example, a project manager’s success may be determined by whether the project was managed correctly, as determined by its output based position on the iron triangle. In this instance, what is pertained is that through adoption of the iron triangle, project success may only be determined simply in terms of whether the intended outputs and associated benefits have been achieved, as opposed to the establishment of the success of the project based upon its realisation of intended outcomes.

Adding to this, a fundamental dichotomy becomes observable within the literature, which highlights the disparity between success in terms of project’s outputs (i.e. the specific operational deliverables of the project as defined – the “iron triangle”) and success in terms of a project’s outcomes (i.e. the formal requirements underlying the set-up of the project in the outset). The output versus outcome discussion has received more recent attention, most notably, McLeod et al. (2012) expand on the output centric stance, by highlighting a number of problems that limit the meaning surrounding a ‘project’s success’. Among those identified, McLeod et al. give reference to the issue of a project’s multidimensionality, different levels of

scope and different time-frames for assessment. Incidentally, the literature makes some contribution towards understanding that a project's success may vary depending on the initial requirements identified during the set-up, making a project's intended outcomes a fundamental contributor to its success. Despite this, McLeod et al. also recognise that the three aforementioned issues provide merely a first step towards managing a project's success through consideration of its intended outcomes, as opposed to outputs, and that in reality a project is shrouded by greater complexities: "the results of the case study suggest that multidimensionality, scope, and temporality by themselves are insufficient to explain the complexity involved in project outcome evaluation. Similarly, Kreiner (1996) acknowledges that projects are designed to extract predefined outcomes, yet recognises that these early intended outcomes will remain the same over time. Critically, evaluating the outcome of a project is a subjective process, in which interpretations of the outcome vary subjectively depending on a stakeholder's perspective and expectations of the project" (McLeod, 2012; p.80). Furthermore, Morris (2003) submits that a broader framework needs to be considered when establishing a formal body of knowledge in the project management realm. Framing the discussion around the existing PMBOK Guide, Morris (2003) discusses the requirement for projects to shift towards the consideration of strategic, technical and commercial (outcome related) matters, as opposed to an output based activity, consisting as a "planning and reporting based, execution oriented activity" (Morris, 2003).

5.4.2. The Changing Context of Project Risk Management

Project management teams adopt management techniques in order to increase a project's chance of success, thereby reducing the risk of failure. In such a way, project risk is a factor which must be carefully controlled and monitored throughout a project's life cycle. As already discussed in the previous section, risk to a project may prevail at any time, to differing degrees, and, in different forms depending on how it is interpreted. In project management, Project Risk Management (PRM) techniques are commonly incorporated in order to increase the chances of achieving the project success criteria. However, although PRM is widely acknowledged in practice, its application has unique developments in different domains. For example, the construction industry is a key user of PRM due to the scale of the projects undertaken (Perry & Hayes, 1985; Williams, 2002). Other industries however, may demonstrate differing levels of risk and complexity, for which slight adaptations to PRM techniques have been employed. New methods of enterprise risk management are constantly being expanded upon and developed, with certain sectors adopting variations of techniques. Put into context, it is standard practice within the engineering sector for projects to be shaped according to their technical and health and safety risks, since it the failure to acknowledge these could result in catastrophic outcomes. Despite this, attention has also turned towards the

management of enterprise risk, with particular focus on the financial implications that may present themselves. The government currently endorse guidance under the Risk Analysis and Management of Projects (RAMP) technique which is acknowledged by civil engineers for its ability to raise the profile of financial risk through the adoption of a step-by-step risk analysis framework, designed to mitigate risk in infrastructure projects. Moreover, the benefits of RAMP include its application to different degrees of complexity, whereby it may be applied to both projects comprised of complicated facets and less detailed projects requiring prompt assessment. Of course, RAMP is not intended to be implemented solely by civil engineers, and may be applied together with other enterprise risk management guidance, like that of STRATRisk which draws a focus towards the acknowledgement of externalised strategic risk. Moving away from sector specific applications, STRATRisk is positioned towards reaching a broad spectrum of sectors, both public and private through the application of checklist technique and other practical tools that are designed to consider an organisations strategic foundations, such as culture, communications and structure.

Having identified that project risk management exhibits unique traits based upon the field or domain in which it is situated, another determinant, namely the *scale* of the project, bears some influence on the level of risk a project may be exposed to. Located at one end of the scale are small, day-to-day projects, commonly characterised by standard, or less unique traits with perhaps a low magnitude of implication or risk. Towards the opposite end of the scale are major or ‘megaprojects’, representing projects that are “particularly demanding either because of their size, complexity, schedule urgency or demand on existing resources or know-how” (Morris & Hough, 1987). Indeed, beyond a certain size, the level of risk associated with a project increases exponentially and is often significantly greater than the aggregated risk of its subcomponents (Fraser, 1984). Much of the literature supports this view of megaprojects, with many scholars drawing an association between how the extreme size and complexity of these projects prompts an increase in risk, and ultimately, project failure. Indeed, many contributions to the literature incorporate regular *ex post* case study methods, adopted to examine the reasons for the frequent failure of these large projects and to learn something from past mistakes. A commonly accepted feature of megaproject failure is the inability to avoid cost overruns (with accurate cost management being a criterion for the execution of successful projects). Often, the reason for such overruns on cost is due to the subjective beliefs and knowledge used in the initial assessment of the project’s front-end risk and later, in the control and risk mitigation phases of the project. Flyvbjerg (2014) examines several hundred past examples of major projects, showing cost overruns to be a regular occurrence within the public project realm. However, he also suggests a range of potential causes for heightened risk. It is well documented across the literature that project costs are often markedly underestimated, with

demand and project benefits being grossly overestimated, as with the case of predicted traffic in major projects for the development of transport infrastructure (Flyvbjerg, 2014). As a result, it appears as though many PRM methods are unable to produce an accurate forecasting platform that the entirety of the project can be fundamentally based upon.

In government, projects that are deemed to be ‘major projects’ are managed by the Government Major Projects Portfolio (GMPP), an annual report that tracks the progress and performance of major projects through a transparent and independent review. According to the UK government’s online guidance, in order to be included within the GMPP a project must: require spending over and above departmental expenditure limits, require primary legislation and must be thought to be innovative or contentious in nature (Government UK, 2018). GMPP projects therefore reflect those that are considered to be large in terms of value, are politically sensitive and therefore bear a heightened susceptibility to risk. To understand the significance of these projects, 2017’s portfolio contained 143 projects with a total life-time cost of £455.5bn (IPA, 2017), a size and scale which prompts further considerations to be accounted for, particularly in terms of the complexity of major government projects.

5.5. Exploring Complexity

5.5.1. Defining Complexity

Given the themes presented in the previous discussion, it remains clear that complexity is increasingly recognised as a contributing factor to the challenges presented within the project environment. Complexity is thought to comprise of many possible meanings, and, in order to truly understand the relevance of ‘complexity’ as a systems thinking approach, the definition of the term should be further explored (Klir, 1985). According to the Cambridge English Dictionary, the general meaning of complexity can be understood by definition, as: “*the state of having many parts and being difficult to understand or find an answer to*” (McIntosh, 2013). This bears some resemblance to the definition posited by Simon (1962) who describes a complex system as: “one made up of a number of parts that interact in a nonsimple way. In such systems, the whole is more than the sum of the parts, not in an ultimate, metaphysical sense, but in the important pragmatic sense that, given the properties of the parts and the laws of their interaction, it is not a trivial matter to infer the properties of the whole” (Simon, 1962; p. 183-184). A number of traits can be extracted from this meaning; the first follows a view that has dominated within the field of organisational studies, and implies that complexity exists as an objective property of a system (Moldoveanu, 2005). In this view, complexity is said to increase with the quantity of parts as well as the density and variability of relations among

them (Maguire, 2011). The latter half of the definition however, leans more toward the issue of comprehending a situation within a specific context, and is a problem that may be addressed from a conflicting ‘cognitive complexity’ perspective (Boisot & Child, 1999).

5.5.2. An Objective/Subjective Divide on Complexity

Already, by exploring the meanings associated with ‘complexity’, it can be proposed that the second component of the definition draws attention to the observer of a system, suggesting that complexity is a subjective concept. It therefore corresponds with the idea that complexity is difficult to represent and it is problematic to think we can accurately predict the way in which a system may operate. Furthermore, Warfield (2002) contributes a much more thorough exposition of the subjective nature of complexity, advocating complexity as being directly linked to human mental limitations. For Warfield, “Complexity is that sensation experienced in the human mind when, in observing or considering a system, frustration arises from lack of comprehension of what is being explored” (Warfield, 2002; p.20). Taking this subjective perspective, Warfield challenges the modern views, arguing that these are falsely based on what is being observed (as indicated by the terminology used i.e. “complex systems” and “complex problems”), rather than denoting complexity as “a sensation” arising out of our own “unclearness of thoughts” (2002; p.20). What is perhaps most noteworthy is that Warfield’s subjective view of complexity ultimately allows for the possibility that a human may be able to reduce or even completely eliminate complexity through the process of *learning*. Midgley (1992) shares a similar view, arguing that our traditional understanding of complexity is limited if the focus is solely attributed to the “natural world” of object relations, thereby excluding “complexities of moral decision making and subjectivity” (Midgley, 1992; p. 149). Given this stance, scholars seeking to incorporate a further subjective element into the systems scientists’ notion of complexity do so under the belief that it will ensure the future legitimacy of systems science.

Other scholars further this dual-approach, supporting the view that complexity contains two distinct branches of thought, namely: *things* and *people* (Flood, 1987; Flood & Carson, 2013). Like the objective conception of complexity, criticised by Warfield (2002), Flood and Carson denote “things” as being a contributor towards complexity through their tangible and concrete characteristics, whereas “people” can be categorised as comprising of subjective or abstract thoughts towards complexity. However, dissimilar to the objective/subjective divide, these two components of complexity are assumed to influence each other, and Flood and Carson (2013) submit that even strongly concrete *things* may be subjected to varied interpretation due to the abstract perceptions of the *people* associated. Whilst this provides a fundamental distinction to the realm of complexity theory, Flood and Carson fail to recognise the critical

role that 'judgment' plays in deciding at any moment on what type of complexity we are dealing with as other scholars have since highlighted.

5.5.3. Beyond the Objective/Subjective Views on Complexity

Expanding beyond the 'objective' and 'subjective' view of complexity, Midgley (1992) draws emphasis on the value of judgment in complexity theory, contributing to the systems science literature by describing four domains of complexity. These four types of complexity judgment as coined by Midgley consist of: *natural world complexity*, which implies that the relationships between the parts are so complex that they surpass any adequate human comprehension. The second is *social world complexity*, which describes the degree of "our understanding of the relationships between value judgments and the ways in that these have been normatively constructed" (Midgley, 1992; p. 154). Thirdly, Midgley identifies *internal world complexity* in the subjective worlds of human beings, where we make judgments on what people (including ourselves) think, feel and intend. The fourth form of complexity is the meta-level complexity that comes about in dynamic and contested situations where we are required to make judgments on which of the other three complexities are appropriate to consider at any particular moment in time. By taking a three-pronged approach to complexity theory, we can move away from the limitations prompted by the traditional systems view of natural complexity, where a system is deemed to be "simple" if all of the relationships perceivable can be recognised by the observer and "complex" if they cannot (Midgley, 1992). In this sense, a subjective/objective divide is deemed irrelevant, and some scholars recognise that these realms of complexity are not independent of one another (Jackson & Keys, 1984; Flood & Jackson, 1991). Rather, in order to relieve or even solve the problems currently faced in the global environment, scholars like Midgely stress the need to better understand the relationships associated with the natural, social *and* internal world complexities. Of course, such theory is underpinned by methodological interpretations, which will be discussed in the methodology section of this research.

5.6. Project Complexity

Recent developments within the field of Project Management (PM) have prompted the progression of traditional (sometimes described as 'simple') project management techniques to accommodate complexity theory. That is not to say that conventional project management techniques exclude the presence of complexity, rather the systems thinking perspective has been somewhat ignored. Turner and Cochrane (1993) open a piece in the International Journal of Project Management which demonstrates this recognition of complexity in the traditional sense: "Many traditional definitions view a project as a complex sequence of activities to

deliver clearly defined objectives” (Turner & Cochrane, 1993; p.93). However, mere recognition of complexity does not necessarily imply that the most effective method of PM is implemented, which traditionally adopts linear tools and management structures. Since the mid-twentieth century, general systems theorists have drawn particular attention towards the importance of structural similarities or *isomorphies* between two streams of knowledge (von Bertalanffy, 1972). The scientists sharing this view argue in favour of combining disparate schools of logic, so that any unnecessary duplication of labour to the workers in one field (unaware of the theoretical structure being already well developed in another field) may be avoided (Boulding, 1956; von Bertalanffy, 1972). Perhaps more specifically, a considerable amount of information in the PM domain already draws attention towards an isomorphic approach, with some scholars commenting explicitly on the applicability of complexity theory in the context of project management (Curlee & Gordon, 2010; Kerzner, 2013). In fact, PM literature now commonly imparts this distinction by separating out “traditional” from “complex” projects. Of course, whilst complexity might provide new insights into PM theory and practice, the past success of projects based on traditional methods that have not utilised complexity theory cannot be discounted.

Alongside other scholars, Morris and Hough (1987) underpin the relevance that a clear distinction is made between the two project management realms by asserting that: when applied to a complex project; traditional tools and management styles are often impractical. In a similar way, drawing on the tools and management styles, an extensive discussion can be found in Curlee and Gordon (2010) who take the case of the UK’s PMBOK Guide and its purposeful disregard for complexity theory. According to Curlee and Gordon, such disregard for complexity in a tome that is considered by many practitioners to be the standard practice poses significant limitation, more specifically they highlight human interaction as being an important contributor to complexity in projects: “when one realizes that human interaction is less mechanical and more fluid than that described in the PMBOK Guide, one realizes the necessity of addressing complexity in the guide” (Curlee & Gordon, 2010; p. 21). Despite the disregard for complexity within the PMBOK Guide, developments have presented themselves in the Infrastructure and Projects Authority (IPA) who provide guidance which aims to improve the delivery of infrastructural projects. The handbook, principally titled: ‘Improving Infrastructure Delivery - Project Initiation Routemap’ provides a section for assessing complexity through application of the ‘Delivery Environment Complexity Analytic’ (DECA) tool. The tool advises practitioners to assess the project in terms of its challenges, complexity and risks through employment of a rating scheme (high, medium and low), which in turn seeks to build a bigger picture of the characteristics of the delivery environment (IPA, 2016). In doing so, practitioners are giving increasing recognition to the notion of complexity into the

management of projects, which provides early steps towards recognition of this fundamental causal phenomena.

Though in practice, the identification and assessment of complexity is gaining greater attention, the categorisation of complexity into thematic components still resides in the scholarly contributions made. Human interaction marks one of the many project dimensions of complexity often deemed synonymic with *relational complexity*, whilst other scholars list dimensions such as *structural complexity*, *uncertainty* (Turner & Cochrane, 1993; Williams, 1999; 2002), *technical complexity*, *organisational complexity* (Jones & Deckro, 1993; Baccarini, 1996), *resource complexity* (Maylor, 2010) and *contractual complexity* (Hetland & Fevang, 2013). It is with these foundations of complexity theory that scholars have begun determining new ways for understanding the complexities that prevail in project management, from a systems perspective (Cicmil *et al.*, 2009; Cooke-Davies, 2011).

Looking at complexity through the PM lens, a paper by Geraldi *et al.* (2011) provides an extensive review of articles that focus on the complexity of projects. The paper consolidates complexity into its five types: structural complexity, uncertainty, dynamic complexity, pace complexity, and, socio-political complexity (Figure 8). From a fourteen-year sample, the analysis shows how the frequency of the appearance of complexity in its supporting literature has increased over this period, with many authors initially acknowledging just one or two types of complexity in the mid-nineteen nineties and nearly all types being considered in the later papers.

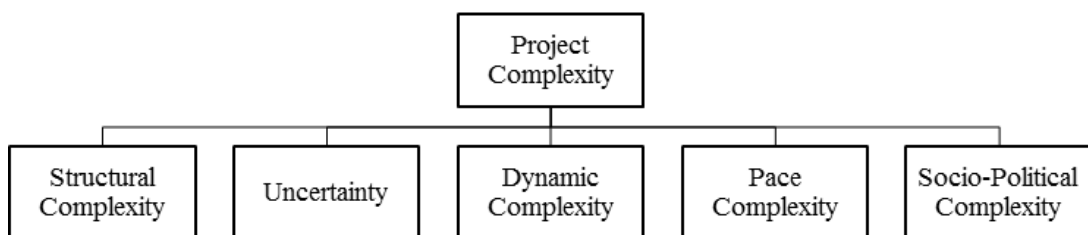


Figure 8: Five dimensions of complexity. (Adapted from Geraldi *et al.*, 2011)

Like Geraldi *et al.* (2011), a recent paper by Maylor *et al.* (2013) recognises the multiple dimensions of complexity and consolidates these further (

Figure 9). Here, Maylor *et al.* (2013) continue to discuss the importance of structural complexity and socio-political complexity, yet binds two dimensions of ‘uncertainty’ and ‘change’ into a third dimension coined “emergent complexity”. Whilst emergent complexity extends beyond the prior literary themes surrounding complexity, at its core, it still

acknowledges the importance of uncertainty in complex situations, yet expands this further by attributing the meaning of the term to novel situations where learnability is low. ‘Change’ on the other hand incorporates a second aspect to the dimension of emerging complexity by considering changes in requirements, technology, in stakeholders and in the organisation (Maylor *et al.*, 2013). What must be noted at this stage is that Maylor *et al.* (2013) amongst others (Geraldi *et al.*, 2011) perceive uncertainty in complex projects in terms of variety (chance and probability) or epistemic uncertainty: “uncertainty is typically the result of novelty of technology or process (Wouters *et al.*, 2011), a lack of experience, a lack of availability of information, or some combination of these.” (Maylor *et al.*, 2013; p. 47). Viewing uncertainty in this way bears significant similarities with previous discussions surrounding aleatoric and epistemic uncertainty, and almost condemns the topic to a cyclical debate on how uncertainty is interpreted. However, irrespective of whether uncertainty is viewed from the epistemic or aleatoric stance, what must be recognised is that uncertainty continually appears as a critical dimension to one’s own understanding, and subsequent management of complexity.

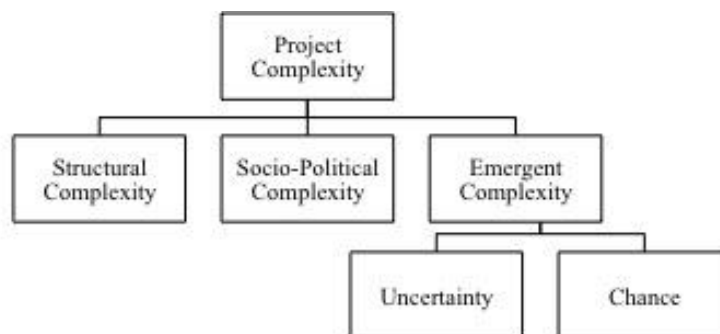


Figure 9: The three dimensions of complexity. (Adapted from Maylor *et al.*, 2013)

5.6.1. Uncertainty as a Form of Complexity

In a previous section, uncertainty was identified as being a key component to project management with many writers in the field recognising its importance over time (Geraldi *et al.*, 2011), particularly in relation to the prevalence of complexity. Following the early recognition of structural complexity as a form of complexity, uncertainty began to emerge “usually in a two-by-two matrix where it is orthogonal to structural complexity” (Geraldi *et al.*, 2011; p. 976).

Proposed initially by Williams (1999), the development of the classification of complexity (see Figure 10) from structural complexity towards the incorporation of uncertainty formed as

an extension to Baccarini's (1996) paper, before it progressed further into the general management field. Although Williams (1999) continued to recognise the importance of structural complexity as an integral dimension of project complexity, this was already well documented in a paper by Baccarini (1996) which acknowledged two key components of project complexity: "differentiation" (i.e. the range of components involved in a project) and "interdependencies" (i.e. the degree of interconnectedness found between the differentiated components). Whilst Williams (1999) resembled this notion of structural complexity through the identification of sequential complexity (what Baccarini labelled as differentiation) and feedback complexity (interdependence), Williams (1999) drew further attention to an additional element of 'uncertainty' that is absent in Baccarini's 1996 paper. Likewise, other papers exhibit a similar set of complexity dimensions, however, many extend the two dimensions provided by Baccarini (1996) towards a third dimension of "uncertainty" (Jones & Deckro, 1993; Turner & Cochrane, 1993; Williams, 1999).

Turner and Cochrane (1993) portray uncertainty in project management through application of an approach that describes two distinct factors: (1) goal uncertainty, and, (2) method uncertainty. In this case, each factor relates to the problematic elements of uncertainty that frequently unravel within a project. Acknowledging that uncertainties arise from a range of sources, such as: 'task difficulty' (Van de Ven & Delbecq, 1974) and difficulties in employing resources for activities which vary with place and time (Thompson, 1981), Gidado (1996) demonstrates a close replication to Turner and Cochrane's goal and method uncertainties. Gidado (1996) however, furthers the work of Turner and Cochrane (1993) by identifying one additional aspect of environmental uncertainty.

The literature examined presents complexity as being a phenomena that arises due to the materialisation of uncertainty within a given context. As already observed, the types of uncertainty amounting to a complex outcome may therefore differ from one circumstance to another. Whilst a significant proportion of literature provides comprehensive coverage of this concept, the commonality that binds these together resides in the authors' combined recognition that something is often considered to be complex where it comprises of a multitude of interacting parts that are difficult to understand. When applying a context (or in identifying of a specific system, activity or process), varied combinations of determining behaviours may be accounted for. In a systems context, the dynamic and complex behaviours exhibited by the system under investigation is denoted by the term "systemicity", a term which requires further attention, and will therefore be addressed in Section 5.7 of this chapter.

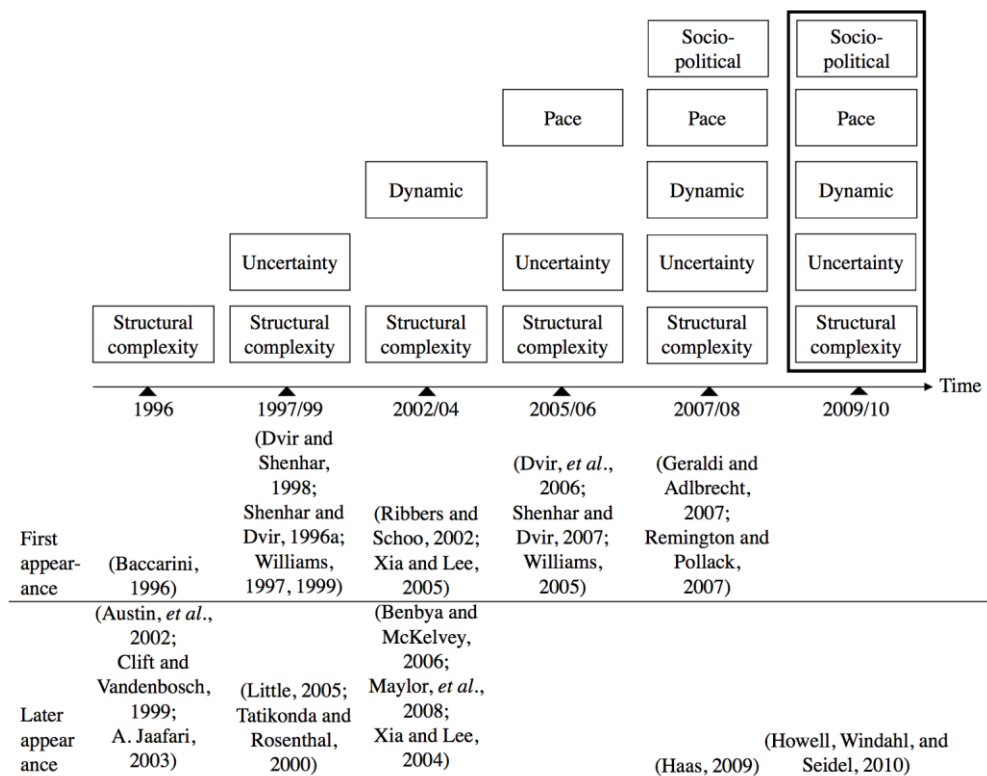


Figure 10: A historical development of complexity (Source: Geraldi, 2011; p. 972)

5.7. What is Systemic Risk?

Like many applications of a term to a study, the definition of systemic risk varies in its agreed meaning and what is considered an appropriate application. Whilst the term “systemic” is adopted in a range of fields to denote something that spreads throughout a group or system, the term “systemic risk” has been adopted almost entirely in the field of financial markets, acting as a favoured approach for understanding the risks associated with the interdependencies that exist between financial systems. Unsurprisingly, much of the financial writing owes to the global financial crisis of 2007-2008, which prompted the need for new approaches to risk to be applied within the field. Despite its unrelenting adoption in the financial field, it must be emphasised that the study of the phenomenon of systemic risk is by no means limited to economics or the financial system (De Bandt & Hartmann, 2000). Given that this piece of research focuses its efforts towards a system that is distinctly different from the financial system, the definition of “systemic risk” will not be identical. Instead, a more general definition will be put forward in order to open the term towards an application that may be adopted in other fields of understanding. That is not to say that the value of the financial application will be ignored in its entirety, instead, its more generic components will

be acknowledged in order to enrich the composition of the working definition to be used within this research.

5.7.1. Why do we need to Identify Systemic Risk?

The value underlying the consideration of systemic behaviours lies in the notion that it provides a broader approach to understanding risk. Advocates of a systems thinking approach to risk analysis submit that the features of *synthetic* and *integrative* thinking allow for a better understanding of both “individual and collective behaviour, human and technical alike, that cannot be obtained by analysis alone” (Kapsali, 2011; p. 4). Systemic risk is therefore considered to be a conceptual framework, made holistic through its ability to adapt to a variety of contexts in terms of its ability to apply a range of theories, tools and techniques (Pourdehnad, 2007). It is often viewed as an approach that offers much greater insights into various domains, and can be applied within the realms of risk management and project management alike: “In projects, bad things tend to happen in groups, not individually... Events that affect projects in major ways... tend to go together. Even when one of those things occurs individually, it tends to trigger a cascade of problematic effects.” (Morrow, 2011; p. 327). The interrelatedness of risk appears to be a matter of concern, giving scholars a greater motive for eliciting further attention to the topic. However, since the topic is currently under-researched, the use of the term varies with discipline, and as a result, a common definition of the term has not been attained. For this reason, various sources of literature, across a range of disciplines have been reviewed, particularly within the medical, finance and banking, and, project management spheres (see Appendix B), and will each be cross examined for their prominent or complementary characteristics in the following section, in order to reach a general definition of the term.

5.7.2. A Multi-Disciplinary Definition of Systemic Risk

Already it has become apparent that to capture systemic risk, there is first a requirement to identify the system at risk. Whilst much of the literature draws a considerable focus towards the financial system, systemic risk may relate to any system. One example provided by De Bandt and Hartmann (2000) involves the area of health and epidemic diseases, which in extreme cases, threatens a significant number of people. For the purpose of this research, the system at risk can be identified as a contractual system within a complex organisation. From this, we know that we are looking at an operational system within an organisation, therefore prescribing a degree of influence from the existing literature in this domain. Breaking the term down further, it can be ascertained that the system at risk in this particular case is not a macro system, unlike the financial system, and so a meaning based purely on the financial systems definition of “systemic risk” does not seem rational. However, some financial papers look at

the micro aspect, and these should not be discredited. Rather, the definition may be more comparable to an individual system, like the human body, a case that varies from human to human, yet within which, some assumptions can be passed from case to case.

Through the fields previously discussed differ in their areas of specialism, the understanding of “systemic” appears to hold some commonality between them. Already, two key observations have been highlighted in the prior discussions, these are:

- (i) The term systemic may refer to complex interrelations that prevail within a system, these pose as a complex chain of outcomes which cascade through multiple parts of the system, or in extreme cases, the entire system.
- (ii) *Systemic failure* is caused by the inability to recognise the development of a *systemic risk* before it reaches its advanced stages.

Therefore, in the case where the system at risk is identified, and for the benefit of this study; systemic risk refers to: *the widespread occurrence of an inherent phenomenon resulting in the partial or full breakdown of a particular contractual arrangement, positioned within a contractual system. In this context, it captures the risk of cascading failure within the system, caused by the complex interconnection of its parts* (i.e. what is built into the contractual arrangement in order to build a strong relationship between the two contractual parties).

5.7.3. Measuring Systemic Risk

Whilst the measurement of a systems complexity has provided new insights over recent years through the development of a set of systems tools such as: causal chain analysis, feedback loops and correlations, looking beyond this, some academic papers exhibit the view that cybernetic tools may make up a wider component or ‘rule’ that can be used to provide a common metric to systems thinkers. Williams (2002) provides a discussion on systemic effects in complex projects when referring to the combining of effects (hard or soft) to give an overall effect that is greater than the sum of their individual components. Almost parallel to this, yet in the domain of systems thinking, Cabrera *et al.* (2015) argue that there are four systems rules, coined by the acronym “DSRP”. These rules present thinking in terms of ‘distinctions’ (or boundaries), ‘systems’ (wholes and parts), ‘relationships’ (such as feedback loops, correlations and causality) and, ‘perspectives’ (whose view of risk and why?). Rather than taking each of the rules independently (as many authors in the past have), Cabrera *et al.* adopt the view that systems thinking involves the co-occurrence of simple rules (i.e. D, S, R & P), which, they argue, makes it an “indispensable tool for solving complex projects” (2015; p. 534). The authors therefore recognise the extant work on each individual rule of DSRP

(whether it be distinctions, systems, relationships or perspectives) yet develop this further by encompassing all four components into a single, unified theory. In this view, it can be supposed that there is room to analyse phenomena like risk systemicity through a compounded approach, perhaps through universal rules as Cabrera *et al.* argue. From this perspective, compounding influences are considered far more beneficial to the understanding of complex environments than taking the effects as individual, isolated influences (Williams, 2002; Eden *et al.*, 2000). What should be highlighted is that very few academic papers exhibit this collaborative or multidimensional perspective where the risks to a system (or systemic risks) that are exacerbated by complexity may be interpreted as co-occurring with other components (irrespective of whether these are hard/tangible or soft/less tangible effects) rather than examined and dealt with individually.

5.7.4. Project Complexity and Risk Systemicity

As with all projects, the variety and magnitude of the risks imposed throughout the project life cycle vary, and are triggered by chains of complex networks. In this way, project complexity is described throughout the academic literature as possessing a range of dimensions, irrespective of the size of the sector in which said projects are contained (Boston, 2000). As previously discussed, the occurrence of risk in projects has prompted both practitioners and scholars to better their understandings of the behaviours of projects and the reasons for their regular failure. More recently, a branch of the risk literature has developed bringing ideas of complexity into the forefront whereby a new “systemic” perspective on the causal chains of project management is taken. Such a wide perspective inevitably possesses some difficulties, and as Williams writes, “Risk analysis is important for complex projects; however, systemicity makes evaluating risk in real projects difficult.” (2017; p. 55). A reason for such difficulty in creating a systemic approach to risk evaluation is due to the current limitations of common practice, which adopts ‘decomposition-type’ methods, associated with approaching the risks relating to individual elements of the system; these methods therefore lose sight of the more important and true causes of risk, given that the elements of the system inevitably interact (Williams, 2017). Like Williams (2017), other scholars highlight the difficulties associated with evaluating major systemic change based upon a disregard for inter-relationships between risks (Hodgson, 2002; Raz & Hillson, 2005; Curlee & Gordon, 2010). However a number of authors also recognise the importance of measuring systemicity in project management, commenting on how the success (or failure) of a system “cannot be accomplished by merely assessing the success of each of the component parts and then aggregating the results” (Boston, 2000; p. 29). With this in mind, whilst progress in the academic literature has been made towards the concept of complexity and interrelatedness of projects, limitations prevail in the literatures’ application of complexity theory to the management of risk; or more importantly,

the understanding of the systemic interdependencies that exist *between* the risks, and their implications. Indeed, many scholars fail to consider this interrelatedness of risks in projects, or even acknowledge the causal chains associated with human reactions that provide significant insights into systemicity (Williams, 2017). This is perhaps noticeable in the well-cited handbook on project management by Winch and Maytorena (2011), which provides only a small mention of the inter-connectivity of risk.

5.8. Gap Identification and Summary

Having undertaken a critical exploration of the existing literature on risk and uncertainty, it can be deduced that some debate surrounding the definition of terms still continue to prevail amongst risk specialists. Already the chapter has opposed the oversimplification of “uncertainty” as a uniform concept by presenting the aleatoric/epistemic division, together with the four-way separation of (un)known (un)knowns. Furthermore, during the review of the literature presented within this chapter, it has become evident that there is little acknowledgement given to the interdependent nature of risk (or risk *systemicity*). Whilst extant literature document a set of practical ‘risk control tools’ used within the project management field (such as risk registers), these may only be used to address independent risk patterns, and therefore disregard the need for determining a distinctive definition of systemic risk. As a result, the literature reviewed implies that there is no uniform application of the term, rather the term is applied in a variety of ways across a wide range of academic fields and practices. As a result, it is believed that there is a requirement to further investigate the nature of systemic risk, and further refine its definitional application. Evidently, such a momentous array of literature prompts an ever-increasing epistemological debate geared towards identifying new ways of viewing risk and uncertainty, particularly in light of new and varied contextual situations, like that of complex environments. The research therefore aims to address this gap in the literature, through investigation of the interrelatedness of risk (in terms of its characteristics and impact) and its subsequent management.

CHAPTER 6

THE RESEARCH DESIGN:

A Theoretical Application

6.1. Introduction

The previous four chapters presented a detailed discussion of the relevant literature that both underlies and provokes this research thesis. Expanding on this, the following ‘Chapter 6’ aims to identify the appropriate theoretical choices that will enable a robust and replicable research design to be executed. To establish a research design, careful consideration must be given to the philosophical stance of the researcher to ensure that the approach taken does not contradict the way the researcher views the ‘real world’. For this reason, this chapter will begin with a note on the philosophical stance that underpins the research choices made, together with a high-level overview of the theories supporting and contrasting with this philosophical position. Beyond this, the chapter will present and rationalise the selection of a set of research questions, partly devised as a result of the gaps identified in the existing literature (discussed in Chapters 2-5), and partly from the researchers approach towards extracting and rationalising information (whilst retaining his/her own perception of reality).

The second half of the chapter will then present the methodological choice made, derived from the philosophy and research questions. Since the methodology comprises of a set of methods, these will then be discussed in depth, focusing on the theoretical positioning and argument for such choices. Both consideration of the methodological and methods will be approached using theoretical justification, based on similar research studies and advocates of a similar philosophical belief. The chapter therefore aims to justify the *theoretical* choices made when constructing an appropriate research design for the research problem at hand, before the thesis proceeds with a *practical* application of the research design in Chapter 7 (that is, Chapter 7 applies the research context and aids further refinement of the research design).

6.2. A Note on Underlying Philosophy

Prior to the identification of the research approach to be adopted (such as, the data collection, data sources, and so on) the philosophical assumptions underpinning the research must be made explicit, since these are what shape the investigation. The philosophical stance taken within the research assumes a number of important traits, which are influenced by two areas.

The first area to be discussed is the ontological stance of the researcher, that is, the way the researcher views the world. In this instance (and for the purpose of this research thesis), the ontological view taken infers that the world is predominantly socially constructed, in that, the world and its surrounding phenomena may be better understood when the perceptions of the participants involved are carefully examined (thus subscribing to ideographic ontology). To clarify further, the stance taken contrasts with nomothetic ontology, where reality is thought to exist as an objective structure, which may be separated or treated as independent phenomena.

The second area contributing to the derivation of the broader philosophical assumption concerns the way in which knowledge is understood. Logically, a researcher must first investigate his/her own understanding of the world before any assumptions relating to the knowledge of the world can be extracted. However, once the ontological stance adopted has been made explicit, the researcher can begin to decipher his/her own assertions about the study of knowledge (or epistemology) in relation to the nature, sources and boundaries of that knowledge. In keeping with the ideographic ontological choice already ascribed to, the epistemological view taken within this research assumes that knowledge is grounded on the belief that the investigation into the social world requires a different approach, one which is able to replicate the uniqueness of humans (Bryman, 2016).

The discussion of the two ontological and epistemological areas contribute to the comprehension of positivist and interpretivist paradigms of philosophical assumption - positivists adorning the nomothetic approach and interpretivists favouring ideographic traits. Exploring the two contrasting philosophical choices through a more practical interpretation, researchers will categorise their research as being qualitative or quantitative. Though the distinction may be used to refer to the type of data collected within a research study, more recently it has acquired a greater association to philosophical stance. Quantitative research for example tends to be a result of a positivist approach, in that it exhibits scientific or independently measurable features. Likewise, qualitative research on the other hand replicates the interpretivist approach, whereby knowledge is built from human intervention and social perceptions of reality, making it much more descriptive in nature. Whilst quantitative and qualitative research show contrasting features (aligning closely with that of the positivist/interpretivist divide), the two are often used in conjunction with one another, demonstrating a mixed-method approach. By combining the two methods approaches, it is thought that a greater richness of data may be extracted, enabling the research to reach new depths. At this point it must be made explicit that adopting both quantitative and qualitative methods does not mean that the research is to subscribe to a philosophical stance which

combines positivist with interpretivist approaches. Instead, it infers that the two philosophical stances are incompatible and it therefore relates only to the combining of methods, that is, the way that data is collected and analysed. Affixing a label to this, the approach is considered closely resemble a pragmatist's philosophy.

An important distinction underlying the pragmatist philosophy is that it favours the consideration of an intersubjective state which sits in between the objective stance of positivists and the subjective stance of interpretivists. Rather than adhering to a fully subjective stance, the research will assume the stance that we make sense of our actions and those of others through a 'stock of knowledge' that is held in common and that we inherit and learn through members of society (Hughes & Sharrock, 1990; p. 138). Lending to this definition, under a pragmatist approach, it is asserted that there may be both a 'real world' within which, individuals hold their own distinctive perception of that world.

At this point, it must be recognised that a high-level discussion of the core philosophical doctrines is premeditated in a way that introduces and focuses only on the crucial considerations of the researcher (that is, that a single 'real world' exists but a person's perception of that world is subject to their own socially constructed experiences and perceptions). The reason for this is that, rather than burdening this chapter with an extensive discussion of philosophical beliefs, it is envisaged that the pragmatist stance employed within this research piece will become more apparent to the reader as they progress through the following sections of this chapter.

6.3. Forming Suitable Research Questions

Developing a set of research questions is one of the initial steps to be taken when deriving a research design that is fit for purpose. The questions represent answerable inquiries that are crucial to addressing the research problem at hand and must therefore be capable of capturing the line of inquiry emerging from gaps in existing literature, whilst adhering to the researcher's underlying philosophical stance. The literature review chapters of this thesis conclude by identifying the shortcomings of the current scholarly literature and therefore directly prompt the requirement for further investigation (the refined research questions are presented in Chapter 7, Section 7.2.).

The way in which the research questions extract information, however, is partly dependent on the choice of interrogative word used (who, what, when, where, why and how), which bear close association with the ontological position of the researcher and enable the underlying

philosophy to permeate throughout the research design. Reiterating this concept, positivist philosophers often adopt interrogative phrases that are consistent with hypothesising or testing theory, such as, “what” questions. Likewise, quantitative studies also structure research questions in this way, since the solution is often considered to be measurable or quantifiable in nature. Interpretivists however prefer to use questions that prompt descriptive responses that enables theory to be developed and therefore often attach “why” and/or “how” questions to their research design and therefore also tend to be associated with qualitative studies. Where a mixed-method approach is incorporated (under pragmatist philosophy) then as one might expect, there is likely to be a combination of interrogative phrases used within the set of research questions, so that both the single state of reality can be identified, together with an individual’s socially constructed perception of the real world. Chapter 7 presents the practical application of the research design by accounting for the research context. It therefore presents a set of research questions that have been constructed, following the theoretical (and philosophical) considerations covered in this section, together with the crucial topics or contextual components to be accounted for.

6.4. Methodology

6.4.1. A Terminological Clarification

The methodological stance taken in this research asserts that there is a clear distinction to be made between the terms ‘methodology’ and ‘method’. In this case, a methodology is not considered to be synonymous with a method, instead, it refers to the theoretical basis that warrants the use of a particular set of methods. For the purpose of clarity, a methodology is therefore defined as being a system of methods used in research which conforms to the philosophical beliefs and principal assumptions of research (Creswell & Clark, 2011). By making the philosophical stance explicit, the investigator is submitting to the ideologies and closely associated research procedures. A methodology is therefore an overarching framework that contributes to the entire research process. Alternatively, a method is considered as being more specific since it is comprised of the data collection and analysis techniques adopted (Creswell, 2003; Creswell & Clark, 2011). The methods are therefore considered throughout this research as being a set of techniques derived from the methodology, which operate to facilitate data collection.

6.4.2. Methodology Selection: A Case Study Approach

The term “case study” is one that may be attributed to both a methodology and a method. Since this research intends to keep these two terms separate from one another, it should be

highlighted that in this particular case, the use of the term “case study” will represent a methodological choice, under which a broad range of methods may be applied (see Section 6.5.). The philosophical stance and principal assumptions underpinning the case study methodology encourage the derivation of knowledge from action or practical sources, making it a popular choice amongst pragmatists. The case study methodology is therefore considered to be the most appropriate approach for this research, since it is capable of achieving real world or practical outcomes. In addition to this, case studies can be used as a basis under which methods may be mixed and data analysis procedures may be selected and further triangulated in order to “get the best possible answers to the research questions” (Gillham, 2000; p. 2).

Furthermore, it is thought that case study methodologies may lead to more robust research findings which, as Yin (1994) proposed, could be applied to a situation where there is a requirement to explain complex causal links in real-life interventions. In this way, an advocate of the pragmatic paradigm would often endorse the application of a mixed-method approach, which bears some resemblance to the beliefs of scholars, like Gillham, who advocate a case study methodology: “no one kind or source of evidence is likely to be sufficient (or sufficiently valid) on its own” (Gillham, 2000; p. 2).

A case study methodology has been selected to contribute to the knowledge-building process for a number of reasons, which can be associated with the structure of the research design, its underlying philosophical choices and the rigor of the methods associated. Following the logic of Eisenhardt (1989; 1991; 2007) the use of case study material as a methodological choice enables the research to adopt a clear understanding of the dynamics that exist in a single setting. As will be presented in Chapter 7, the single setting is focused towards the MOD’s service commissioning function. Indeed, the nature of the case study approach matches the clearly defined paradigmatic choices that underpin the research, allowing for a combination of data collection methods to be triangulated, building theory to develop a greater understanding of a highly specialised setting (Eisenhardt, 1989).

Furthermore, various aims can be achieved using a methodological case study approach, allowing for descriptions to be made and theories to be tested or generated (Pinfield, 1986). Given that the research is positioned within a specialised setting (and combining this with the theory-building logic), a sampling approach will be contrived in order to select the case studies that will provide opportunity for the replication or extension of the emergent theory (Pettigrew, 1990; Eisenhardt, 1989). At this point, an important factor to consider is that the research must contribute to the understanding of how the phenomenon being examined can be better understood, using an appropriate system of methods. A case study methodology

accommodates this need, by enabling the application of a range of methods and ensuring a degree of interpretive depth to be attained throughout the research, in a practical setting.

Research Question (RQ)	Method
RQ1	Mixed-method 1
RQ2	Mixed-method 2
RQ3	Mixed-method 3
RQ4	Mixed-method 4

Table B: Aligning the research methods to the research questions.

6.5. Method(s)

Within the research design, the methods selected represent a set of tools that influence the methodological outcomes of the research. To satisfy the case study methodology approach taken, the methods must therefore support and align with the chosen methodological and philosophical stances, and together, offer solutions to the research questions posed. Already, the methodological choice has been made explicit (see Section 6.4.) and the research is to adopt a case study methodology.

Section 6.3 described how the research questions are structured to form a set of answerable inquiries that are fundamental to the outcomes of the research design. Once each research question has been answered, they may be considered together in order to contribute a solution to the ultimate research problem. Prior to this however, the types of research method employed must be made explicit in order to identify and further justify the approach most suited to addressing the research questions.

The methods approach selected by a researcher is often closely linked to the underlying nature and purpose of the predefined research questions (Creswell, 2003), which in turn, are also influenced by the underlying philosophical stance of that investigator. In many instances, research may exhibit multiple purposes, which may not be easily addressed through a single method adoption or approach to the research design. Taking this stance, Darlington and Scott (2002) propose that the research approach should not be entirely confined to philosophical belief, but some priority should be given to construction of a methods design that is able to address the research questions. With this in mind, the research methods selected must consider

the objectives of the pre-determined research questions, to ensure that these may be answerable using the methods employed.

6.5.1. *Mixing Methods*

Remaining consistent with the underlying philosophical choices presented in this research, Creswell (2003) infers that the pragmatist approach to research consists of mixing data collection methods and data analysis procedures within the research process. Often pragmatists employ the methods that best suit the research aims, disregarding the quantitative/qualitative divide, and as a result, commonly adopt a mixed-method approach. A mixed-method approach often refers to a research design comprised of pragmatist philosophical assumptions where both ‘quantitative’ and ‘qualitative’ databases are incorporated (For a description of the fundamental distinctions between the two data collection types, see Section 6.2.).

When combining quantitative and qualitative databases through the adoption of a mixed-method research design, the process of blending the two data typologies may appear in either a number of aspects of the research design, or, in just one element. That is, the combining of qualitative and quantitative methods may exist in the “type of questions, research methods, data collection and analysis procedures, or in inferences” (Johnson *et al.*, 2007; p.121), inferring that a research design may be categorised as being a ‘mixed-method’ approach, where one or more of these components comprise of a combination of quantitative and qualitative data. In this case however, what is conveyed is that the studies may either stem from entirely qualitative or quantitative databases, or, under the pragmatist logic, incorporate a combination of both typologies to extract meaning. Despite this, some scholars recognise that there may be occasions where qualitative databases may be converted into quantitative figures during analysis, a process known as “quantizing”. Alternatively, where quantitative data is transformed into qualitative information, the term “qualitizing” has been adopted (Tashakkori & Teddlie, 1998). What this means is that whilst some research studies may reside in either qualitative *or* quantitative camps, the process by which the data typologies may be analysed may evoke the opportunity to translate these into new (quantized or qualitized) forms in order to further reinforce the observations being made.

6.6. Data Collection

Identification and selection of an appropriate data source prior to data collection is a critical process, since careful selection will facilitate the extraction of data that is capable of producing both accurate and relevant research results that will contribute new knowledge to the research problem. Data can therefore be collected from a range of sources, and is often distinguished

as being comprised of either primary or secondary data. Whilst both represent reputable data sources, on some occasions, a researcher will further separate its data collection types into categories to make important distinctions. Separating data based upon their characteristics is commonly employed by investigators (e.g. written evidence and spoken evidence). As will be made evident in Chapter 7, this research thesis follows a similar approach by distinguishing the written data from the spoken data sources (see Figure 11). Prior to Chapter 7 however, this section will proceed by presenting a number of important considerations to be made when selecting the data to be collected.

Written evidence can take a number of forms, it may be published, and therefore categorised in research as secondary data, or alternatively, it may be unpublished yet capable of being collected as primary data. In this particular study, the written evidence examined will take the form of the latter, that is, it will examine written data in its unpublished form. Written data that is ‘unpublished’ represents data that has been stored for internal or authorised use by the proprietary organisation, group or individual. Unpublished written evidence is therefore assumed to encompass information that is considered by the owner as containing intricate or sensitive details, which if obtained, will contribute to a much deeper understanding of the object or process it relates to.

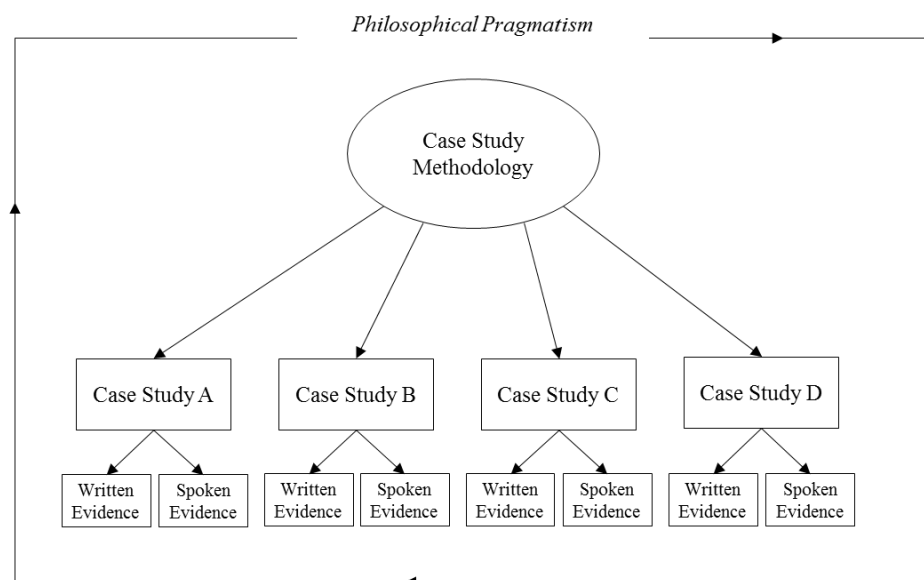


Figure 11: The data sources underpinning the case study methodology.

Like written evidence, a range of sources of data may denote spoken evidence. Written evidence however tends to represent a static state and therefore reflects a case study at a

particular point in time, making it slow to adapt or respond to change over time. In cases where a case study adopts only written data, the research is at risk of investigating past, unchanging information. By considering spoken data alongside a printed document, the researcher may be able to grasp further understanding of the phenomena being examined as it progresses through time.

6.7. Data Analysis

As previously discussed, a case study approach can invite a mix of data to be collected, the nature of which may be written or spoken, and obtained from primary or secondary sources. Having established an approach for collecting the appropriate data, the researcher will need to consider how the data may then be analysed effectively in order to extract useful observations. In doing so, such observations will facilitate the development of existing theory either by offering an opposing view of the phenomenon being studied, or by extending and further refining the theory. Data ultimately ends up in a readable format, that is, it is either collected in written form (i.e. as a pre-written report, document or survey) or alternatively, it may originate in spoken form and later transcribed into a written format to assist with the data analysis procedure. Should the researcher collect written or spoken data in this case, it is likely that the analysis process will incorporate a form of written data analysis. Whilst there are a number of methods associated with analysing data of this nature, since the research approach aims to extract themes that reflect the socially constructed or descriptive perceptions of the actors or phenomena under investigation, a particular form of thematic analysis will be adopted, known as ‘content analysis’.

6.7.1. Three Approaches to Content Analysis

Before any other analysis procedure is presented, the content analysis approach warrants further discussion and justification since it represents the principal analysis procedure adopted within the case study research design. Often, content analysis is dissected into three independent approaches: conventional, directed and summative content analysis, the selection of which, can be based on the nature of the research in terms of their “coding schemes, origin of codes and threats to trustworthiness” (Hsieh & Shannon, 2005; p. 1277). Coding in content analysis is an important procedure, which contributes to the deciphering of an approach best suited to the research study, and therefore something that should be considered at the outset of the research planning process (Hsieh & Shannon, 2005). A conventional content analysis approach involves coding categories as they emerge from the data in an inductive manner (Kondracki *et al.*, 2002; Mayring, 2014). In a study on the nature of contract structures in IT outsourcing, Chen & Bharadwaj (2009) adopted a conventional content analysis method

justified methodologically by the series of pilot analyses that were undertaken in order to establish a robust coding system in the study. Given the nature of this research, and consequently, its position within the field of defence and security; achieving a pilot sample of contracts to code under content analysis is somewhat hampered by issues of data security and therefore time limitations. Whilst such an immersive approach has its benefits, it is challenged by its inability to develop a complete understanding of context and thus results in a failure to identify key categories.

It has been made apparent that in this case, conventional content analysis fails to deliver in terms of its ability to engage the research data in a timely manner. Instead, attention should be turned to a content analysis approach which displays greater applicability towards achieving the research aims. Directed content analysis posits that the research may begin immediately (i.e. without a pilot study) with predetermined codes, adapted from extant theory. A second advantage of this strategy is that data that has not been coded in the initial coding stage can be identified and later analysed to establish whether a new category should be incorporated into the coding system. Already it appears that a considerable strength of directed content analysis is that it aims to “validate or extend conceptually a theoretical framework or theory” (Hsieh & Shannon, 2005; p. 1281), yet such an approach is not exempt from criticism. As one would expect, when coding for directed content analysis, the researcher needs to be confident that the coding decided at the outset will not bias the ability to identify the appropriate text. For this reason, it is more likely that supportive evidence is uncovered, rather than unsupportive evidence, and thus highlights the importance of the data validation process during the data collection stage.

Previous discussions surround the importance of establishing an appropriate content analysis approach to ensure that the collection of data is conducted following a robust procedure, which may be replicated at a later date (Krippendorff, 2004). Replicability of the data analysis process is a crucial requirement within the research since it aims to examine numerous cases using an approach that enables comparative observations to be made. Furthermore, replicability is often achieved in research where stringent, logical process is followed and directed content analysis often follows a pattern of: unitising, sampling, recording/coding and reducing/condensing data. Therefore, in order for the research to achieve such replicability, it is thought that the logical pattern devised by directed content analysis would provide a suitable framework for this research thesis (the rationale for which is discussed in the subsequent sections).

6.8. Data Analysis: Written Evidence

The remaining sections of this chapter are divided into two parts, this section provides an approach for the analysis of written data, using a directed content analysis approach. What must be noted at this point is that written data in this case relates only to data that was intended from its conception to be presented in its original written format. That is, the data set was not initially a spoken memo that was later transcribed. The reason for this separation is that, when transcribed into a written format, spoken word contains a greater number of utterances and therefore clarity and conciseness of the information may differ considerably when compared to written data. As a result, this research advocates the adoption of two different directed content analysis techniques, which have been adapted to analyse each data type (written or spoken) in order to extract greater meaning. The following subsection provides a theoretical discussion of the step-by-step process that may be considered for suitability prior to the research study's practical application of data analysis process.

6.8.1. Establishing a Unitising Scheme

The selection of the phenomena to be examined provides the first step towards interpreting the research data, however, choosing appropriate units of analysis are not bound by generic guidance. Instead careful unit selection is required to ensure that the meaning extracted from the data reaches the desired research objective. Selecting a unit of analysis involves breaking textual data into segments for examination, and researchers employing content analysis have interpreted the unitisation of content in a number of ways, due to its inherent flexibility (Graneheim & Lundman, 2004). Whilst units of analysis can refer to a broad range of objects to be examined, they are often broken down into a series of textual 'parts' under which, a whole meaning can be extracted independently, and in doing so, each textual unit may be probed one at a time for content. Alternate ways of unitising text would be to unitise the written documents by breaking it down into sentences or words (Feeley & Gottlieb, 2000), however, gathering sentences in such a way can sometimes be deemed insufficient since the meaning of the data set may be lost. Furthermore, by identifying the units to be observed, the same units can be repeatedly measured for in other, similar case study data sets, allowing for both similarities and comparisons to be made between each case.

Whilst unitisation is an essential first step towards the data making process, there is sometimes room to reduce the unit type being studied through further categorisation by using 'sampling units'. Sampling units are "units that are distinguished for selective inclusion in an analysis" (Krippendorff, 2004; p. 99) and is therefore adopted in cases where the units must be distinguished for inclusion or exclusion from the analysis. Where the content being examined

is relatively broad in scope, an investigator will often select a sampling unit form of unitisation. Advocates of content analysis question the robustness of sampling units when connections across the data exist that may cause biases to prevail. In this case however, what must be recognised is that, where the direct content of the case study varies between cases, the sampling units relate only to the data set that they populate. Where similarities in the case studies emerge is in the context, that is, the field of practice that they relate to (e.g. in a legal contract, the intricate terms (or content) may differ from other contracts, but similarities may lie in the context i.e. both contracts represent service commissioning contracts).

6.8.2. Devising a Sampling Plan

The selection of a data sample must be first considered to ensure that the research is able to unlock meaningful contributions to knowledge. Due to the nature of the research, convenience sampling is thought to provide the most suitable strategic sampling method, despite the connotations of bias which are often associated with it (Marshall, 1996; Krippendorff, 2004; Riffe *et al.*, 2014). Whilst this may be the case, there are reasonable grounds to justify this choice when applying the sampling method to written evidence.

Firstly, statistical sampling methods are often adopted in conjunction with content analysis, yet such an application is not always suitable in cases where the research contains resource limitations which sever the ability to produce a statistical sample (deeming sample frames such as random sampling inadequate). An inability to produce a statistical sample of this nature is one of the three conditions identified by researchers, which permit the use of convenience sampling. The most prominent characteristic of this sampling technique however, is that it must be applied predominantly where material is difficult to obtain or restricted in some way (Riffe *et al.*, 2014). To some extent, such a limitation in resources often deems statistical sampling to be inappropriate for application, particularly where inferences to a population cannot be addressed.

Further justification in favour of convenience sampling has been identified in cases where the topic is under-researched but important, particularly to informing policy-making, professional and scholarly communities. Given this criteria, there is a particularly strong case for the case study sample selection process to adopt a convenience sampling approach, given that: the research aims to provide new guidance to the aforementioned stakeholders, and, it is positioned in a field where data is difficult to obtain as a result of protective security measures, which ultimately makes statistical sampling particularly challenging. This approach therefore ensures that a sample of relevant and representative texts will be reviewed in order to extract the best value to the research.

6.8.3. Recording/Coding Instructions

The recording of data is something that must be carefully considered by the researcher in order to ensure that the data may be collected in a form that may be easily analysed. Written text tends to be pre-formed in its structural components, however speech may be recorded using an audio device or transcribed into a written form (spoken data is covered specifically by Section 6.9.) This must therefore be clarified to ensure the same recording process may be applied again by other researchers wishing to replicate the research. In the case of written evidence, the collection of written documentation that provides essential information to the research must be selected so that it may be easily coded to extract meaning, based on observer-independent rules. These coding categorisations are discussed with the inclusion of the research context in Chapter 3, Section 3.7, since this presents the underlying literature contributions on the topic of risk categorisation, and lays down the foundational rationale for the recording/coding choices made, as supported by context. Furthering this, such a rationale also ensures that the process employed may be closely replicated later on.

6.8.4. Reducing/Condensing

The shortening of the text is the final stage within the content analysis set-up procedure. This stage evokes a range of terminology, each assist in offering a process for decreasing the data in size, yet subtle differences separate the terms in suitability. Whilst the concept of reduction (Krippendorff, 2004) refers to a decrease in size, it fails to consider the quality of what remains. Use of the term distillation (Cavanagh, 1997) fills this lapse of focus on quality, yet fails to manage the core. An arguably more robust method for shortening the text, known as condensation (Coffey & Atkinson, 1996) will be adopted. To avoid a high volume of repetition across the data, it will be reduced through a process of categorisation, before undergoing triangulation in order to identify the thematic coherences or dissimilarities between the findings. Due to the high volume of data, this will enable the research to grasp efficient representations within the data, reducing duplications in the summative frequencies.

6.9. Data Analysis: Spoken Evidence (Interviews)

The second phase of the analysis process concerns the analysis of spoken evidence, which can be achieved through a number of data collection methods. In this case however, interviews will form the basis of spoken evidence (the rationale for this choice is discussed in greater detail in Chapter 7, Section 7.9). The content extracted through spoken evidence (such as interviews) can be presented in its written, or transcribed form. The documents containing the spoken data can then be analysed following a uniform process that is capable of extracting meaningful qualitative information.

6.9.1. Unitising

The unitising of the transcribed spoken evidence requires an independent approach to that of the written contracts scheme, since the characteristics of the information differs. As previously highlighted, when analysing transcriptions of spoken data, a slightly different form of unitisation will be adopted, due to the nature of the data type. Spoken word often involves many units of analysis, and the data will therefore be unitised differently due to the conversational discourse which may involve the participants backtracking, digressing and overlapping content with other themes. In addition, it is not unusual for transcripts to run for a number of pages and cover a wide range of themes, and would therefore not benefit from a single unit analysis. Instead, the coding of spoken evidence should incorporate any portion of text, regardless of size, to which a code can be applied.

6.9.2. The Sampling Plan

Application of a robust sampling plan is a fundamental component to the analysis of a dataset resembling spoken evidence since the selection of participants may not hold the same resource limitations that were found during the sampling of the written contract phase. Initially, since full immersion with every stakeholder affiliated with the research is unrealistic (a) given the time restraint by which the research must be completed, and (b) the researcher may not have any prior connections with these stakeholders, the sampling process must reflect these constraints. Given these boundaries, a snowball sampling process would be deemed a suitable approach for analysing spoken evidence (see Figure 12).

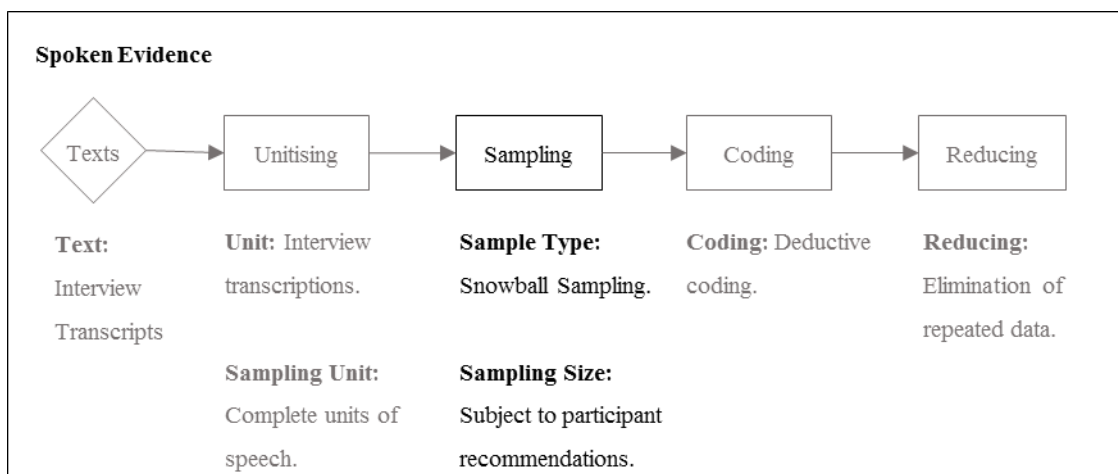


Figure 12: Selecting an interview sample (Adapted from Krippendorff, 2004).

Fundamentally, snowball sampling is a technique that provides recommendations (these could be texts or human participants) from credible sources (Marshall, 1996). It starts with an initial set of sampling units (in this case, interview participants) from which, a greater cohort of appropriate participants can be gained, provided early recommendations have been attained. Of course, such an approach unleashes the potential for an unsurmountable number of participants to be apportioned into the aggregate interview sample, however, this may be suitable in research environments where the phenomena being examined has its own contextual restrictions (for example, where the sample is selected from a small department from within an organisation, then the small number of people working in that department limits, and equates to the size of that sample).

6.9.3. Deductive Coding

The coding process undertaken in the analysis process for written evidence of the research (see Figure 13) focused on the allocation of predetermined themes or codes as a mechanism for developing a greater understanding of the written dataset (which represents a steady state). Knowledge of the phenomena being examined can then be built further by incorporating real-time spoken evidence. As already mentioned, spoken evidence represents a different informational phenomena that extract subtle nuances and convey subjective thought and emotion. The spoken data is therefore unlikely to reflect the same systematic coding that was predetermined from the literature and applied as a coding method to the written evidence procedure. Instead new themes should be categorised based on frequency of occurrence, and a separate coding key devised as the data undergoes familiarisation. These themes are devised on a case-by-case basis, since the discussion points alluded to by the research participants will differ with respect to the case study being examined, that is, different interests and concerns will be raised that are unique to the case study being analysed.

6.9.4. Reducing/Condensing

As previously identified, the process of reducing the data during content analysis allows the findings to be presented in a more logical and consolidated form. This process is particularly important where divergent themes are being processed, since it is likely that a broad range of themes will emerge from the research participants, bounded to their own subjectivity. The ultimate coding categories will therefore be reduced based upon their frequency of occurrence, since these represent what is considered to be the primary topics of concern amongst participants.

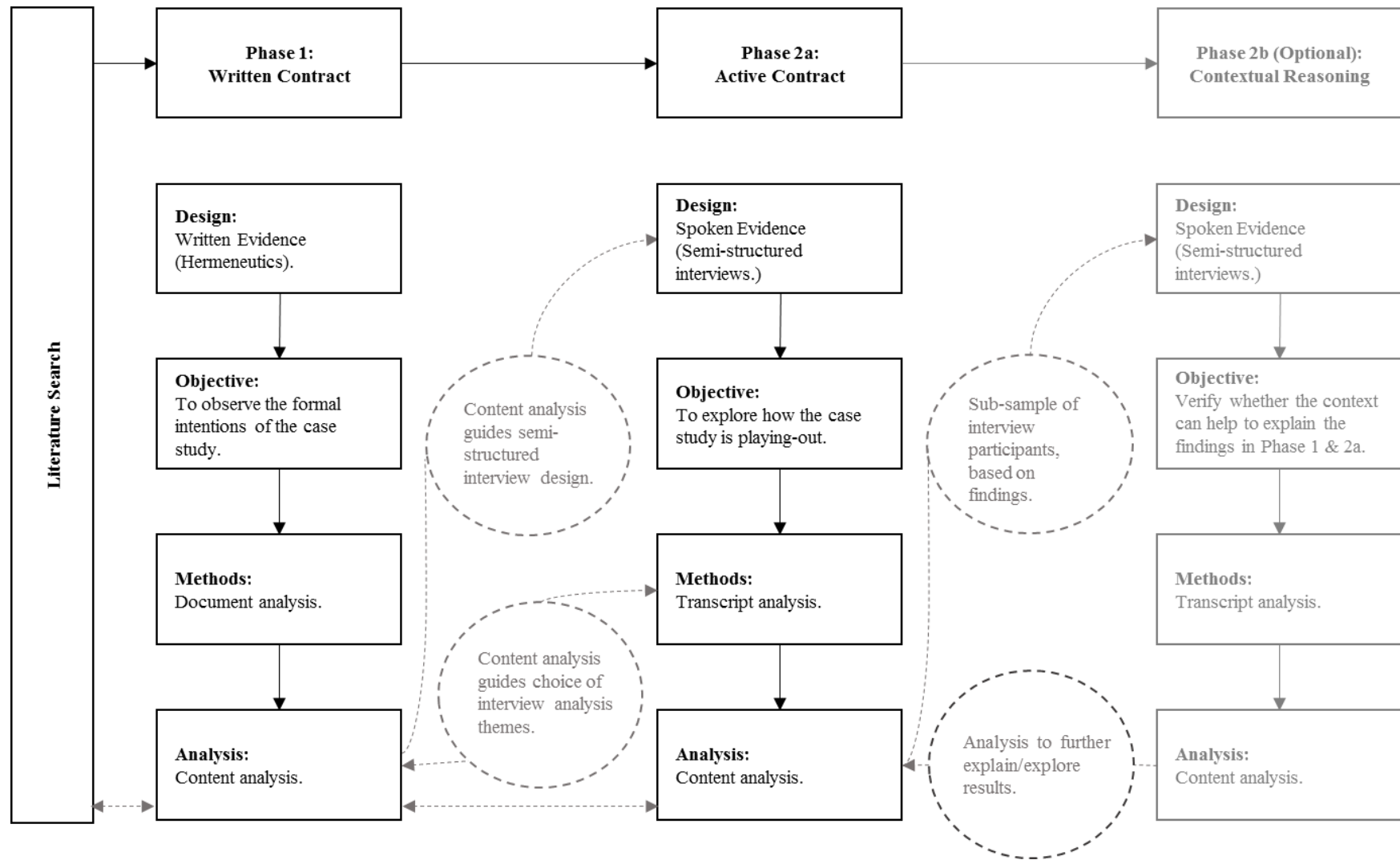


Figure 13: The work breakdown structure for the data analysis of primary case studies.

6.10. The Interconnectivity of the Phased Research Design

Figure 13 provides a work breakdown structure for the entire data collection approach, split by phase. Whilst each phase has been discussed theoretically in terms of its choice of design, the need for clarification remains a crucial aspect when understanding how each phase can be triangulated to reach the intended research output. The literature survey is an important starting point, since it informs and mandates the coding decisions of Phase 1. With this in mind, one would assume there to be a single directional flow, originating from the literature survey which transfers across to Phase 1, however, in the case of this particular research, the pre-coded classifications will be treated as preliminary guide, from which developments can be made if necessary. To illustrate this, Figure 13 depicts a two-directional (or double-headed arrow).

Phase 1 is the first phase to incorporate written data into the research, it therefore reveals the initial impressions of the case study(s) under observation. Familiarisation of this phase is important, since not only does it provide the researcher with early contextual information about the case study under investigation, but it also shapes the design of Phase 2a in terms of the questions put forward to interview participants. Again, the flow of information that unearths new understanding about each case study is a cyclical process whereby real information about the case study (as provided by interview participants in Phase 2a) further contributes to the conceptualisation of the written contract by confirming or nullifying any contractual risk patterns that were hypothesised during the analysis of the written contract. Considering an example, assume that during Phase 1's contractual analysis, it emerged that high levels of performance risk migration could be observed as travelling from the Contracting Authority towards the Contractor. Without any other information, a number of theoretical assumptions could be made based on literature, however these assumptions are unlikely to provide an accurate account of how the contract is playing out in actuality. By undertaking interviews in Phase 2a, the research can start to build a descriptive picture about the case study, which could provide answers as to why a high proportion of performance risk is migrated from the Contracting Authority to the Contractor. Perhaps more importantly, what this also provides is a way of identifying where these risk migrations may cause an imbalance in the contractual relationship, and how this may trigger downside risks to cascade throughout the contract's various structural components (i.e. conditions).

One final stage (Phase 2b) follows a near identical design to Phase 2a, yet aims to further clarify the reasoning subscribed to the findings by acknowledging important contextual factors. The sole purpose of this Phase is to validate any unanswered questions that may have emerged following the previous phases in relation to important organisational features such as changes to policy, governance and organisational structure. Phase 2b therefore aims to provide

an explanation of previous findings, informing Phase 1 and 2 through a one-directional flow of information. The combination of different qualitative data sources is a crucial component within this research, since already it has been identified that two separate types of qualitative data would constitute appropriate data sources to be collected under this research design. In many cases, the summation of data sources is undertaken using a technique which cross-examines the forms of qualitative data collected, and builds a greater understanding of the phenomena being observed. Often triangulation is used to combine qualitative and quantitative data sets, however, where the data extracted under the research design is strictly qualitative or quantitative only, then between-method triangulation may be also adopted. Marotzki (1995) presents a combination of reactive procedures (e.g. interviews), whereby the researchers are included within the research setting, and non-reactive procedures (e.g. associated materials such as documents, photos, and so on), in other words, data that has not been set up for the purpose of investigation (Flick, 2004).

6.11. Cross-Comparison of the Cases (Data Triangulation)

A considerable amount of detail has been incorporated into the research process to ensure that it is robust and replicable when answering the research problem. Stepping away from this, and repositioning the focus towards the methodological system which promoted the adoption of a case study approach, what must be acknowledged is how patterns may be identified across cases to extract greater knowledge of the phenomena being examined. Referring back to a stance held by Eisenhardt (1989) on the number of cases to be collected when undertaking case study research, it was inferred that the optimal number rests on the level of depth ascertained by the researcher, yet as a starting point, the case range of between four to ten cases: “while there is no ideal number of cases, a number between 4 and 10 cases usually works well” (Eisenhardt, 1989; p.545). This figure will be used as a basis for which the selection of between 4-10 case studies will be selected, taking into account the time restraints of a PhD research study. In any case, research of this nature (i.e. research that seeks to adopt multiple cases) will require a sufficient cross-case examination procedure, or triangulation approach. Initially, the research methodology prompts the analysis of within-case information, treating each case study independently. To extend this beyond a case-by-case analysis to an analysis procedure that examines cross-case patterns, a formal procedure must be identified and discussed for its practicality. Prior to this however, it must be acknowledged that human processing may result in biases, which can be based on various causes, such as limited data (Kahneman & Tversky, 1973) or cause by overly influential ‘elite respondents’ (Miles & Huberman, 1984). These represent just a few causes of information-processing biases, yet reflect how researchers may not reach unequivocal, or true conclusions.

To counteract any research-processing bias that may emerge in cross-case data triangulation, proponents of case study research techniques advocate the use of multiple techniques, which prompt the data to be processed in a range of divergent ways (Eisenhardt, 1989; Lewis, 1998). By adopting a staged process, the similarities and differences found between the case studies may be revealed. The first of the techniques relates to the comparison of typologies, where the cases are distributed within a matrices, based upon their key contextual descriptors, or pre-specified variables of interest to the investigator. Using the typology approach, the initial stage of cross-case examination aids a simple search to be undertaken on the within-group similarities and cross-group (or inter-group) differences, based on the matrix quadrants already specified (see Figure 14).

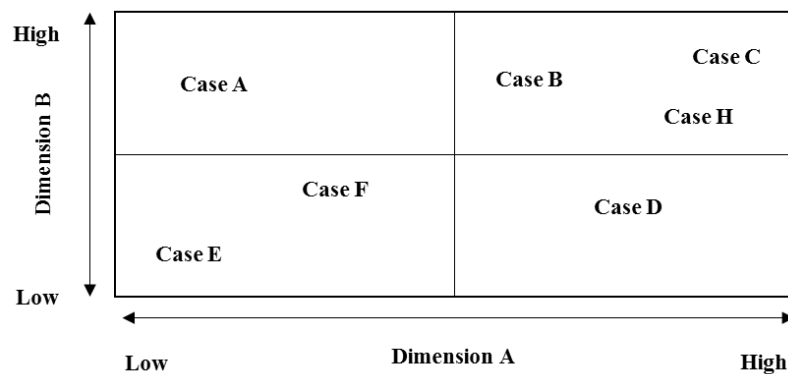


Figure 14: A typology position matrix (adapted from Lewis, 1998)

Adding to this, case study investigators may choose to adopt a second approach (Figure 15) which incorporates the forced pairing of the cases in threes or fours as a method of breaking overly-simplistic frames (Eisenhardt, 1989; Lewis, 1998). Where forced comparisons are utilised, differences in contextual patterns may be revealed, further strengthening the conceptualisations underpinning the research findings. Grouping case studies into smaller, manageable sets for analysis appears logical, based on its enhanced manageability. Where further robustness to the triangulation process can be gained is in the juxtaposition of the cases. Thomas (1994) provides a detailed account of the juxtaposition process, which has proven effective for identifying interrelated patterns in his illustrative research study. Adding this technique to the two aforementioned, the research reaches a stage of case refinement where the key patterns underlying the cases become labelled as case components, and further compared for reliability purposes.

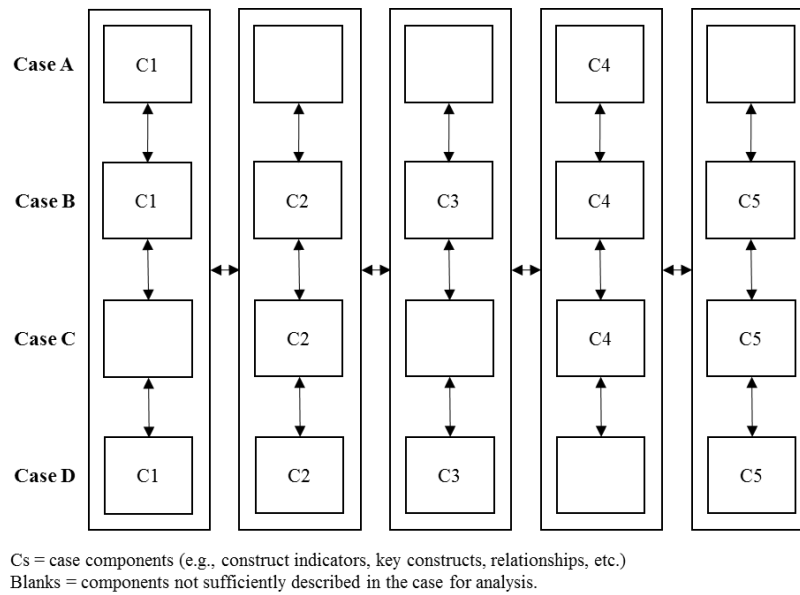


Figure 15: The juxtaposition of cases (Source: Lewis, 1998).

It is unequivocal that a combination of cross-data comparison techniques ensures that a research design that consists of multiple case studies may facilitate the conduction of case study research, without falling victim to the onset of research biases. By approaching the research design using similar techniques (though it is likely that some refinements will be made, subject to contextual reasoning), it is thought that the research design will succeed in the development of accurate and useful contributions to theory.

6.12. Summary

The purpose of this chapter was to predetermine a provisional research design, based on existing theory and good research practice, and one that could undergo further refinement based upon the specificity of the research context. Underpinning the chapter is a philosophical belief which bears close association to pragmatism. With this in mind, the research defends a case study methodology, together with the possibility of incorporating a mixed-method approach which allows the datasets to be collected and analysed in a way that builds knowledge from different sources. To ensure that the theoretical components are truly transferable to the research problem at hand, the subsequent chapter (Chapter 7) will present a practical application of the techniques described in this chapter, considering the research context and therefore refining the research towards achieving a fit-for-purpose design.

CHAPTER 7
RESEARCH DESIGN:
Refining the Research Design

7.1. Introduction

The last chapter presented a discussion surrounding the underlying philosophy, methodology and methods choices made when constructing a research design. This chapter aims to build upon those critical research components by providing an in-depth discussion of each step of the research process, to enable future studies in the area to replicate the approach taken. The previous chapter provided a discussion of the theoretical research design, achieved through careful consideration and selection of the most appropriate tools and techniques for extracting meaningful findings. Chapter 6 therefore presented the philosophical stance and methodological foundations for which the research design has been built upon. This chapter intends to expand on the initial research design by introducing new methodological developments that are able to further refine the research process. Following this logic, it is believed that a one-size-fits-all research design may limit the depth of the conceptual findings that can be extracted from the data collected. Whilst existing tools and methods are adopted within the research design, alongside these, a novel tool development will be presented in this chapter and will undergo a detailed discussion. The chapter therefore aims to provide an extension to Chapter 6 by providing a step-by-step guide to the data analysis process, covering important definitions and distinctions together with the logic surrounding the research choices made.

7.2. Research Questions

Acknowledging the structural considerations presented in Section 6.3 of Chapter 6, and, in response to the review of literature in Chapters 2-5, the research study proposes the following research questions, which aim to examine the nature of systemic risk in public sector service commissioning:

Research Questions (RQs)

In commissioning services for outcomes:

(RQ1) What is “systemic risk”?

(RQ2) How are the extant commissioning contractual arrangements constructed to deal with systemic risk?

(RQ3) How do the extant commissioning contractual arrangements play out and how do current contracting methods exacerbate or mitigate the threat of systemic risk?

(RQ4) What type of contractual arrangement/partnering methods would better control these systemic risks?

The initial research question (RQ1) seeks to address the definitional gap established in the literature, which appears to lack a standard definition of the term “systemic risk”. In order to answer this question, the use and application of the term will be examined from a wide range of disciplines, in order to derive any commonalities associated with the term that exist between the disciplines. The purpose of the second research question (RQ2) is to identify the current state of contracting arrangements, in light of the definition ascertained in RQ1. RQ2 may therefore be addressed through a combination of review data (derived from the literature survey), together with the data collected from the analysis of real examples of written contractual documentation and social interventions (such as interviews).

RQ3 expands on the second research question through the incorporation of time factors which are intended to account for the changing nature of risk throughout the duration of the service projects commissioned for. By undertaking interviews with key personnel involved in delivering the contracts, the through-life aspect of the commissioned project work is considered. RQ3 will therefore reveal whether the contracting methods adopted by the public sector customer are effective in mitigating systemic risk, or whether it exacerbates it. Finally, the fourth research question (RQ4) aims to amalgamate the conclusions drawn from the previous research questions in order to offer novel contributions to both the academic environment and beyond, among the public sector’s service commissioning practitioners. Further details about the selected methods and the sources of data are explained in the following sections.

7.3. The Case Study Approach

Having discussed the methodological rationale for adopting a case study approach (Section 6.4.2), the purpose of this section is to discuss the choice of the associated data collection and

analysis processes. The case study approach encompasses a range of qualitative methods which comprise of historical archives and records (contracts and project management documentation) together with more subjective participatory interactions (interviews). At this point, what must also be explicitly stated is that the research will undertake a detailed examination four case studies in order to answer the research questions, since this represents a valid/legitimate range of data (Eisenhardt, 1989). Whilst it is logical to discuss the methods approaches in detail to ensure that the study may be replicated in future research, the selection of the case study sample should first be clarified, since this forms part of the rationale supporting the methods chosen.

7.3.1. Case Study Selection

An appropriate sample of case studies must be carefully selected in order to certify the relevance and accuracy of the phenomena being represented. To be relevant to this particular research study, the case studies must firstly be representative of real, live defence commissioning contracts, since that is the topic under investigation. In this instance, the sampling approach involves selecting a low volume of case studies (i.e. four) to ensure that an in-depth analysis of each case study may be achieved within the prescribed three year research timeframe. The case studies each represent a project, and of particular interest is the contract underpinning these projects – the comprehensiveness of which is determined by the size and complexity of the project. Given these factors, an appropriate sample of case studies might be obtained by selecting the case studies based upon these key underlying characteristics of the project (which are closely reflected in the contract) and thereby adopting a typology comparison technique (see Chapter 6, Section 6.11).

The MOD currently enforce three baseline standards (categorised as Level 1, 2 and 3) within their contractual management procedures, each providing a minimum level of tasks and activities for managing its contracts, based on their value and level of complexity and risk (Figure 16). By selecting a sample of contracts that can be plotted within the boundaries of ‘Levels 2’ or ‘Level 3’ of Figure 16, a sample demonstrating variances in project size, risk and complexity may be achieved. At this point, case studies fulfilling the ‘Level 1’ bracket would be excluded, since the risk and complexity of larger defence projects are of prime concern to this research.

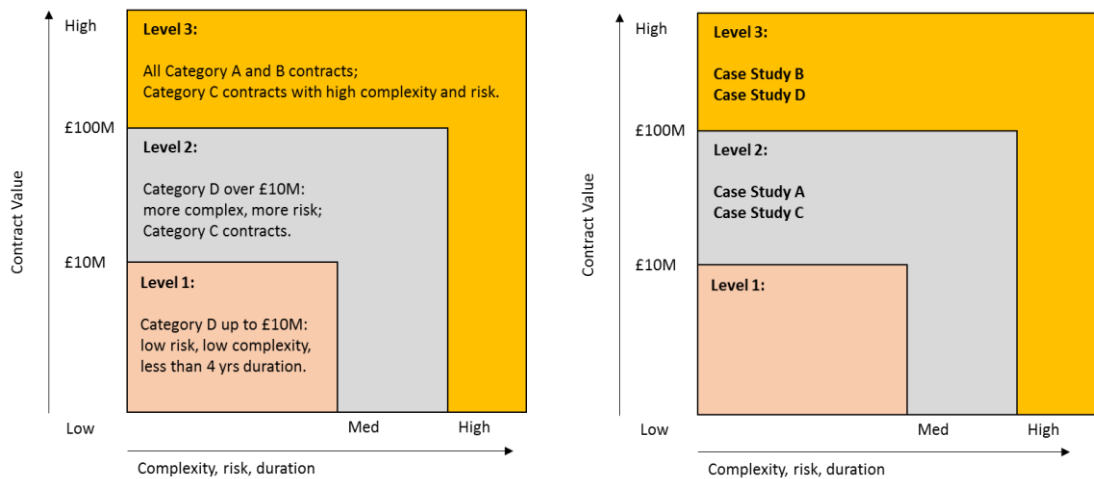


Figure 16: (Left) The MoD’s baseline standards of Contract Management. (Right) An adapted version of the MoD’s baseline standards of Contract. (Source: The MoD’s Acquisition Systems Guidance, 2018)

The MOD is made up of a large organisational structure, split into responsible departments. Within this departmental structure, some MOD divisions predominantly sponsor the execution of highly specialised project work (i.e. research and technology), whilst others are responsible for more generic project requirements (i.e. back-office management services). By investigating contracts that associated with the MOD’s specialised or non-specialised divisional structure, the research analysis allows for a complexity assumption to be made – that is, in general specialist departments tend to run more complex service projects than departments that are denoted as being non-specialist services. The sample therefore incorporates four case studies that satisfy the criteria of one of the four quadrants depicted in the matrix (Table C). The matrix also makes a distinction between support services and common enabling services, since these are commissioning service types that are central to the research study.

	Support Services	Common Enabling Services
Non-Specialised Services	Facilities Management Services (HOCS, MOD)	Computer & Related Services (ISS, MOD)
Specialised Services	Health & Social Services (TESRR, MOD)	Research & Development Services (S&T, Dstl)

Table C: A matrix illustrating the sample of four service commissioning case studies.

Table C contains examples of service areas which meet the criteria of the 4x4 matrix, whilst it would be advantageous to undertake case study investigation for each case study, obtaining access to live defence contracts from four different divisions within MOD may be optimistic given the three year time restraint set on the research together with the stringent security procedures in place. As a result, the research prioritised its access to the more specialised or larger scale defence projects since it was thought that non-specialised or generic public services (such as facilities management) might be obtainable from other sources that are more readily available and require less extensive security clearances. Having provided the rationale behind the choices made when selecting the case study sample to be used, the discussion may now proceed by presenting a discussion surrounding the methods to be implemented and replicated when investigating each of the four case studies.

7.3.2. Case Study Data Collection Sources

Identification and selection of an appropriate data source prior to data collection is a critical process, since careful selection will facilitate the extraction of data that is capable of producing both accurate and relevant research results that will contribute new knowledge to the research problem. For this reason, data will be collected from two sources: written evidence (i.e. textual documents), and spoken evidence (i.e. interviews) have been incorporated into the research design.

Written evidence can take a number of forms, it may be published, and therefore categorised in research as secondary data, or alternatively, it may be unpublished yet capable of being collected as primary data. In this particular study, the written evidence examined will take the form of the latter, that is, it will examine written data in its unpublished form. Written data that is 'unpublished' represents data that has been stored for internal or authorised use by the proprietary organisation, group or individual. Unpublished written evidence is therefore assumed to encompass information that is considered by the owner as containing intricate or sensitive details, which if obtained, will contribute to a much deeper understanding of the object or process it relates to. In the case of this particular research, unpublished documentation will act as a fundamental source of data since the research subject under investigation is the MOD, a government department responsible for protecting vast amounts of information concerning the defence and security of the United Kingdom. For the purpose of the study, the two forms of unpublished written evidence to be analysed are the written contracts and project documentation that underpin the case study (or project) under investigation at that point in time.

Like written evidence, a range of sources of data may denote spoken evidence. Already the research intends to analyse the contracts and project documentation that accompanies the case study being examined. Written evidence however is static and therefore reflects the case study at a particular point in time, making it slow to adapt or respond to change over time. In particular, a legal contract is written in the early stages of the project's life cycle and therefore reflects the preconceived choices made by the contract writer at that moment in time, disregarding how the project may play out in actuality. By collecting interviews whilst a case study is 'live' (i.e. the project has progressed past the contract start date), the researcher is able to build on any existing interpretations gained from the written evidence, further validating or nullifying these early conjectures. In addition to this, interviews provide a mode for attaining additional information about a case study that otherwise may not have been conveyed in the unpublished documentation examined.

7.4. Expanding the Research Design

In Section 7.3.1 a matrix was presented which identified four case studies to be examined within the research which facilitate the attainment of a broad sample of data, providing a near replication of the UK's defence department. To analyse each case study, the research incorporates two forms of qualitative data whereby the two sources of data collected undergo an initial phase of deductive coding analysis to extract either qualitative themes and/or statistics. The unpublished written evidence (i.e. the contract and/or supporting documents) is analysed to deduce both of these forms of data due to its structured or quantifiable characteristics, whereas the spoken evidence (i.e. interviews) focus solely on qualitative techniques due to its semi-structured design. In addition to these considerations, the data sources have also been selected to account for time variables, in terms of:

- (1) The formal contract at the time of writing, and,
- (2) The playing-out of the contract, following contract commencement.

The analysis process is undertaken in a phased process, consisting of a number of phases and beginning with the analysis of the written contract. First, by examining the written document independently, the contract can undergo interpretative analysis from an untaught state or *tabula rasa* and therefore omits the inclusion of any pre-formed opinions from influencing the research (e.g. from the personnel involved in running the contract). Following the initial coding process, the written contract begins a novel data mapping process (or tool) that has been developed specifically for analysing and illustrating the dynamic behaviour of risk in a contractual setting. This newly developed tool aims to expand upon the coding process by

providing a visual illustration of the contracts' risk management capability. By providing a visualisation of the risk dynamics underpinning a contractual document, the researcher is able to build a prerequisite understanding of both the robustness of the contract, in terms of its design and structure and also in terms of its core provisions that were incorporated in order to achieve certain contractual outcomes.

Once the initial familiarisation and coding of the first phase is completed then the second analysis phase may be undertaken. The second phase involves collecting a set of interviews and enables the research to gain varied insights into the second time variable, namely, how the contract is playing-out in actuality. Upon completion of phase one and two, the refined data is then combined to determine any commonalities or diversity within the two qualitative data sets (See Chapter 6, Section 6.10.). In doing so, the researcher is able to ascertain whether the original intent of the written contract is maintained and/or achieved throughout the duration of the contract. The process is then implemented for each of the four case studies analysed, before the multiple findings are triangulated to develop a richer understanding of the nature of risk within the defence sector's service commissioning practice. The following section will provide a detailed account of the first phase of the data analysis process, beginning with the deductive coding process before a novel expansion to the contract coding process is discussed.

7.5. Phase 1: Written Contract Analysis

The first phase of the data analysis process concerns the written contract and supplementary documents. Since a contract represents a tangible, written document, the method of analysis applied to the research must therefore be capable of extracting valuable information from the contract's text. Since the investigation is primarily concerned with identifying the nature and behaviour of risks that emerge within the remit of a written contract, the first step involves the categorisation of these risks by adopting a content analysis method. As already detailed in Section 6.7.1 of Chapter 6, under a directed content analysis method the contract is coded by allocating the unitised components of text (i.e. each contractual clause) to the relevant predetermined coding category. The predetermined coding categories adopted within this research thesis will be reinstated in the following Section 3.7.1, so that the rationale supporting the classification scheme, which has been derived from a review of various literature sources (see Section 3.7), may be further discussed and justified.

7.6. Applying a Risk Taxonomy to the Research Context

The categorisation of risks presented in the existing literature (Section 3.7) provides a valuable input to the unitising scheme adopted by the research, however, in order to develop a taxonomy for implementation within the data analysis stage of the research, the context underpinning the research must also be considered. In this case, the research examines a contracting system with a particular focus placed on examining the structure of the written contract and its constituent parts, together with the corresponding intentions of the contract writer that have been embedded into the contract. As alluded to in the contract literature, a contract is set up to represent the expectations of one party on another, and vice versa. In contracting, these expectations are transcribed into a set of legally binding terms and conditions (T&C's), under which, each party will contain their own personal expectations of how the contract might enable them to realise benefit, whether financial, reputational or intellectual. Of course, it is unlikely that both parties would be able to realise all of the benefits that they deem desirable and instead, both parties enter into a trade-off to distribute risk.

In almost all cases, there is an imbalance of distributed risk during the contractual trade-off process, particularly in traditional contracting where the contract writer (the Contracting Authority) would offer the contractor a set of rigid terms, under which a set of contractual obligations are established to ensure that the contract operates in line with the Contracting Authority's expectations. However, in reality not all expectations are easily satisfied and may be inhibited by unforeseen risks which could result in the contractor failing to meet those expectations. As a result, the research will assess the characteristics of these expectations, treating them as potential or predetermined risks which hold the capacity to trigger a systemic risk pattern across the entire contract. Subsequently, the risks that must be recognised are those that are likely to have repercussive effects on one another, a characteristic which can be found in each of the RPFC risk categories. In addition to this, the risks selected must cover the key pillars of contracting, responding to the expectations of the parties from a top-level, yet also capable of enabling more intricate and subtle themes and patterns to be identified during a detailed, sub-level examination. Section 3.7 presents a detailed description the RPFC risk categories adopted for the data coding process, providing justification through consideration of the literature that underpins each of the categories.

7.7. Data Collection

When investigating each case study, the collection of data consists of two stages. The first is the collection of the contract and supporting documentation that makes up the written evidence. These documents often represent unpublished information sources, and therefore

involve prior approval and formal release of the documents from the MOD sponsor. In some cases, the contract may be available to the general public via the government's online contracts search tool (the contract's finder), and contracts stored on this database reflect the transparency objectives of the department. Where possible, case study contracts may be obtained via the contracts finder to save on time, however, in many cases the MOD contracts of interest will require a lengthy security access process to be adhered to. The second stage concerns the collection of interview data from a sample of practitioners who are deemed to hold job roles that are of relevance to the case study under investigation. All data collected will be presented in a consistent text format so that all information may be inputted into 'NVivo' the computerised data analysis tool to be used during the analysis stages of the research. The benefits of supporting the analysis procedure using NVivo are based on the tools ability to hold all of the collected data in one place, making it easy to access and analyse. The specific methods adopted during the data analysis process will be presented in the following sections, which for the purpose of clarity, will split the discussion into the two data sources, beginning with the analysis of unpublished written evidence (also known as Phase 1) before moving onto the spoken evidence (Phase 2) in Section 7.9.

7.8. Phase 1: Written Data Analysis

The first phase within the research process comprises of a number of elements, aimed towards extracting a richer set of data. Whilst content analysis is the main method adopted when analysing the unpublished written documents, the data is extracted to be processed in a number of formats. The first step taken within the written data analysis phase (Phase 1) is the derivation (or "quantizing") of a set of statistics from the qualitative data set (i.e. the contractual documentation), which provide an initial depiction of the risk categories that appear within the data source. The second step then builds on this numerical translation through the development of a visual illustration of the risks identified in the initial step, together with further consideration of the dynamic nature of risk. Beyond this, further understanding will be derived through the implementation of the Phase 2 analysis, however this will be discussed in a later section of the chapter.

7.8.1. Using Content Analysis to Derive Statistical Outputs

The preliminary application of a content analysis technique provides the research with an early view of the types of risks that have been acknowledged in the written contract. Each clause that has been incorporated into the written contract by the contract writer represents a risk contingency measure, attributed to mitigating and controlling threats which may occur under the contract. By allocating a risk category to each of these contractual clauses, the research is

able to extract a statistical picture, capable of documenting the frequency of the coded risk categories, so that a picture of the intentions of the contract writer may be gained. To establish which category the contracts clauses belong to each clause is examined and interpreted to determine its underlying thematic traits before being allocated to the most appropriate risk categorisation, in line with the definitions presented.

This initial step is achieved and facilitated through the use of NVivo, a data analysis software package that supports the coding of qualitative data, electronically. In the defence industry, a written contract spans anywhere from between 80-300 pages, and within which contains between 40-90 conditions, made up of clauses. The written contract was therefore imported into NVivo and coded using the software application (adhering to the unitisation scheme set in Chapter 6) so that the data may be coded and contained in one place, and later automatically tabularised to identify the numerical patterns (or weightings) of each risk category (Table D).

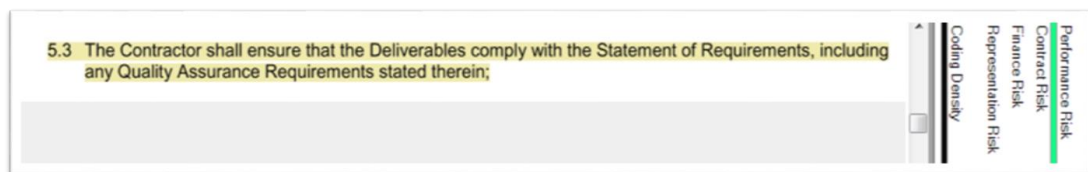


Figure 17: Coding the contract clauses by risk category using NVivo software.

Figure 17 provides an example of the NVivo coding process and depicts a contractual clause which has been coded as a performance risk. Providing some justification for this coding choice, the clause reflects the obligation of the Contractor to ensure that the contractually bound deliverables are provided in adherence with the descriptive technical content, provided in the Statement of Requirement. If the Contractor fails to adhere to this clause, then the ensuing consequences (or risks) remain within the Contractor’s remit and may provoke the onset of contractual penalties.

Risk Category	Count	Percentage (%)
Representation	64	32%
Performance	37	19%
Finance	50	25%
Contract	46	23%

Table D: Phase 1 statistical summary of the coded clauses.

Once the entirety of the contract had undergone coding, an automated summative table was populated to extract a numerical representation of the density of coded risk categories across the contract, presented both in terms of their numerical count and percentage (Table D). In doing so, the researcher is able to ascertain a preliminary statistical view that indicates the types of risk that are prioritised by the contract writer, at the time of writing. Alongside this, coding notes were taken to justify the risk categorisation choices (and also for auditing purposes). These were tabularised individually for each case study using MS Excel, a complete set of which may be found in Appendix C.

7.8.2. Extracting Greater Meaning beyond Content Analysis

On its own, using the content analysis technique to derive a set of statistical inferences provides limitation, in that it merely presents the numerical frequency and weighted distribution of risk types within the written contract. Whilst the method provides early indication of the intentions of the contract, it fails to describe the dynamics of risk. To account for these risk dynamics, at this stage there appears to be good reason for a new method or tool to be developed, which incorporates and expands on the coding process initially undertaken. In the review of literature, it was revealed that the contractual relationship joining the two contracting parties together is an important dynamic in the formation of a contract. The relationship underpins the contract by apportioning obligations or ascertaining risk to either party to incentivise and facilitate the contract. On these grounds, it would appear logical to observe the risk transfers operating between the contracting parties to build a stronger picture of how each contract's risk profile appears. In addition to this, risk systemicity may not be easily recognised through a straightforward coding process, particularly when the quantity of coded clauses within the written document under observation are substantial, making them difficult to condense into an easily readable format. As a result of these apparent shortcomings of the coding process, it is thought that a further analysis tool should be developed and incorporated into the research design to account for two important risk dynamics, namely:

- (a) The distribution of the contracting parties' risk allocation, and,
- (b) Its interconnectivity across the pre-constructed contract architecture.

To account for these two important risk dynamics, the research would benefit from development of a research tool that enables these patterns to be observed, in an easily accessible format. Another aspect that should be considered here is that both the aforementioned risk dynamics represent moving patterns that interconnect or transfer from a

point A to a point B, and these movements must also be observable. To satisfy these requirements, a visual mapping tool would be deemed appropriate, since this would be capable of illustrating the dynamic movements of risk in a single snapshot. The visual map must therefore contain the core components (or contractual conditions) of the contract so that the interconnectivity between the conditions can be mapped. It must also be capable of representing how the contractual obligations of the contracting parties are divided. For the purpose of clarity, each of the emerging risk dynamics will be discussed in turn, beginning with the distribution of ex-ante risk in terms of the contracting parties' risk allocation.

(a) The distribution of ex-ante risk in terms of the contracting parties' risk allocation.

The first dynamic to be incorporated into the research design aims to map the contract's allocation of risk between the contracting parties (i.e. the Contracting Authority and the Contractor). As already mentioned, the dynamic would be best observed through the development of a visual mapping tool that permits the investigator to easily extract patterns that are representative of the risk allocations between the parties. To do so, the visual map must be capable of illustrating the distribution of risk between the parties. To ensure the visual map is easily read, universal shapes will be adopted, and in this case, a simple directional arrow will be used to map the distribution of risk between the contracting parties. Taking a simple example, where a risk is coded within the contract, the risk must also be allocated to one of two camps: (1) the coded risk transfers from the Contracting Authority to the Contractor, or (2) the coded risk transfers away from the Contractor and is ascertained by the Contracting Authority.

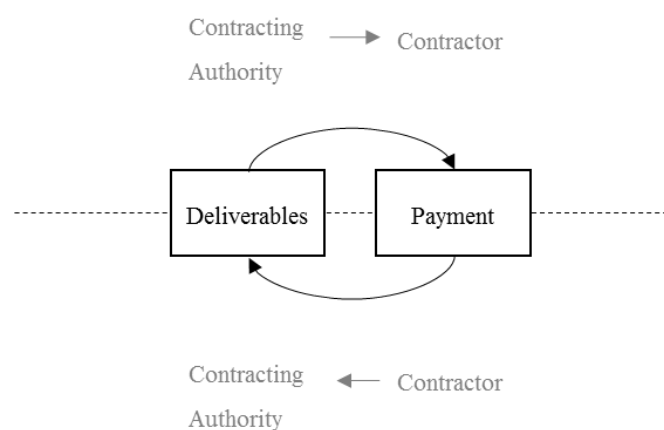


Figure 18: Developing a visual mapping tool - dynamic (a).

Looking at Figure 18, and ignoring that the two contract conditions are interconnected for now (this will be discussed in [b]), the directional arrow above the textboxes appears to move from

left to right. This area above the dotted line (referred to as the *horizon*) reflects the transfer of risk from the Contracting Authority to the Contractor, since in this case, the onus of contract delivery (achieving milestones, KPIs etc.) falls in the remit of the Contractor's obligations. Following the same logic, the area below the horizon represents the transfer of risk from the Contractor to the Contracting Authority, which in the case of Figure 18, is caused by the Contracting Authorities obligation to make payment to the Contractor, subject to the terms stipulated in the contract.

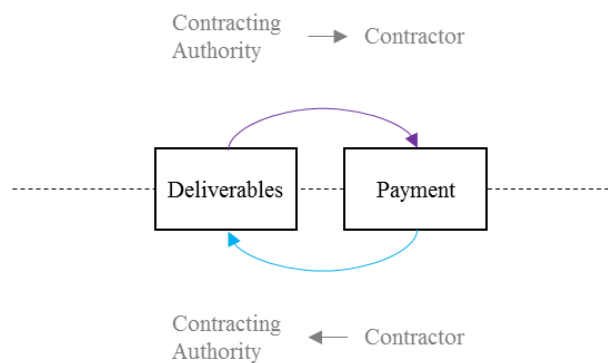


Figure 19: Accounting for the coding scheme using colour - dynamic (a).

Building the tool one step further, whilst Figure 18 begins to illustrate the movement of risk between the parties, it does not provide any indication of the type of risk being transferred. To account for this factor, the directional arrow may be coloured to reflect the type of risk categorisation it relates to. For example, looking at the progression in Figure 19, the directional arrow positioned above the horizon is now coloured purple, the colour attributed to a performance risk. Likewise the directional arrow located on the lower horizon is shaded in blue, the colour representative of a finance risk.

A key feature of the developed risk migration mapping technique is its ability to provide a visual representation of the risk transfers that occur between contracting parties. Figure 20 provides an illustrated (yet simplified) example of a complete risk migration map. Observing the diagram, risk transfers between the contracting parties occur above and below the horizon. Above the horizon, the clustering of arrows represents the transfer of risk from the Contracting Authority towards the Contractor. In contrast, the lower section of the diagram (below the horizon) indicates the transfer of risk from the Contractor towards the Contracting Authority. When examining the distribution of the parties' risk allocation, it is not the direction of the arrowheads which provide significance, but their density and positioning on the horizons

which provide a visual indication of the distribution of risk being migrated between the Contracting Authority and the Contractor, under the contract. The direction of the arrowheads however, are of significance when examining the distribution of risk across the pre-existing contract architecture (see below). For example, where the distribution of arrowheads located above the horizon is visually disproportionate to the distribution found below the horizon, it would imply an imbalance of risk migration. Figure 20 provides a fictitious example which illustrates an entirely proportionate distribution of risk between both contracting parties. Within it, the contract will explicitly state the responsible owner of a certain obligation. Every condition is therefore made up of a set of clauses that transfer a level of responsibility onto either of the contracting parties (e.g. “the Contractor shall...”). Where responsibility is placed exclusively within the remit of one contracting party, an element of risk is assumed by that party. Providing a specific example of a single risk migration, a common condition to transfer risk solely towards the Contractor is in the “Contractors Obligations” or a direct equivalent.

In some cases, such as in traditional contracting, a heavy migration of risk from the Contracting Authority towards the Contractor might be intentional and therefore characteristic of this mechanism. However, in cases where the intent of the contract resides under relational contracting classification, this may not be the case. For example, consider a partnering contract that is underpinned by relational provisions. In this case, it is anticipated that the risk migration map would display a reasonably balanced transfer of risk above and below the diagram’s horizon. The reason for this is that the contract is underpinned by an objective to develop a collaborative network between the Contracting Authority and industry players, ensuring inter-party cooperation and suggesting that a risk-sharing feature would be expected. Illustrating this diagrammatically, risk-sharing under a relational contractual arrangement should therefore comprise of a balanced risk transfer diagram attributed to the Contracting Authority (C.A.) and Contractor (C), (i.e. risk flows are two directional, simultaneous and balanced: C.A. → C and C.A. ← C, see Figure 20).

In reality however this is not always the case, and risk flows may travel disproportionately from the Contracting Authority towards the Contractor. In other words, if the contract writer does not construct the consolidated contract to align with the pre-identified contractual requirements, then the outcomes of that contract are unlikely to be met. As a result, a misalignment between the outcomes intended to be obtained through the implementation of the consolidated contract and the actual outcomes are likely to be foregone. This feature of migration mapping therefore provides a depiction of the effectiveness of the contracting mechanism being used.

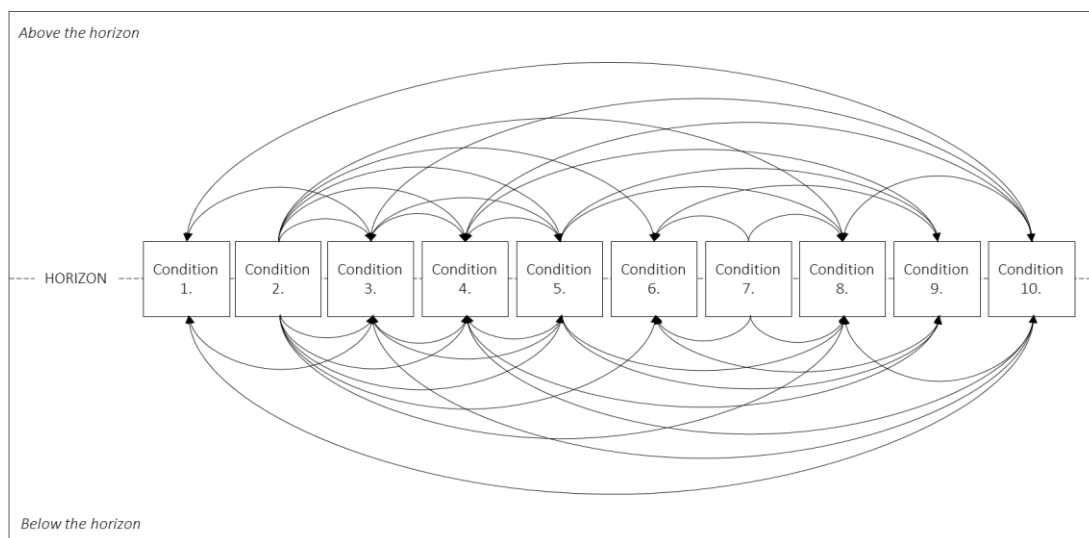


Figure 20: A mapping tool depicting an entirely symmetrical migration of risk. (Source: Bloomfield et al., 2018 [accepted for publication in the International Journal of Forecasting].)

(b) The directional flow of ex-ante risk across the pre-constructed contract architecture.

The second feature to be depicted using a visual mapping tool is the transfer or movement of risk from one contract condition to another. Observing the map presented in Figure 20, the central band made up of textboxes represents the contract spine. This consists of each contract condition that is listed in the contract’s binding Terms and Conditions, inclusive of its supplementary Schedules. The directional arrows positioned on top and beneath the contract spine signifies the risk migration that cascades between each condition. Following these arrows from their origin towards the arrowhead reflects an interconnectivity of risk between the contract conditions, which have been identified and written explicitly into the contract as bearing some close connection with another contract condition. Where risk arises in one condition, those that bear close relations are susceptible to undergoing a knock-on effect; a feature which has the propensity to cascade along multiple components of the contract spine, demonstrating the systemic characteristics of contract risk (i.e. x leads to y).

Providing an example of this pattern for methodological clarity: where government-imposed initiatives on generating greater ‘value for money’ (VFM) have been enforced on its projects, the contract may contain a condition that sets a legal obligation on the parties to regularly review its ability to create VFM (e.g. by including a VFM condition within the contract). Whilst this condition provides legal assurance that a regular review process must be undertaken to ensure VFM is achieved (eliminating some finance risk, among others), it contains weaknesses in terms of how the VFM solutions (e.g. changes to service

specifications) can be implemented. Rather than trusting that change will be effectively managed by the responsible party within the remit of this condition, the potentially harmful risk might be transferred to a separate condition that controls the procedure for contractual amendments (i.e. the Contract Change Control Procedure). In this way, closely interlinking conditions can be seen to transfer features of risk between the contracts' conditions.

7.9. Phase 2: Analysing Spoken Evidence

By looking at these dynamics along with the statistical inferences obtained in the initial contract analysis phase, an early representation of the contracts intentions can be obtained. As mentioned earlier however, time variables must be accounted for, and so far, only the static written contract has been analysed. We are interested in the temporal nature of risk within the contractual setting, a feature that will be accounted for during Phase 2 of the refined research design. Phase 2 concerns the collection of spoken evidence, namely interviews. The collection of this data is done whilst the contract is live, and therefore represents a new time variable, namely how the contract is playing-out in actuality.

The interviews adopt a semi-structured approach, a technique which prompts the interviews to hold a strict structure so that all prescribed themes are covered, whilst enabling the development of each theme (in particular, the exploration of causality to (why?) and from (so what?) of each theme). Three key pre-determined themes were set to ensure certain information regarding the contract was ascertained, these were related to both time variable and relationship, specifically: (i) pre-contract, (ii) contract duration, and, (iii) contractual relationships. The previous sections have identified why there is a requirement to account for temporal time variables. These three interview themes cover the two broad dynamics identified in Phase 1 – the first two (pre-contract and contract duration) represent time variables, whilst the third (contractual relationships) builds on the second risk dynamic discussed, which concerns the relational behaviours of the contracting parties (i.e. whether they ascertain risk, share it or transfer it).

Each theme was identified as being significant to the interview structure and the development of the research findings, and therefore required careful structuring into their sub-categories and accompanying questions. The semi-structured interview design was then further enhanced by ensuring that 'chaining-up' and 'chaining-down' interventions were controlled by the interviewer where necessary. Whilst a semi-structured interview approach allows the interview to efficiently pinpoint the broad themes for discussion between the interviewer and the participant, it must be recognised that a heavy preference in favour of structuring the

interview might distort the findings, if the interviewer were to allude to certain assumptions. In this case, the interviewer was made aware of the potential for such bias and the participant was encouraged to diverge and follow their own natural trail of thought. In doing so, it became clear where topics of significance arose, either materialising as a regularly mentioned phenomena within the interview or where there was an obvious shift in theme by the participant towards an area that they deemed to be a crucial contributor to the question area being examined.

To keep the interviews consistent with one another, an interview protocol was developed (Figure 21) which depicts a flowchart containing the broad themes and individual questions asked within each semi-structured interview. The protocol is bounded by a 60 minute interview conduction timeframe, which represents enough time for a detailed discussion to be held between the interviewer and the participants, without taking an unreasonable proportion of time from the voluntary participants. Where a theme cannot be covered (e.g. due to the participant not having any experience of the theme being discussed), the participant will be invited to share their thoughts or hearsay on the topic, or the topic/question will be omitted from that interview.

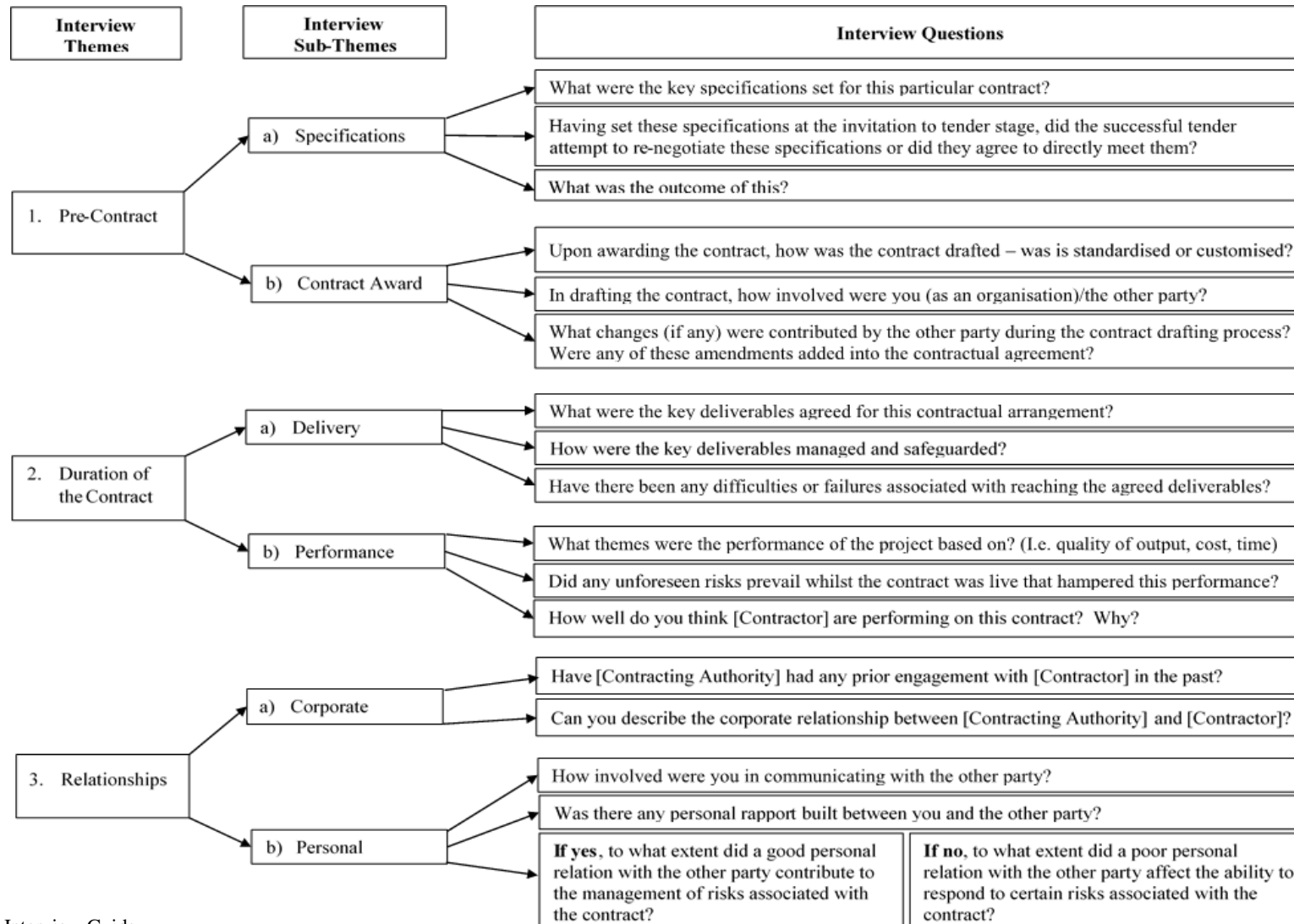


Figure 21: The Interview Guide.

7.9.1. The Participant Sample

The collection of case study interviews consisted of a sample made up of both the public and private party participants, replicating the contracting parties to the outsourcing arrangement under investigation. Within each of the public/private sector organisations, the sample was further divided to include only the personnel with experiential knowledge of the case study. Such a sample therefore comprised of a sample of personnel that held/hold job roles that are key to the facilitation of the case study (these could include a range of technical, project management, finance and commercial roles). By incorporating past and present contract facilitators, time variables were accounted for in the interview data set collected.

7.9.2. Data Processing and Analysis

Having discussed the interview design specific to this research, together with the approach adopted for obtaining a suitable participant sample, this sub-section will reveal the data analysis process used for the extraction of meaningful information. To reach this refined form of data, the raw data (spoken evidence or the voice of the interview participants) collected is to first be transcribed from its raw auditory form, to its raw written form so that content analysis may be undertaken (remembering that the content analysis technique requires the data source to be presented in its written form). The interviews collected are recorded using voice recording software (and compliant with the applicable research ethical procedures), and transcribed 'word for word' into a formatted text document. Following this essential transcription phase, the finalised manuscripts are imported into NVivo for analysis.

The data analysis process begins with familiarisation of the text, by reading through the interview manuscripts collected for the case study under investigation at that point in time. The purpose of this initial step is to prompt the researcher towards a subconscious derivation of the key emergent themes encased in the data. By reading through the manuscripts more than once, the researcher is able to recognise and extract the themes or topics that have been alluded to by the interview participants more frequently than others, suggesting that these emergent themes are of significance to the research.

Following the researcher's initial familiarisation with the interview manuscripts, sections of the transcribed data can then be highlighted and coded to indicate where the themes of significance emerge (i.e. those that are mentioned by the interview participant more than once, and therefore appear in the interview manuscript on multiple occasions). The coding process adheres to the unitisation scheme detailed in Chapter 6, whereby large sections of text are coded to prevent the data's meaning from becoming lost. The coding of spoken evidence therefore differs slightly in terms of its coding process. In particular, the themes that are coded

for represent sub-categories or associated themes to the four (RPFC) risk categories identified earlier in this chapter. The reason for coding the interviews in this way is that a greater depth of qualitative information is obtained through spoken evidence, since it represents the subconscious thought of those participating in its most raw, unrefined form. The data therefore presents a greater depth of information, whereby the interviews can be coded by the themes that constitute the four overarching RPFC risk categories. Table E presents a table illustrating the overarching RPFC risk categories, together with the themes that bear close association to these risk categories. What must be noted at this point is that the themes in Table E represent a set of possible themes that may emerge during the coding of the case study interview manuscripts, however these do not constitute a universal set of themes to be applied to the general interview coding process. Instead what must be highlighted is the requirement to deduce a new set of themes for every case study analysed.

Coded Risk Category	Sub-Category	Themes by Risk Category
Representation risk	Information risk	Information sharing Information protection rights Negotiations Throughput
	Relational risk	Dependencies External interface Internal interface
Performance risk	-	Contract management Contract performance Personnel management Time Cost Quality
Finance risk	-	Budget Payment Price Profitability
Contract risk	-	Compliance Contract change Flexibility Governance Liability Regulation

Table E: Risk categories and possible emergent themes.

The themes deduced from the interview data enables multiple interviews (i.e. the entire case study's interview set) to be considered together, based on the regularity of themes occurring in each example. Some themes may be underpinned by domain specificity, that is, one theme might be discussed more frequently by one type of professional than it may be by another (e.g. a project manager might be more likely to highlight themes of contract management, whereas a financial manager might frame their response to interview questions around themes affiliated with the financial context like budget, payment and so forth). Whilst this might be the case, where positive or negative events occur throughout the duration of the case study, there is a fair chance that these will be discussed within the interview (either prompted by the semi-structured interview questions, or due to the significance or influential impact of the event).

All of these can be traced back to having some close affiliation the coding dynamics identified in Phase 1, where the written contract was dissected. For instance, a high frequency of finance risk coded in Phase 1 might be evidenced/matched in Phase 2 where significant proportions of the interview discussed negative finance risks to have materialised in the duration of the case study contract/project. Viewing Table E, the risk categories have been separated purely for the purpose of definitional clarity, however at this point what must be highlighted is the importance of acknowledging the interrelatedness of risk. In particular, despite such division, a single risk category holds the capacity to influence another risk category, in the circumstance where both phenomena hold some common ground. For example, Representation risk contains two sub-categories, namely relational risk and informational risk. When coding Representation risk, in some cases a clause may be categorised as belonging to one particular sub-category, more so than the other. Observing the coded clauses found in Appendix C, the clauses protecting "Warranties and Representation" may be coded as having a predominant affiliation with information risk, due to the Contractors written obligation to provide the Contracting Authority with reassuring information regarding their viability to enter into an agreement. Alternatively, certain clauses may be more appropriately coded under the relational risk category, such as the "Cooperation by Parties" whereby both parties to the contract must seek to facilitate a good, mutual working relationship under the agreement. In many cases, the conditions categorised as being Representation risks comprise of both sub-categories, since these bear a close association to one another, particularly given the sharing of information between contractual parties often prompts the development of relational ties. Moreover, the interconnectivity of a contracts clauses extends beyond the relatedness of the aforementioned sub-clauses, and the coded clauses under the entire contract will often depict cross-category links. As a result, the clauses may be allocated to more than one risk category, replicates the interaction that occurs between risks.

7.10. Triangulating the Two-Phase Process

The interconnectivity of the two-phase data collection process is detailed in Chapter 6, Section 6.10. Put succinctly, the research assumes a multi-method approach whereby each method provides disparate perspectives. What must be made explicit is that the perspectives examined (the differences between the insights gained from the written contract and the interviews) are not competing insights, but instead offer different meaning to the overarching data that may be triangulated together to better inform our knowledge of the phenomena under investigation (Eden & Huxham, 2006). Furthermore, the triangulation of the multi-method approaches detailed in the research design provides a mode that enables a researcher to triangulate between: “i) *observation* of events and social processes” (as is achieved by undertaking the analysis of the written evidence to this research), “ii) the *accounts* that each participant offers in different settings” (in this case, the spoken evidence collected), and, “iii) the changes in these accounts and interpretation of events *as time passes*” (Eden & Huxham, 2006, p.20; Harré & Secord, 1976). Note that the third condition in this case brings the time variable into the picture, a feature that has been carefully considered in every phase of the research design.

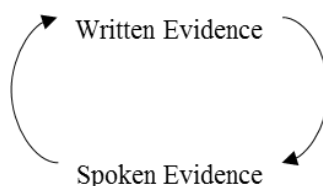


Figure 22: Cyclical data collection using the multi-method approach.

This chapter is less concerned by the rationale supporting the methods or techniques chosen to carry out the research, and instead aims to detail the steps taken to achieve the outcomes prescribed by the methods so that the research design may be easily replicated in future studies. Most significantly, the triangulation method aims to aid opportunity for *cyclical* data collection (Figure 22) by “exploiting more continuous and varied opportunities than is occasioned by more controlled research” (Eden & Huxham, 2006, p. 20). A richer conceptualisation of the case study findings can therefore be achieved where the multiple methods are combined to enforce the overarching research results, using a procedural technique like the diagram presented in Figure 23.

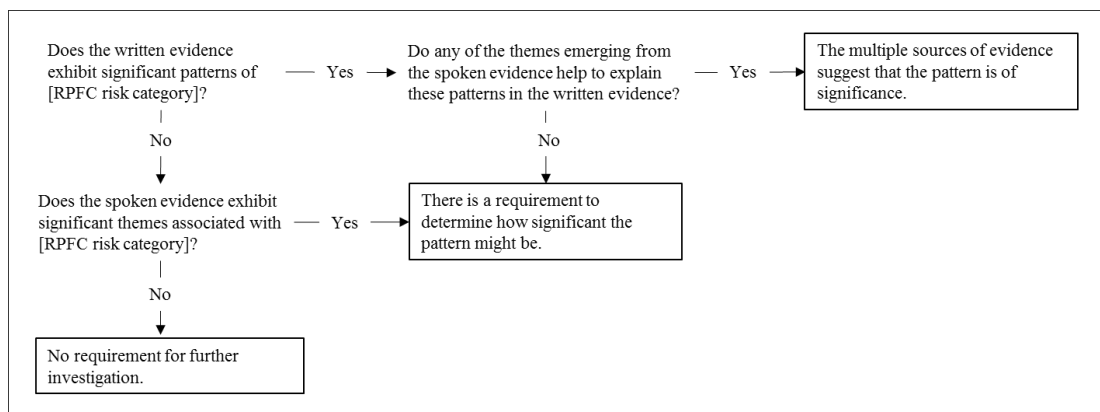


Figure 23: A technique used to combine the phased data.

Another aspect that is essential to the justification of the methods adopted relates to the practicalities of combining the coded written and spoken data with a visual mapping tool. The benefits associated with the need to develop a visual mapping tool were outlined in Section 7.8.2, yet in order to further validate the research design, the rationale for combining these methods must be highlighted. Considering extant research methods, the separations made between soft and hard data forms can be called upon since it unleashes similar outcomes to those required under this research design. Considering the raw data collected from the written contracts and interviews, such sources would be determined as being ‘soft’, since the data itself is, to some extent, based on judgement, opinion, some ambiguity and is observer dependent (Pidd, 2004) To extract greater meaning from these, the directed coding process employed enables greater structure to be attributed to the research analysis process, through categorisation. This movement represents a shift from a ‘soft’ data to ‘hard’ data, the advantages of which lie in the enhanced manageability of the data and its translation into a data set that may be cross-examined during analysis.

In addition to this, through implementation of a model (the risk migration mapping tool), the refined hard data may be readily translated into a richer picture, through development of carefully structured risk map which depicts information that would not otherwise be accessible to the researcher with coding alone. Howick et al. (2007) provide a methodology for the dissemination of structured modelling, through consideration of two well-established modelling techniques, namely cause mapping and systems dynamics. Encased within their discussion, Howick et al. (2007) highlight the requirement for a research methodology to extract the full benefit of rich, elaborated qualitative stories with the addition of quantifiable structures. Whilst the combination of such data refinement and structuring is advantageous when undertaking research based upon ‘fuzzy’ data sets, some weaknesses must also be

acknowledged. In particular, criticisms arise that replicate those associated with unitising under a coding scheme, whereby the shift from soft to hard data might constitute a loss of context or additional information (Krippendorff, 2004).

The rationale behind the combination of the multiple methods has been covered in detail already, however an important design feature yet to be addressed concerns the triangulation of each case study (in this case, the results of four detailed case study analyses) into an unified set of findings. The following section conforms to the approach for the triangulation of four data rich case studies that was presented in Chapter 6, yet refines this technique further by considering the contextual characteristics that are considered as being essential to ensuring data validity within the entire research design.

7.11. Triangulating the Four Case Studies

To satisfy the case study matrix, the findings from each case study area must be derived from the two data sources using triangulation. The triangulation of the written and spoken evidence delivers a summative set of findings, which at this point show no ties or interlinkages with one another (i.e. the triangulated data findings of Case Study A is treated independently from Case Study B, C or D). The research however is interested in extracting meaningful data to address the nature of risk in defence outsourcing contracts, a topic that requires the consideration of all of the four case studies collectively.

Having separated the patterns of significance from those that are insignificant during the triangulation of the written and spoken evidence, each case study may be reduced to a set of key findings that are specific to the context within which it resides (i.e. a Science and Technology Services outsourcing contract, as opposed to a Computer and Related Services outsourcing contract). On their own, the sets of key findings only provide the researcher with information specific to each independent case study, highlighting the need to understand the role of context when extracting the research outcomes. To derive new conceptualisations surrounding the overarching topic, that is, the outsourcing of the common enabling services in defence, the case studies must undergo the same cyclical triangulation method to build and extend the research towards an even richer conceptual understanding.

To achieve this, a similar deductive approach is to be taken, however the purpose of the technique becomes focused towards consolidation of the thematic commonalities found between the case studies, following their independent identification in the previous stages. The process followed when triangulating the four case studies is detailed in Chapter 6, Section

6.11., where it is described how the summative key findings will undergo a process of juxtaposition in order to identify the prominence of each of the patterns across each case study (if any).

7.12. Summary

The previous chapter (Chapter 6) provided a description of the research design to be implemented by the research in order to reach the intended outcomes. The chapter therefore introduced the most appropriate procedures for achieving this, yet failed to detail the intricate details that are crucial for ensuring future replicability of the research. Chapter 7 therefore provides an extension to Chapter 6 by describing the phases that must be considered when undertaking the case study analysis, so that both the case studies and the overarching research may follow an identical procedure. The following chapter provides a discussion of the findings, and replicates the research design phases by discussing each case study independently, before moving on to discuss the triangulated commonalities or disparities between the four cases.

CHAPTER 8

RESEARCH FINDINGS

8.1. Introduction: Presentation of the Findings

A descriptive account of the research results will be presented in Chapters 8-10, following a chronological order. The first case study area to be addressed investigates how Science and Technology Services (STS) are currently being commissioned for by the defence department through the examination of two independent STS case studies, both of which will be discussed in this Chapter 8. Part A will describe the Case Study A findings, before moving onto an independent presentation of Case Study B's findings in Part B. Part C will then follow, providing a combined interpretation (or *triangulation*) of the two case studies which when combined, represent the overarching STS case area.

The final two case study areas to be examined reside in the Health and Social Service domain (presented in Chapter 9), and, the Computer and Related Services field of practice (presented in Chapter 10). All three chapters aim to extract the themes that appear to be most prominent to each of the service areas examined in order to establish a clear and logical description of the findings. Due to the sensitive nature of the research (which resides within the defence domain), each findings chapter will describe a set of results, whilst keeping the four case studies and commercially sensitive information anonymised. The full details have been documented in the formal reports on the case studies and submitted to the Authority (Dstl) under Contract Number DSTLX-1000098922, and can be referenced as follows:

1. Science & Technology Services Case Study: Findings Report, Version 1.0, 20/10/17.
2. Health & Social Services Case Study: Findings Report, Version 1.0, 20/03/18.
3. Computer & Related Services Case Study: Findings Report, Version 1.0, 15/05/18.

Each findings chapter to this thesis will begin with a detailed description of the commissioned service in terms of its contractual features, a narrative that is considered to be a key initial step towards building a richer contextual understanding of the case at hand. Following this, each case study will be dissected to provide a detailed description of the findings that were obtained during the data analysis process. This will be ordered chronologically, beginning with a presentation of the results attained through the analysis of the written contract, the interview analysis and finally, a triangulation of the two methods.

- PART A -

8.2. Science and Technology Services

The first case study area covered by this research is positioned within the STS realm of defence service commissioning. Considering first the context that surrounds both cases, each case study represents a contract that has been designed specifically to deliver STS outputs to the Defence Science and Technology Laboratory (Dstl). Whilst work commissioned under this specialist area may be broad in scope, STS ultimately facilitates crucial knowledge-building in the UK's defence department through research and experimental development.

As an executive agency to the MOD, Dstl therefore seek to supply leading knowledge and advice in military science and technologies to the wider MOD and government departments, and in addition, steward the wider UK Science and Technology (S&T) capability. Approximately half of Dstl's S&T research programme is currently commissioned for delivery by industry and academia, a level which is projected to increase over time. It is therefore paramount that the type of contract underpinning the S&T work to be undertaken by Dstl's strategic partners is structured appropriately to ensure maximised gains are realised by the defence department.

For terminological clarity, S&T submits a broad definition, encompassing both S&T equipment and S&T service commissioning concepts. This research however concerns only the latter service commissioning case, denoted as STS commissioning. Such a clear distinction is advocated throughout the research since the type of output transferred in each S&T case requires different considerations. Commissioning for STS through engagement with industry and academia concerns the provision of scientific investigation, research and analysis; the end product of which is often presented in a formal document. The contract type selected by the Contracting Authority for cases such as those that require the production of innovative information streams must therefore take these parameters into careful consideration.

8.3. Science & Technology Services: Case Study A

The first of two STS contracts investigated (referred to as Case Study A) represents a Framework Agreement contract held between two contracting parties: the Contracting Authority and the Contractor. Under the contract, the MOD (and its associated defence organisations) act as the Contracting Authority, for whom the Contractor (a single industry supplier) delivers the formally agreed requirements. As a contractual mechanism, Framework

Agreements differ from standard contracts (where simple, one-off transactions often occur) since a significant objective of a Framework Agreement is to build long-term, collaborative mechanisms to facilitate *recurrent* transactions within a specific domain. The Framework Agreement may also afford the Contractor the freedom to sub-contract a proportion of its transactions to a range of private suppliers within the wider market through either open competition or single-sourced arrangements (where a single supplier framework is implemented). In particular, Case Study A equips the defence customer (MOD) with new defence knowledge and supports its decision-making through the generation of cutting-edge research and analysis, facilitated through the rich source of capability expertise that exists within the private industry and academic sectors.

8.3.1. STS - Case Study A: The Written Contract

Case Study A comprises of two data components: the written contract which represents the formal agreement made between the two contracting parties, and the interviews of participants who have had significant involvement in the set-up or running of the contract (for further details of the research procedure, see Chapters 6 and 7). As previously highlighted, the mechanism selected for the commissioning of this particular science and technology contract is a Framework Agreement, the contract architecture of which is likely to be dissimilar to a standard defence contract (i.e. an “off-the-shelf” contract template). All contracts contain a set of binding terms and conditions, however, in the defence setting a set of applicable defence conditions (known as DEFCONs) are incorporated within the contract structure, in order to remain compliant with defence policy. These general DEFCONs are standard practice within MOD’s commercial practice and may be contained either in a separate or combined section alongside the contracts special conditions. The Case Study A contract separates its General Conditions from its Special Conditions within the contract, and so, this chapter will present these as independent sections below.

8.3.2. The General Defence Conditions (DEFCONs)

For terminological consistency, it must be highlighted at this point that the term “contract spine” refers to the indexed clauses that make up the structure of the contract. Within the written contract, the clauses which make up the contract spine are presented in the form of a contract index and provide an initial depiction of the priorities of the Contracting Authority in terms of the pillars deemed essential for the functioning of the contract. Observing Case Study A, it appears that the general DEFCONs make up the first section of the contract spine and are comprised of a number of standardised defence conditions, enforcing defence policy on the Contractor with the intention to settle the Representation, Performance, Finance, and, Contract

(RPF) risks by placing these within the Contractor’s remit. From the outset, and prior to analysis of these General Conditions, it is assumed that the DEFCONs represent the Contracting Authority’s intention to protect itself from contract failure. Indeed, without this level of protection, the contract would be highly susceptible to contract breach and the ensuing consequences. The assumption of the Contracting Authority’s protection is grounded on the standardised nature of DEFCONs, which are traditionally allocated to defence contracts following the MOD’s commercial procedure.

Risk Category	DEFCONs (%)	Risk Sub-Group
Representation Risk (R)	55	Cooperation: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Communication. Expectations. Relationships: inter/intra party risk, supply-chain risk. Commercial Exploitation: IP, Compilation Right.
Performance Risk (P)	17	Time Cost Quality
Finance Risk (F)	20	Price Remuneration Penalties
Contract Risk (C)	8	Liabilities of both parties (spread of risk). Breach.

Table F: Percentage of risk categories accounted for in Case Study A’s DEFCONs including sub-categories.

8.3.2.1. Representation Risk

The DEFCONs play a crucial role within the written defence contracts in terms of setting the foundational expectations of the Contracting Authority, who seek to distribute certain risks to the outsourced party in a bid to protect both their own interests, and preserve public interest. In line with this, it might be expected that ‘representation risks’ would account for a high proportion of risk mitigation when analysing the DEFCONs within this particular contract case, since the representation category is based upon representing the *interests* of either party (for a complete definition of representation risk, see Chapter 7). Following the coding of the contract (Table F), what is actually observed among the DEFCONs is a representation risk rate of fifty five per cent, which allocates over half of the risk retention to a single risk category and thereby highlights the Contracting Authority’s priorities specifically for representation risk mitigation under the contract.

Within the Case Study A contract, emphasis on representation risk in the contracts' General Conditions section might suggest a number of intentions of the Contracting Authority. The first is related to the MOD's protection from information risk, as demonstrated by its use of Intellectual Property (IP) related clauses, and beyond this, in Information Rights that encompass all other sensitive outputs which cannot be IP protected (e.g. capability and knowhow). A relatively high percentage of the DEFCONs can be ascribed to representation risk in this way, yet within this category, a proportionately significant level of those coded under this risk category bear some connection to IP and knowledge protection. Given the nature of the defence and security industry, it is perhaps not unusual for there to be such a stringent requirement for this sub-component of representation risk to be implemented heavily within the DEFCONs due to the nature and secrecy of national security.

In line with this, the MOD seek to retain its core business capability, and in Case Study A employ particular standardised DEFCONs to retain the rights to new advances in knowledge made within the defence industry. The second determinant of representational risk found in the coding of the DEFCONs highlights the *intra-relational* aspect of the contract, particularly in co-ordination with the supply chain. The theme ascertains strong undertones of risk transfer away from the Contracting Authority, placing onus on the Contractor to perform whilst ensuring the Contractor remains liable for any sub-contractors or third parties involved in the execution of the contract. Whilst the Contracting Authority impart all liability associated with any failure to perform on the Contractor, control is maintained in terms of access to records and associated information. In both cases, the Contracting Authority maintains an ultimate contractual position through its retention of Joint and Several Liability (JSL). In this way the Contracting Authority is able to relieve itself of the representation risks associated with the day-to-day functioning of the contract and benefit from intrusive action in the supply-chain by bypassing the Contractor where appropriate.

8.3.2.2. Performance Risk

Protection clauses associated with performance risk account for seventeen per cent of the general defence conditions, and whilst this is not the highest risk theme observed in the General Conditions section of the contract, it provides an important legislative foundation for which the behaviour of both parties may be regulated. Given that the DEFCONs are underwritten by defence policy, the conditions are predominantly concerned with the protection of the Contracting Authority. The DEFCONs therefore allocate portions of risk to the Contractor either through an explicit statement of the liabilities and accountability of the

Contractor, or by allocating an overarching power to the Contracting Authority to enable it to monitor contract performance in alignment with the pre-defined requirement and scope.

Performance risk contains the three sub-categories of risk that are commonly discussed in the project management literature: time, cost and quality. These relate to the performance under time-scale retention, strict firm price costing and quality assurance, enabling the contract to be marked for its performance against a set target with the underlying intention to protect the Contracting Authority from any associated failures of the contract. Whilst the DEFCONs imply a migration of performance risk to the Contractor, overseen by the Contracting Authority, it must be noted that the Contracting Authority is liable to some degree of performance related risk where it is unable to perform its co-operative obligations under the contract. An example of this is the failure of the Contracting Authority to provide the Government Furnished Information (GFI) that is required to assist the Contractor in fulfilling their contractual obligations. In this case, the performance of the contract is foregone at the fault of the Contracting Authority, causing a cascading effect across closely interlinked risks whereby payment must be made for low levels of output (*financial risk*) and ultimately, termination is possible (*contract risk*).

8.3.2.3. Finance Risk

Finance shows the closest correspondence between the general condition and special condition coding results. Finance risk is by nature, a tangible risk and whilst it holds a great level of importance among the two parties (and a direct link to performance of the contract), it is a heavily structured and therefore clear and concise. In this way, the structured formalities adopted in the DEFCONs is reflected quite closely in the special conditions as it is unlikely for pricing or payment decisions to be highly customised outside of the pre-set mechanisms.

8.3.2.4. Contract Risk

Contract risk refers to the probability of loss arising from the Contractor reneging on the contract, as opposed to the Contractor's inability to pay. Contract risk becomes evident where the Contracting Authority's protection clauses have reason to be executed. As a coding theme, contract risk has an eight per cent coding coverage in the contract's General Conditions, which is significantly lower when compared to the other coding categories.

Here an assumption can be made, which infers that: due to the gravitas of the contract risk related conditions, only a small number of contract risk related clauses are required to be written into the General Conditions. Whilst the legislative clauses associated with contract risk

are forceful in their intended outcomes and imply contractual structure, these are commonly inserted as core pillars to the contract, the effect of which is greater than the sum of its parts. In this way, contract risk is seen to be the overarching risk theme, which is only triggered in exceptional cases (commonly where threat of contract breach or where liabilities are challenged). The eight per cent coding coverage therefore does not necessarily mean it is of no priority to the Contracting Authority, and instead may reflect a degree of legislative complacency on behalf of the Contracting Authority.

8.3.3. Analysing the Contract Spine: The Special Conditions (SC)

Given the structure of the contractual architecture deduced from the analysis of the general DEFCONs, it might be rational to assume that a similar pattern would emerge upon analysis of the special conditions, linking the two together. Adopting this logic, the special conditions can be thought of as the bespoke or customised section of the contract, not only reiterating the importance of the DEFCONs already stated in the contract, but also allowing for some degree of customisation to be written into the contract. In this way, certain parts of the contract spine can also be thought of as being unique to Case Study A's written contract.

Expanding on the directed content analysis method undertaken when coding the General Conditions, each contract clause underwent analysis to deduce the fundamental risks that the contract serves to mitigate against, either by reducing the likelihood of the known risks from occurring before they happen, or ensuring that these risks can be transferred if they do arise throughout the life of the contract. To measure these patterns, it is therefore crucial that the types of risk may be categorised and made easily identifiable to the contract reader. In order to decipher the weighting of the different types of risk (categorised under the RPFC groupings) each clause contained in the Special Conditions section of the contract was allocated to an appropriate RPFC risk category. In doing so, a tally of risk categories could be extracted from the contract and translated into percentages in order to reveal the aggregated distributions of risks types under the contract. For example, a Special Condition on Deliverables were (in theory) likely to fall into the Performance risk category, with the majority of its underlying clauses of that overarching condition belonging to the Performance risk group (or a combination centred on performance risk). By adopting the same process for each Special Condition, the entire contract may be mapped for its thematic priorities (translated as the prioritised risk prevention themes).

As anticipated, a similar pattern of RPFC distribution emerges (Table G), demonstrating the connection between the two sections of the contract, and thereby provides greater consistency

across the written contract. What this means is that there are some connectors observed, running from the General Conditions to the special conditions to provide the contract with customisation for greater robustness. Providing one example, the first general condition: DEFCON 14, titled “Inventions and Designs Crown Rights and Ownership of Patents and Registered Designs” is a condition that is generic enough to be inserted into other contracts. However, DEFCON 14 bears a close connection to the “Commercial Exploitation Levy” special condition, since the purpose of the DEFCON is to state the rights to ownership of patents and designs produced as a product of the contract itself. In conjunction with one another, the two types of condition relate to one another, accumulating greater legal prowess, and justifying the use of the DEFCONs to the extent that these may be considered by the Contractor as ‘take it or leave it’ and therefore non-negotiable. Although interconnectivity between the General Conditions and the Special Conditions were evident during the analysis of the contract, the following section focuses on the latter form of condition, and as a result, refers specifically to figures and diagrams which contain only the Special Conditions.

Risk Category	Special Conditions (%)	Risk Sub-Group
Representation Risk (R)	39	Cooperation: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Relationships: inter/intra party risk, supply chain risk. Commercial Exploitation: IP, Compilation Right.
Performance Risk (P)	24	Time Cost Quality
Finance Risk (F)	21	Price Remuneration Penalties
Contract Risk (C)	15	Liabilities of both parties (spread of risk). Breach.

Table G: Percentage of risk categories accounted for in Case Study A’s special conditions including sub-categories.

8.3.3.1. *Special Conditions: Representation Risk*

Case Study A’s risk migration maps show a range of different snapshots, each providing a visual illustration of the nature of the risk categories in relation to the contract’s Special Conditions. Figure 24 depicts the most regularly occurring risk category: representation risk. In line with its definition, this snapshot shows a heavily weighted transfer of risk from the

Contracting Authority towards the Contractor, accounting for 78 per cent of the migrated representation risks. What this reflects is the shift of onus on the Contractor to undertake a level of responsibility, subject to the contract conditions. In this case, rather than shifting entire elements of contractual ownership (which would enable the Contractor to customise the contract, and with it, expose the Contracting Authority to greater risk), the Contracting Authority migrate a proportion of the representation risk to encourage co-operation between the parties, without fully transferring the ownership of that risk. In this way, the Contracting Authority still maintain ownership of the decision making and can therefore restrict the contract from any contractual negligence. Instead what the Contractor is left with is the obligation to meet the restrictions and manage the contract in line with the contractual terms, whilst remaining liable if these were to escalate. Taking the case of Third Party Rights, the Contracting Authority set the boundaries, restricting the Contractor from recognising the full commercial benefits that would flow from the contract, had the Third Party Rights not been administered by the Contracting Authority. Immediately, following this contractual restriction, the Contractor ascertains responsibility for ensuring that this element of the contract is not breached, if it were, then the Contractor would become liable and therefore vulnerable to contractual penalties.

So far the migration of representation risk has been discussed in terms of the transfer from the Contracting Authority to the Contractor. Whilst it is anticipated that this direction of migration would dominate, representational risk migration does appear to migrate in reverse and twenty two per cent of migrated risks are seen to move from the Contractor towards the Contracting Authority. Considering this visually using the risk migration maps, a proportion of the migration arrowheads can be located below the horizon of the representation risk map. The main reason for this return movement is centred on the relational balance between the Contracting Authority and the Contractor. Though traditional in many structural aspects, the written contract presented in Case Study A encourages the development of a strong working relationship between the two parties to derive mutual benefit. In a concise statement, the written contract highlights this significance for relational cooperation: “The relationship should be characterised by trust and openness, be underpinned by shared values and priorities, and have a commitment and focus on delivering clear outcomes that support MOD’s requirements” (Case Study A, 2015). Building relational foundations that equate with this statement entails the careful construction of the risk transfer patterns: place too much (or not enough) onus on the Contractor, and the relationship becomes one-sided and the vision for collaboration becomes clouded.

On the whole, the reverse migration arrows that have been mapped on the lower horizon of Figure 24, occur based on allowances made by the Contracting Authority which either provide the Contractor with the option to make its own decisions, without consulting the other party, or, provides an example of where the Contracting Authority accepts responsibility for its own behavioural actions. In the latter example, this shifts some relational risk away from the Contractor. For example, when examining on particular Condition: “The Authority’s rights hereunder shall not be exercised unreasonably” (Case Study A), a proportion of representation risk is transferred back to the Contracting Authority. In addition, the contractual clause also interlinks with another Condition within the contract, and to some extent, relieves the Contractor from the full impact of the Contractor’s Liability condition.

8.3.3.2. Special Conditions: Performance Risk

Out of the performance risks coded in the special condition section of the contract, seventy eight per cent of those were migrated, illustrating the strong thematic connections made between the special conditions throughout the contract spine. Alongside this, a snapshot of the balance of risk allocation between both parties may also be deciphered and mapped using the risk migration diagrams (the upper horizon representing the transfer of risk from the Contracting Authority to the Contractor, and the lower horizon allocated to the reverse risk transfer). Performance regulating conditions directly inputted into the contract attract clusters of migrations, particularly between those which are thematically linked to the framework’s performance measures (e.g. Deliverables, Progress Meetings & Reports and Key Performance Indicators). Interlinkages such as these provide reinforcement to the conditions making the contract more robust through the generation of a trigger effect which cascades along the contract spine. For example, if a performance related issue were to arise where there was reason for the formal contract to be consulted, it is likely that the contractual solution would be found within a clause under the same condition and/or in another condition found along the contract spine. Whilst this method of contract construction encourages risks to migrate across the contract in a secure way, it also mitigates the chance of any further risk escalation. What it fails to offer is contractual flexibility, a concept that when limited, may affect the functionality of the contract and its ability to adapt to the challenges (i.e. responsiveness in technology development, capability retention etc.) that can be found in contemporary commissioning practice.

Of the migrated performance risks identified, eighty nine per cent flowed on the upper horizon of the risk migration map therefore implying that the Contractor ascertains a high proportion of the performance-related risk (Figure 25). The transfer of risk is only marginally higher in

its direction from the Contracting Authority to the Contractor and can be explained by the nature of contracting, which assumes the supplier to be the party expected to meet a set performance criteria when working to fulfil the requirements of the contract. The reverse migration patterns which transfer performance risk from the Contractor to the Contracting Authority concern the allowances made by the Contracting Authority for failures against time, quality and cost measures that are not caused by the Contractors' negligence. In line with this, performance risk originating from the Contracting Authority's reluctance to cooperate or provide support that is deemed essential to the functioning of the contract would result in the performance costs associated being ascertained by the offender (in this case, the Contracting Authority), rather than the Contractor. In cases like the one just mentioned, alongside other uncontrollable events, the Contractor is able to eliminate certain forms of performance related accountability that are associated with the contract.

8.3.3.3. Special Conditions: Finance Risk

As the results evidence, a high proportion of the Case Study A contract conveys the mitigation or migration of the RPFC risks away from the Contracting Authority. Given that the ultimate ownership of the contracting requirement belongs to this party, it is somewhat expected. The Contractor however, must receive an attractive offer or incentive in order to agree to undertake the requirements of the contract on behalf of the Contracting Authority. Of course, following the norms of contracting, by signing the contract, the Contractor assumes financial gains alongside other benefits like the strengthening of their competitive status, and, the opportunity to build new relations with the public sector. If the contract is then performed well, then it may place the Contractor in a good position if it were to bid for more contract work in the future. In this case, the assumption that the Contractor is somewhat influenced by a monetary incentive when competing for a contract may be observed with the aid of a risk migration map (Figure 26).

Observing the plotted finance risk on the risk migration map, the ratio of risk transfer between the contracting parties (i.e. from the Contracting Authority to the Contractor, and vice versa) is more prominent below the horizon, when compared to other mapped risk categories. What this implies is two things: the first relates to the first part of the causal notion definition (how 'A leads to B') in terms of the contract clauses. For example, the pricing mechanism of the contract bears some correlation with the payment condition. If price is sacrificed i.e. something throws it off quilter, then payment is triggered – it could be that performance on price fails and therefore the Contractor's payment is under a finance risk (i.e. they may not be paid back the full amount). The second effect shows the shift of risk from the Contracting Authority towards

the Contractor. The density of arrowheads found on the upper horizon assumes that the Contracting Authority is shifting a proportion risk from its own remit and transferring this risk over to the Contractor. The lower horizon has the opposite effect - the risk reverses and the Contractor is seen to transfer a level of risk back towards the Contracting Authority. What is interesting about the case of the finance risk is that, the Contractor is to some degree incentivised by money but this is also assumed and appears to be 'taken as given' by the Contracting Authority. The Contracting Authority is therefore seen to ascertain some of the finance risk in terms of payment to ensure the contract operates well.

8.3.3.4. Special Conditions: Contract Risk

The results that stem from the coding of the contracts' special conditions suggest that contract risk migration is somewhat minimal in comparison to other risk categories. Looking at Figure 27, what can be ascertained is that, rather than clustering in contained sections of the contract spine, the migration patterns move from front to back of the contract, landing on what would be deemed as strong elements of the contract structure such as, "Termination" and the "Principle Obligations & Responsibilities of the Contractor". The initial aspect of the migration of contract risk highlights the interconnection of risk with the ultimate, structural outcomes. It could be inferred that the reason why there are few contract risks coded is due to the gravity of meaning implied by these types of risks. Again, the majority of risk migration appears to flow from the Contracting Authority as it sets the covenant for which the Contractor is legally bound by. Some risks however migrate in reverse (twenty one per cent of migrated risks), implying that on occasion, exceptions have been made within the contract and on behalf of the Contractor.

Figure 24: A map illustrating the representation risk transfers found in the Special Conditions of Case Study A (below).

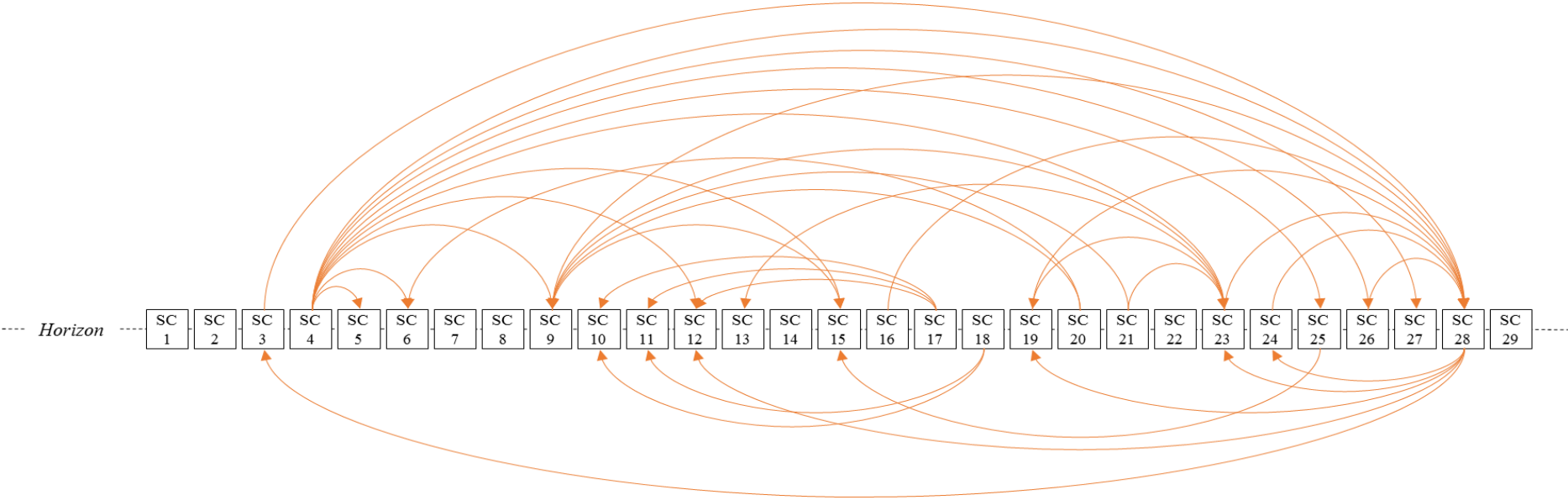


Figure 25: A map illustrating the performance risk transfers found in the Special Conditions of Case Study A (below).

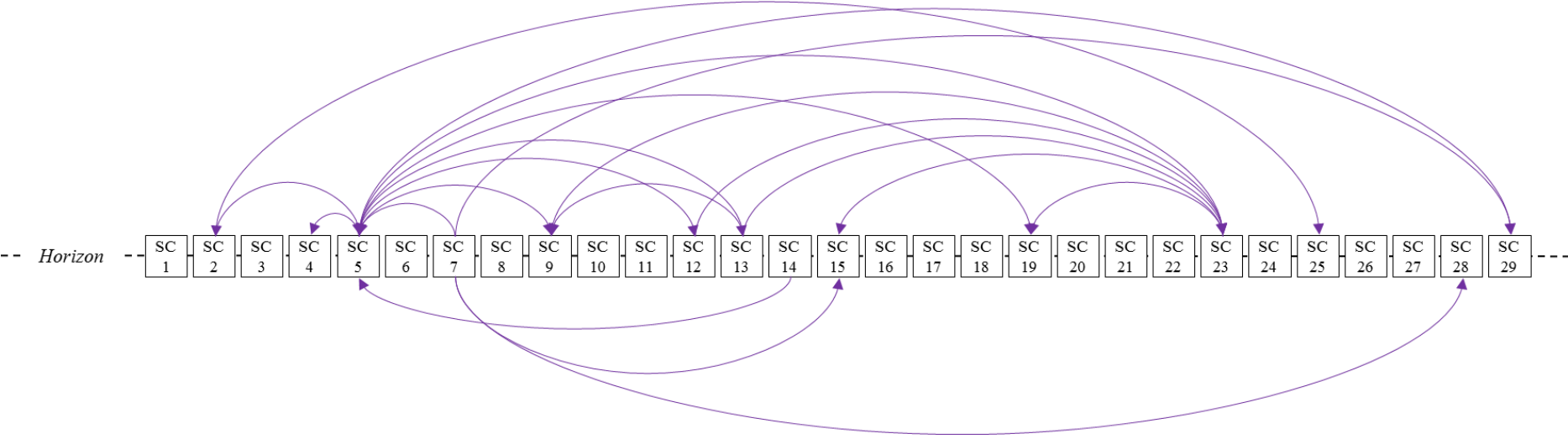


Figure 26: A map illustrating the finance risk transfers found in the Special Conditions of Case Study A (below).

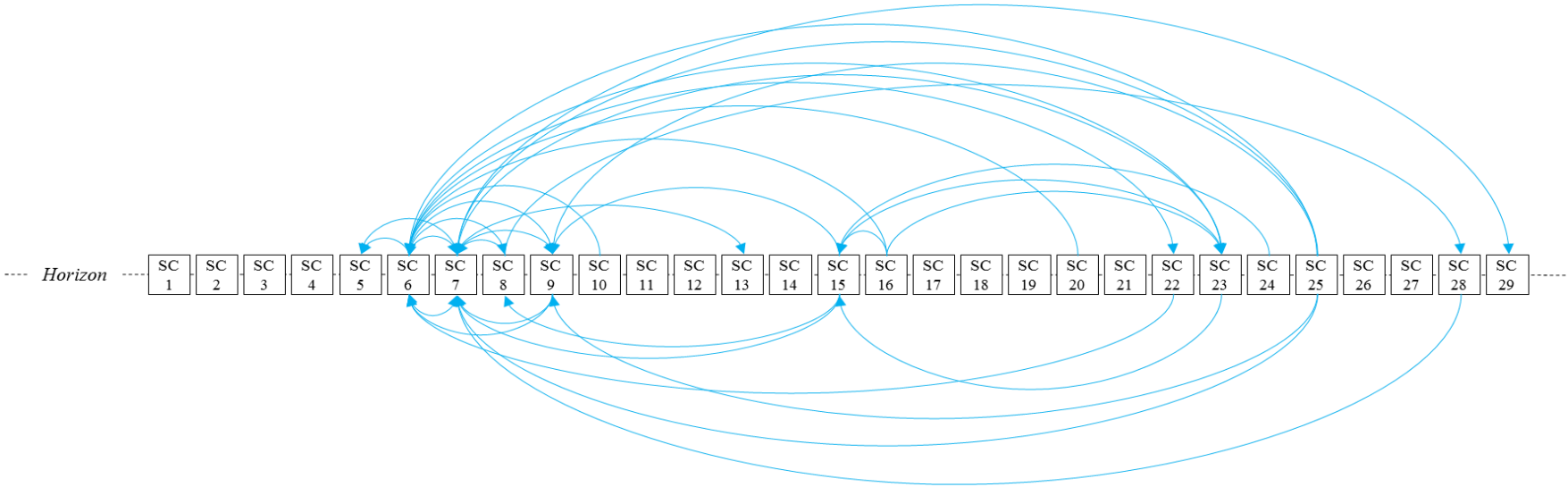
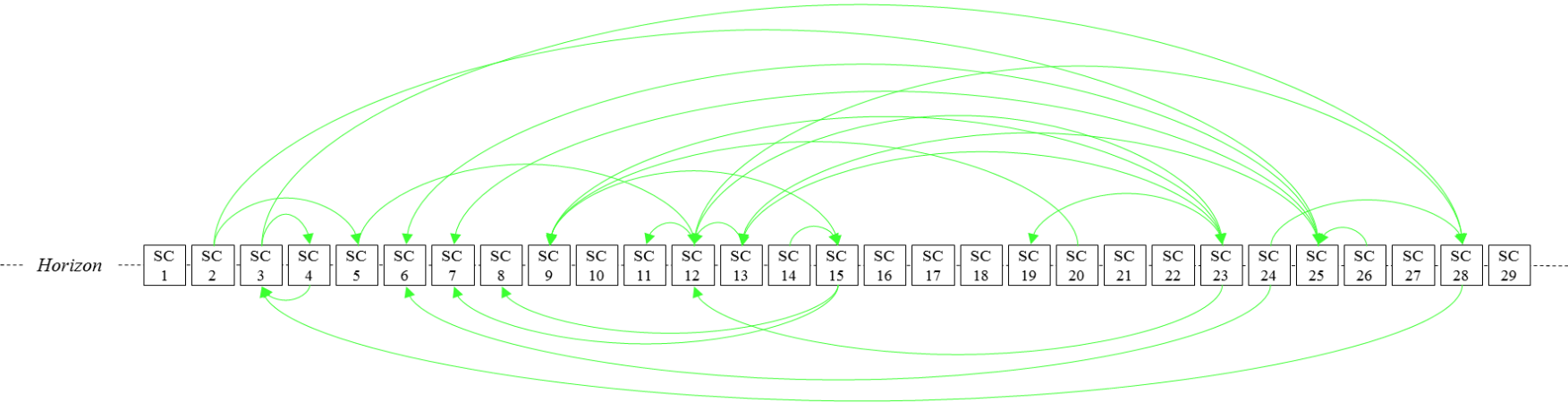


Figure 27: A map illustrating the contract risk transfers found in the Special Conditions of Case Study A (below).



8.4. STS Case Study A: Interviews

The interviews collected for Case Study A consisted of a sample made up of both public and private party participants, within which, both technical, project management and commercial staff were interviewed. As detailed in Chapter 6, the coding of each transcribed interview was unitised by question area to avoid cutting off any interconnected meaning or links between sections of the interview. The interviews were then coded to provide the research with method cohesion, enabling a degree of comparison between the written contract and the interview transcripts to be ascertained. Whilst this may provide an initial snapshot of the interview data, it must be acknowledged that the interviews are shaped, and therefore topics of conversation may be steered towards by the interviewer. In this way, it is recognised that a simple count of the Representation, Performance, Finance, and Contract (RPFC) risk categories may not show empirical significance following the coding process. Instead, informational significance may be gained by acknowledging where conversation topics are repeated more than once during an interview, and again when a topic has been alluded to by the interviewer, but changed by the participant to something that they themselves deem more important. Following the coding process, the analysis of each individual public interview transcript was undertaken in order to generate the internal themes that emerged from the public staff. The same was then done for the private industry participants, before combining the two for informational symmetry; the results of which are discussed in the following sections of this chapter.

8.5. Pre-determined Interview Themes

This first section provides a description of the interview topics discussed which relate directly to the pre-determined interview questions added to provide the interview with some degree of structure. Whilst the themes covered by questions are steered towards by the interviewer, they offer important information concerning the context, and offer early insight into the themes that may be prioritised by the participant (suggesting these may be topics of significance). Recalling the interview design presented in Chapter 7 (Section 7.9.), the interviews are *semi-structured* into three areas of discussion: (i) pre-contract, (ii) contract duration and (iii) contractual relationships. The following section will therefore describe the Case Study A findings by presenting each of these interview areas independently, before a discussion of the emergent themes.

8.5.1. Interview Theme 1: Pre-Contract

The pre-procurement section of the contract sought insight into the level of collaboration between the Contractor (as a prospective bidder), and the Contracting Authority. By

incorporating the pre-contract phase of the commissioning process as a core interview topic, the research can begin to identify the nature of unwritten contract set-up processes such as the level of negotiation or discussions on the initial scope and specifications of the contract. This early stage in the contract is of interest to the research because it gives evidence of the degree of rigidity exerted by the Contracting Authority at the tender stage and prior to the realisation of the contract. Two sub-categories were pre-determined prior to the interviews in order to provide useful conclusions to be drawn from the contract (Figure 28), both of these topics (project specification and contract award) will be discussed independently in the following section.

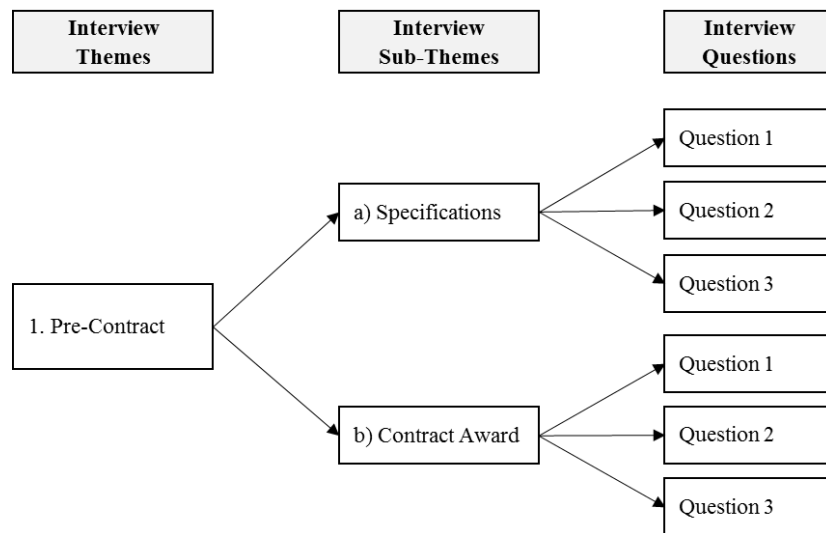


Figure 28: The first pre-determined interview theme (pre-contract), divided into sub-themes and questions.

(a) Project Specification

The most crucial component of any competitive tender process concerns the pre-procurement documentation, which includes the Invitation to Tender (ITT) and the associated Statement of Requirement (SoR). Both documents provide an overview of the contracts overarching purpose and scope, and therefore make up a section of the pre-determined interview themes, relating specifically to the specifications and the structural choices made during the contract award. The reason for this is that the specifications ultimately act as the initial, high-level performance measures, for which the bidder selection process is assessed against. Therefore, without the early proposal of specifications by the Contracting Authority, the entire purpose

of the contract would be poorly defined and would run a heightened risk of failure. Whilst the exact specifications that were set during the pre-procurement stage were not explicitly identified by the participants, many referred to the three priority areas of the Case Study or made reference to the SoR that has been included within the signed version of the contract.

Whilst the process of writing an SoR for competitive tender appears to be rigid from the outset, proposed solely by the Contracting Authority and used as the basis for a bid proposal by the tenders, when participants were asked whether there was any opportunity to re-negotiate on the specifications, many responses mentioned the flexibility when articulating their proposed methods for managing the contract. In other words, what the interviews alluded to was that whilst the Contracting Authority had ultimate control of the bid requirements, it prompted the bidders to offer new suggestions to the framework in their written proposals. Despite there being no formal negotiation processes offered to the bidders (since the contract was not an Invitation to Negotiate), to some degree, the bidders were able to flow down any alteration suggestions relating to the contract requirements in their corresponding proposals, a process which took place prior to the period of fine-tuning, ahead of contract commencement. Whilst an indirect opportunity to propose amendments to the SoR may have been taken by some bidders, what Case Study A's contract failed to offer was open collaboration or negotiation of the specifications - a protective measure that seems rational when considering how it may safeguard the Contracting Authority from risk (e.g. potential allegations of unfair bidder selection and loss of a clear vision). Where the intentions underlying this element of the contract break-down appear is in its intended vision and structure. So far the contractual arrangement described would correspond closely with a fairly standardised or traditional contract structure, yet the Framework Agreement was launched to be a collaborative and interactive contractual approach. Subsequently, there already appears to be an issue with how the contract is playing out in actuality since the overall vision fails to align with this new relational method of contracting, something that could be detrimental during the later life of the contract.

These subtle insights into the way in which the Contracting Authority have managed its contractual requirements for the Framework Agreement are not patterns that would be obtained without the analysis of subjective perceptions of the individuals that are closely involved from a technical, commercial and project management perspective. Classifying the sections of the interviews that relate to the writing of the early project specifications provide insight into what the intentions of the stakeholders were. Incidentally, representation risk is seen to materialise strongly here due the pre-contract stage being dependant on early

implementation of relational aspects where the intentions of the parties to protect themselves from certain risks (prior to the materialisation of the awarding contract) has been demonstrated through the competitive tender submissions. Of course, due to the nature of a competitive tender process, the formal tender documentation has a tendency to portray features that are predominantly focused on satisfying the Contracting Authority. Subsequently, what was extracted from the interviews was that the Contractor was willing to absorb a high proportion of risk (relating to the contract) in order to secure the bid. As anticipated, there is very little negotiation between the two parties at the pre-contract stage, something which drastically reduces the chance for a balanced risk-sharing distribution, leaving the Contractor in the more risk vulnerable position from the early stages of the contract set-up. As a secondary component of representation risk, information risk also appears dominant across many responses, with many participants commenting on the Contracting Authority's ability to obtain early information on the tenders by publishing the SoR prior to the contracts activation. By setting a criteria early, the Contracting Authority are able to measure where potential suppliers are deemed 'fit for purpose' in accordance with the SoR, whilst obtaining useful top-level information on the tender's capability and specialist knowledge.

(b) Contract Award

As described already, through engagement with the public sector participants it would appear that at the pre-procurement stage, the Contracting Authority followed a standardised procedure, assembling mandated MOD templates (i.e. DEFFORM 47 – ITT). In this particular case, standard templates of this nature were merely used as a provisional template, and were later customised during the drafting of the final contract. This demonstrates how the Contracting Authority implemented a proportion of customisation within the early drafting stage of the Case Study A contract in order to accommodate the updated commercial tendering requirements, contributed indirectly by the prospective bidders (approximated at ten per cent by one participant). Whilst this already highlights the existence of customisation during the award of contract and the subsequent procedures, it becomes clear from the interview participants that again, the Contracting Authority made the contract drafting process particularly rigid by writing the contract and expecting a signature from the Contractor. Again this clearly demonstrates the Contracting Authority's domineering position in the pre-procurement stage of the contract set-up, enabling the public organisation the benefit of exerting disproportionate levels of risk on the Contractor through engaging in a 'take it or leave it' approach.

What must be noted at this point is the reason behind this rigid structure adopted by the Contracting Authority on the topic of contract customisation options. Government structures are renowned as being highly complex, and in the MOD's case, follow a top-down approval structure. A number of participants commented on the formal process taken when making contract amendments, stating that whilst the Contractor was given an opportunity for clarifications to be made at contract award - to make any amendments, the Contracting Authority would need to go through Commercial Assurance, Scrutiny and Due Diligence (CAS DD) – a team that sits under the commercial unit in MOD Head Office. As a result, it became clear that this particular contract amendment procedure can take a considerable amount of time to process, and so on the grounds of time saving, any changes to the contract, following initial approval would be avoided where possible by the Contracting Authority. In addition to this time saving incentive, participants from the Contractor's side made reference to there being some attempted amendments to the contract, which were aimed at improving the drafted contract from the Contractor's perspective. However, the draft contract arrived three months late, which forced the Contractor to withdraw any contractual amendments in order to avoid any further delays to the commencement of the contract.

The interview coding process highlighted a proportionately high level of contract risk emerging from the topics discussed by the interview participants. Unsurprisingly this is due to the nature of the questions asked, which alluded to topics on contract standardisation and the associated templates adopted in MOD procurement, protecting the Contracting Authority from risks arising from non-compliance. There were however elements of representation risk found within the coding process, resulting from participant recollections regarding any clarification discussions that were had between the two parties. As already highlighted, these were very limited and were for the purpose of clarification, not negotiation on the terms and conditions of the Framework Agreement.

An observation made from the pre-contract stage is that time appears on occasion as being a contributing factor to a number of risks that have the capacity to emerge within the contract. Whilst the interviews were not directly coded for this performance risk, it is recognised as a potential threat to be mitigated by both parties. This element of pressure placed on the contract at this early stage in the contract is therefore something to consider as the life of the contract is examined, and again when comparisons are made between the written contract and the interview data.

8.5.2. Interview Theme 2: Contract Duration

The second theme set within the interview process is based on the contract's duration. Within this overarching theme, a number of determinants have been selected in order to draw upon two important contractual measures (Figure 29). The first relates to the deliverables which have been imposed on the Contractor by the Contracting Authority and intends to decipher not only the nature of those deliverables, but to also gain an understanding as to whether the deliverables have been met and whether any issues have prevailed during their delivery by the Contractor.

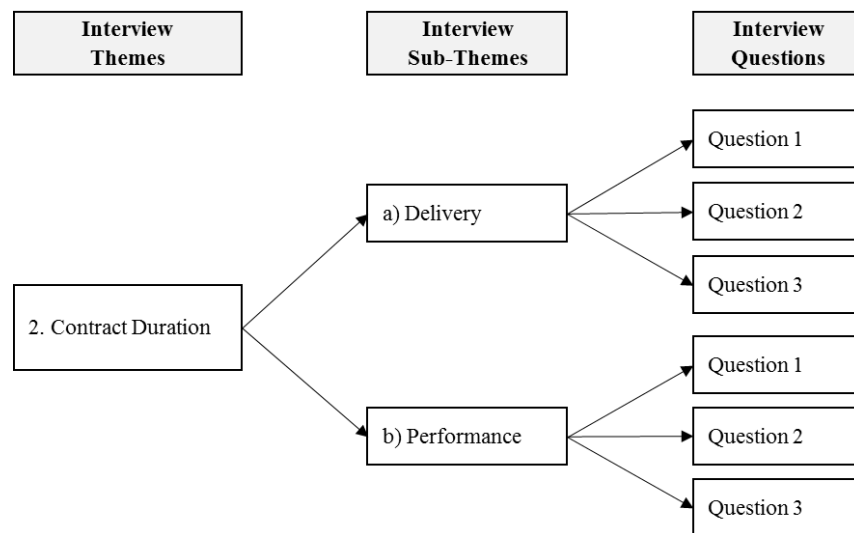


Figure 29: The second pre-determined interview theme (contract duration), divided into sub-themes and questions.

The second area under examination: performance, links closely with the aforementioned theme of delivery, yet observing how performance may pan out offers a wider contribution to the research findings since performance related events can operate within a number of areas of the contract. In other words, whilst the written contract is able to put precautionary measures in place to influence the onset of positive performance outcomes, the Contracting Authority's realisation of satisfactory performance may not materialise in actuality – an insight that can only be gained through interviews part-way through the contract's life.

(a) Delivery

An introductory question on the topic of delivery focuses on identifying whether the participants are familiar with the deliverables that have been set at the contract level. Due to Case Study A consisting of a Contractor-led structure, whereby the Contractor is responsible

for the management of the contract supply chain (amongst other things), a distinction must be made between the deliverables set by the contract to those that are set within the sub-contracts or tasks that flow through the Framework Agreement. For reasons of clarity, the research predominantly focuses on the contracted deliverables, yet some discussion of sub-contracts will occur where there is reason to do so. The top-level deliverables that exist on the contract were identified among participants as being written reporting obligations, as listed in the Key Performance Indicator (KPI) section of the contract.

Already there has been reference to KPI amendment discussions between the parties, aimed towards removing certain reporting requirements that are deemed unnecessary by the Contractor. Change to the contract during its life is not unusual and is a common feature in traditional contracting mechanisms, where incomplete contracting methods are non-existent. Changes to deliverables do however imply that a condition somewhere in the contract, aimed at satisfying the performance interests of the dominant party (i.e. the Contracting Authority) may contradict the vision of the contract, causing problems to emerge which may impact negatively on the contract. Such amendments to the Framework Agreement are managed through informal monthly meetings and quarterly formal meetings, providing both parties with the opportunity to discuss the delivery procedure under the contract. By managing contract deliverables in a cooperative way, themes of relational risk run through this aspect of the interviews and demonstrate how collaboration between the Contracting Authority and the Contractor has been folded into the Framework Agreement. Aside from this, performance risk resonates throughout the majority of the participant responses, however in this case, all participants have declared there to have been no failures or issues associated with the delivery of contract-level items. Consequently, the Contractor's current success rate in delivery of the contract has been identified as being closely connected to its placement in the early stages of the contract lifecycle.

(b) Performance

As an interview theme, the performance of the contract provided an understanding of how both parties acted on the contract in terms of their delivery of obligations, their attitudes and the level of satisfaction gained from the output. As anticipated, the key themes that emerged from the interviews were on the topics of time, cost and quality - features that are commonly cited in project management literature. Time represents a dominant structural feature of the Case Study A contract due to one of its overarching aims being concerned with the procurement of STS project work in a restrictive commercial timeframe. From a contract level, the Contractor appears to be performing against this objective of timeliness, yet risks are seen

by both parties to prevail during the early stages of the contracts' life due to a delay in the contract signing, held to account by the Contracting Authority. The performance of the Contracting Authority during the contract mobilisation phase therefore has seen some criticism from participants, a number of whom discuss the implications of such delays on the Contractor (see section on the pre-contract themes, 8.5.2.). Again, time was mentioned by participants when describing issues that arose during the request for task delivery. In this case, the delay in releasing the appropriate Government Furnished Information (GFI) required to carry out a specific task was provided as an example, again exposing the Contracting Authority for non-performance relating to timeliness.

Of course, time related performance may develop as a result of other problems associated with the contract, themes that will be discussed in the succeeding section. Quality-based performance dialogue predominantly steered towards the sub-level of the construct (i.e. the tasking level), where the transactions placed under the construct are either absorbed by the prime Contractor or sub-contracted to the supply chain beneath them. At this level, the participants described satisfactory quality assurance methods to have been adopted by the prime Contractors and filtered through to the supply chain. Furthermore, this level of communication held between the Contractor and the supply chain below generally received satisfactory remarks, implying that the prime Contractor is performing in alignment with the expectations of the Contracting Authority in terms of their quality of service.

Cost was discussed by participants to a much lesser extent, and was covered in terms of the monetary targets that the Contractor was tasked with reaching. A further topic related to cost incentives made reference to the MOD's initiative to obtain best value for money under its procurement strategy, yet again, no risks associated with cost emerged. On the whole, the Contractor is perceived by the participants as performing well, with the exception of the early timing issues, associated with contract migration problems.

8.5.3. Interview Theme 3: Contractual Relationships

The final theme pre-fabricated within the interview structure was that of contractual relationships. The interview questions positioned around this theme focus on two types of observable relationship – (a) the corporate relationship held between the Contracting Authority and the contractor from an organisational perspective, and, (b) the personal relationships held between the individuals involved in the day-to-day running of the contract (Figure 30).

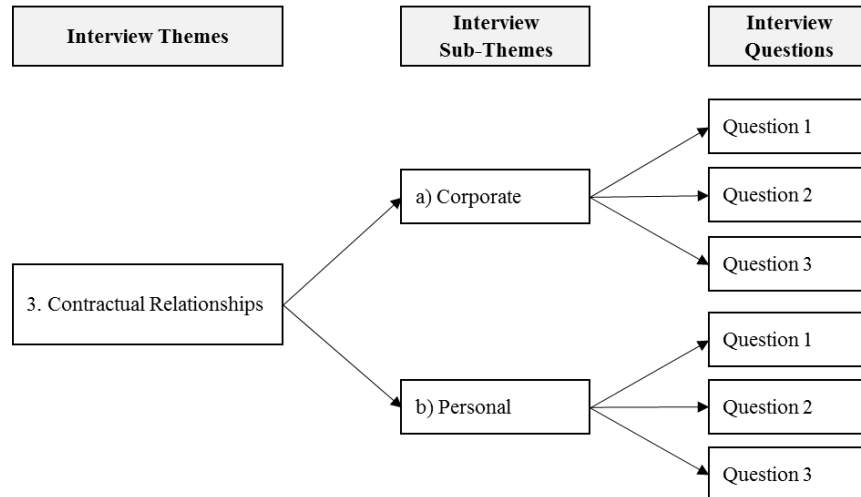


Figure 30: The third pre-determined interview theme, divided into sub-themes and questions.

(a) Corporate Relationships

Corporate relationships act as an important component within the running of a contract. If the Contracting Authority holds no prior experience or relationship with an external private organisation then a number of risks relating to the relationship are probable. The interviews therefore considered the corporate relationship between the Contracting Authority and the Contractor in order to decipher whether the contract commenced irrespective of this risk of relational failure, in a bid to expand its external supply base. Contextually, the defence industry contains a relatively small pool of specialist defence suppliers, each with specialist knowledge in very specific areas. It is therefore not uncommon for the MOD and its organisational counterparts to engage with private industry suppliers whom they have a longstanding historic relationship with. In line with this, all participants recognised that the Contractor and Contracting Authority have a corporate history of working together on science and technology research over a considerable amount of time, with some mention from participants of their position as a specialist branch derived from another parent company. Furthermore, participants identified the Contractors' involvement in a similar contract, which bears some similarity to Case Study A. From this, it can be ascertained that the selection of the prime Contractor for the Framework Agreement was a fairly low risk choice since the Contracting Authority hold prior experience and knowledge from working with this private defence support organisation in the past.

Given that a corporate history does exist between the two parties contractually bound to Case Study A, it could be anticipated that the second question, which refers to the state of the relationship between the two organisations, to be answered with positivity. Interestingly, the responses were mixed: the Contracting Authority's participants responded positively whilst the participants from the Contractor-side provided an assortment of views. In this case, the private organisation participants described a volatile relationship which showed signs of being stronger in the past, however, the participants felt that the relationship had been weakened by slow collaboration and teething problems specific to Case Study A.

(b) Personal Relationships

Questions probing the topic of personal relationships provide a deeper understanding of how corporate relationships are underpinned on an individual basis. All participants have some level of involvement in communicating with the organisational counterpart, enabling the interview to proceed with enquiries regarding personal rapport built between both contracting parties. Overall the relations built between the two parties on an individual basis is considered to be operating well, particularly from the viewpoint of the public participants. Some of the responses from the private organisation (i.e. the Contractor) however imply that there have been some relational difficulties with certain individuals from the public entity side, yet improvements are being made. What these questions aim to ascertain is the extent to which a good working relationship between the two parties on a personal level can contribute towards risk management. On the whole, the participants were in agreement that a strong relationship with their counterparts from the other contracting party does aid the extinguishing of unexpected risks whenever they pose a threat on the contract. Furthermore, only just over half of the participants responded positively, commenting on their ability to communicate easily with one another in order to solve any issues as they arise. In this case, it is inferred by this group of participants that the efficacy of the contractual remedies proposed by the parties during their problem solving communications would result in positive outcomes. Those participants that overlooked the assumption that a good relationship would result in more efficient contractual remedies where risks emerge did not deny the link. Instead, the participants highlighted other factors such as the individuals' ability to negotiate, stating that problems may still be fixed even in the situation where personality clashes or poor relationships exist.

8.6. Emergent Interview Themes

The nature of the semi-structured interview allows for new themes to be deduced during their facilitation. Following the analysis of the interview transcriptions, regular occurrences on certain themes began to emerge, representing the subjective thought of the stakeholders involved with the Case Study A. These themes are therefore considered to be indicative of items which may not be solely detectable by a simple deconstruction of a written contract. Whilst this is largely the case, a number of the core themes acted as an ‘early warning sign’ during the analysis of the written contract, however, these are only recognised as holding some significance when patterns of recurrence begin to emerge. What must also be highlighted at this point is that the emergent interview themes are derived from a small sample of interview participants, and may therefore be subjected to bias. To counter any individual biases from influencing the findings, the findings were written-up in a report format and submitted to the defence sponsor for review. The process of reviewing these reports ensured that individual participant bias was eradicated from threatening the reliability of the findings (for more details, refer to Chapter 7).

The following section presents these emerging themes, split by risk category and the sub-theme that prevailed during the thematic analysis of the Case Study A interviews. For the purpose of clarity, each emerging interview theme has been categorised using the same risk categorisation process adopted in the coding of the written contract to allow the two methods to be easily comparable. Following the separation of the emergent interview themes by risk category, the written contract can then be incorporated into the analysis in order to indicate whether any interrelatedness exists between the types of risk identified in the written structure and what unfolded in actuality.

8.6.1. Emergent Interview Themes: Representation Risk

Throughout the analysis of the participant interviews, a significant proportion of the emergent themes unveiled patterns which would be classified as representation risks, and were capable of being further divided into either the relational or informational subcategories. Since representation risk comprises of two categories of risk, each will be discussed in turn, beginning with relational risk.

(a) Relational Risk

The creation and subsequent management of relational interfaces is an important aspect of a contractual arrangement between multiple parties since it prompts the smooth running of the contract’s day-to-day tasks. Case Study A was designed to encourage collaborative working

between the public and private sector organisations under contract (i.e. the Contracting Authority and the Contractor), and therefore implies that relational patterns are likely to be a dominant discussion point during the interview process, reflected by the four emerging sub-themes (Table H). Already, the responses gained from the structured interview questions illustrate that, in general, there is a good working relationship between the Contracting Authority and the Contractor. However, the interview participants did also reveal a number of issues which resulted in the materialising of disagreements or fractious behaviours along certain points of the contract's life.

As a framework, Case Study A also focuses on the agile completion of STS work, making the responsiveness of both parties an important emergent theme (for clarity, relational responsiveness referring to the speed and frequency at which communication between the parties is achieved). During the interviews, participants from the Contractors team mentioned that there were delays in communicative responsiveness from the Dstl commercial personnel due to a disparity of views in terms of what can and cannot be filtered through the framework. This emergent theme is closely related to issues with comprehending the framework, prompted by vague definitions used amongst the personnel assigned to the framework by Dstl (discussed below). Where disparities such as these arise, communication lines are frozen until an executive decision is made and agreed by the relevant internal stakeholders within Dstl (i.e. budget holders, commercial teams, project management staff, technical partners, and so on).

Another emerging risk factor highlighted by the interview participants reflected relational challenges which materialised during the early, front-end stages of the contract. In particular, many participants recalled that the communication lines between both the Contracting Authority's and Contractor's personnel became impaired, causing relationships to become negatively affected. The origin of these communication failures was described by participants as being related to a change in the Contracting Authority's personnel tasked with setting up the contract and those tasked with managing the contract following commencement. The restructuring of the Contracting Authority's internal teams meant that new relationships needed to be built from scratch between the Contractor and the Contracting Authority's new personnel. In cases such as these, the interviewees inferred that restructuring of internal teams in this way had resulted in the misalignment of views between the parties as new personnel came in with new ideas and/or ways of working which would often cause conflict.

Primary Risk	Sub-Theme(s)
Relational risk: (Internal relationships / buyer-supplier relationships.)	Communication / relational responsiveness. Misaligned expectations. Education. Personality.

Table H: Case Study A, relational risk and sub-themes.

Expanding on the relational impediments caused by internal restructuring from within Dstl, many participants also identified shortfalls in the overall ‘*understanding of the framework’s vision*’ and the closely linked ‘*misalignment of outputs and outcomes*’. Both these determinants illustrate an incompleteness of communication and cooperation between the two parties, issues which could relate to unstable relational factors (i.e. poor relationships or a change in personnel). What may also account for this issue is a lack of understanding of the framework’s application within the Contracting Authority’s internal organisation. In line with this, Case Study A is considered by its stakeholders to be a contemporary way of contracting for STS, yet the clarity of understanding appears to be absent, insomuch so that the framework is being stretched beyond its original scope. The failure of the Contracting Authority to inform its internal organisation about the framework’s bounded criteria was considered by the participants interviewed to have caused a number of new pipeline opportunities to have been wrongly assigned to the framework. In many cases, packages of work have also been filtered through the framework in order to benefit from shorter commercial timescales (a unique selling point of the construct). Whilst an increased throughput of work is sought after by the Contractor, this ignorance towards the definition of the work causes unnecessary checks to be made by Case Study A’s personnel and diverts attention away from tasks which do not fit the definition of the framework.

Misinterpretations appeared prominent in participant discussions surrounding Case Study A’s mobilisation phase, with participants from the private sector side inferring that there was an absence of mobilisation (i.e. mobilisation was foregone) as a consequence of delays in the signing of the contract (see below). Other participant responses (mostly from the public sector) counter this view, stating that the contract did undergo mobilisation. Whilst such disparity in the opinions of the two parties provides no sure conclusion as to whether a mobilisation phase was implemented in full or in part, what can be ascertained from this is that there is a severe

misalignment between the parties in terms of their interpretation and knowledge of the contract during its set-up (both in terms of what constitutes an effective mobilisation phase and whether the mobilisation was implemented as intended, if at all). Such a difference of opinion between participants implies that informational and/or relational barriers exist between the contracting parties, both of which represent features of representation risk.

Personality issues were identified by participants from each specialism (technical, commercial and project management roles) from both public and private parties. Whilst the specifics will vary from participant to participant, problems with personalities do emerge, suggesting that there is an underlying representation risk. Of course, difficulties with relationships are not necessarily avoidable, however in this particular case, participants referred to unprofessional or informal behaviours which are assumed to be related to the nature of the framework, which encourages collaboration. Personality factors is an area that has become more prevalent in commissioning practice, since, unlike traditional purchasing, the contract revolves around the relationship ascertained between both parties. Whilst expectations on performance can, to some extent be accounted for, personality is an area which is dismissed by modern contracting.

(b) Information Risk

During the presentation of the relational risks that were derived from the interview analysis, it was inferred that relational frictions are likely to materialise throughout the duration of the contract where problems arise. In addition to this, either party is capable of demonstrating adverse behaviours whereby information is withheld from the other party, to satisfy self-interest, as highlighted by the interviews (Table I). Information sharing between the contracting parties is essential not only for relational reasons, but to ensure that the contract operates as required. Where the disclosure of information between the key contractual actors is fraught, a misalignment of expectations may infiltrate amongst the key personnel tasked with delivering the contract (from both parties). The misalignment of expectations is a theme that again is regarded as a significant threat by many participants, as presented in the previous discussion of relational risks. An emergent risk of great significance to the participants was based on the misrepresentation of contract value, which originated from the pre-contract scope that was set for the Framework Agreement by the Contracting Authority. At the time of interview, participants representing both contractual parties identified the implications from an overestimation of the contract's value, which had put strain not only on the financial position of the supplier, but also on the relationships held between the two parties and between the supplier and its parental organisation.

Primary Risk	Sub-Theme(s)
Information Risk	Disclosure of information (Information-sharing).

Table I: Case Study A, information risk and sub-theme(s).

Another determinant that emerged and links to the disclosure of information is related to the defence industry’s vulnerability to widespread structural changes and amendments in line with national initiatives and internal governance (see Section 8.6.4.). During the commencement of the Framework Agreement, participants disclosed comments relating to the internal structural changes that had been implemented within Dstl, following the Strategic Defence Review (SDR). What emerged was that the sections of the public organisation that were previously known as departments, were now known as divisions and a subtle change in the structure had meant that reporting obligations and processes had been altered, challenging lines of communication. Furthermore, some participants mentioned changes in the Contracting Authority’s teams where the initial commercial set-up team was replaced by a new team, adding to the complications in communication lines and challenging the contractual resilience to corporate change. What resulted was miscommunication between the contracting parties, which was interpreted by some participants as being an unwillingness to share information from one party to another.

8.6.2. Emergent Interview Themes: Performance Risk

In most cases, performance risk emerges as a secondary theme that has been prompted by another risk. For example, already a number of representation risks have been discussed, all of which imply that a fault in one originating risk (such as disclosure of information) can cause performance issues later down the line. In many instances, performance is discussed in interviews in response to the structured questions and as a result, the emerging themes are limited to just one determinant that originates in the pre-contract phase, where it fails to be detected, before it infiltrates into the contract duration phase. What became evident during the interviews was the internal changes made within Dstl’s organisational structure, and in particular, the *timing* of these changes, which resulted in issues being raised by the private sector participants (see Table J). Members of the private organisation (i.e. the Contractor) reported a change in Dstl staff, resulting in the pre-procurement members being different to those who took the contract forward into its duration. Again this has a number of implications, originating in the relationship between the contracting parties, before developing a secondary

risk on the resulting performance of the contract. Naturally, delays relating to the phasing in of the contract would be expected at the start of a new contract, however, the organisational reshuffle caused another set of time delays to emerge, putting further strain on the formulation of the contract.

Primary Risk	Sub-Theme(s)
Performance Risk	Performance Themes (i.e. time, cost, quality.) Contract Performance.

Table J: Case Study A, performance risk and sub-themes.

Another secondary performance risk can be identified as a repercussion to the error in throughput forecasting. Where a contract's throughput is wrongly estimated, such that the values estimated are significantly lower than anticipated, then from the top-level the contract appears to be underperforming against its target values. A contract's performance would therefore suffer as a result of an error which would have originated during the front-end activities of the procurement's set-up.

8.6.3. Emergent Interview Themes: Finance Risk

The emergent finance risks cause risks to materialise in both the funding the contract work and payment of the Contractor (Table K). The funding determinant is one that originates within the entire MOD, following an organisational reshuffle of Defence Science and Technology (DST), a division of MOD that provides support to MOD's Chief Scientific Advisor (CSA) to make best use of Science and Technology (S&T) in defence. The reshuffle predominantly affected the way that budgets were allocated within the S&T realm and participants discussed how the requisite budget cuts had impacted on the Case Study A contract. A change in budgets resulted in a reduction in throughput into the framework, having further detrimental effects to infringe on the performance of the contract.

In addition to this, risk relating to payment and cost absorption emerged from discussions with the private organisation. These determinants are described as originating in the front-end of the contract, where issues relating to time delays materialised, which ultimately postponed the signing of the contract and the provision of deliverable tasks to the Contractor. The Contractor's staff interviewed highlighted this problem, describing the delays as being a

considerable cost to the private organisation with no return. In other words, the private organisation (who had lined-up a project team) had to resort to remaining idle, until the contract was signed. Having already assembled a team, the Contractor had to either bear the cost of maintaining the project team *in situ* or risk losing the specialist personnel staffed to the contract as the human resources become reallocated to another project. In this scenario, the Contractor chose to preserve the project team that had been resourced to deliver the contract, and so, became accountable for a cost, with no return.

Primary Risk	Sub-Theme(s)
Finance Risk	Funding (budgets). Payment.

Table K: Case Study A, finance risk and sub-themes.

The two risks that emerged when conducting the semi-structured interviews both portray some commonalities in terms of their origins in the pre-contract stages, particularly in terms of the throughput of work. Some participants deviated away from the structured elements of the conversation to discuss the pricing mechanism underpinning the contract, which in this case comprised of a fixed price structure. In general, the consensus from the private organisation (who absorbed the majority of the finance risk) was that in this instance, a fixed price structure was not advantageous where throughput was delayed or halted altogether. One participant in particular offered one solution to ease the financial risk ascertained by the Contractor by suggesting that a variable pricing mechanism should have been agreed between the contracting parties. On the other hand, if the contract had been based on variable prices, then the private organisation may not have been selected as the successful bidder during the contract's open competition.

8.6.4. Emergent Interview Themes: Contract Risk

As already evidenced in the prior descriptions of the emergent themes, participants appear to divert their discussion of Case Study A to particular instances that have caused problems to infringe on the contractual arrangement. In particular, early management of the contract's mobilisation appeared in numerous accounts, the cause of which cascades from various front-end delays. In particular, one of these delays denotes a contract risk, since it concerns defence

governance and policy enforcement (Table L). As a trade fund of the MOD, the Contracting Authority are governed by central defence policy. Traditionally, contracts written in this domain have been subjected to stringent levels of standardisation, containing DEFCOMs and DEFFORMs which provide generic protection to the Contracting Authority. By nature, Case Study A represents a Framework Agreement, the requirements of which are bespoke, making it instantaneously different from a standard MOD contract. To reach the vision and overall outcomes set for the Framework Agreement, the standard contract structure must undergo some level of customisation, yet changes are restricted to a central signing authority (the ‘Commercial Assurance, Scrutiny and Due Diligence’ team *or* ‘CAS DD’). This results in a conflict of interest: either the Contracting Authority develops a new contractual mechanism that fulfils its vision of open-industry collaboration, but subjects itself to a lengthy authorisation process, or, the Contracting Authority avoid changes that require signing from the central authority, but risk threatening the performance of the construct. The prior scenario suggests that the contract would become more ‘fit-for-purpose’, incorporating the framework’s vision of collaboration and agility within an open-supply chain. However, meeting this vision involves customisation and negotiations which must be signed by the central governing body, adding further delays to the contract start date, and encroaching on the timeframe allocated to contract mobilisation.

Primary Risk	Sub-Theme(s)
Contract Risk	Governance & policy. Legal Compliance.

Table L: Case Study A, contract risk and sub-themes.

Prior to contract award, an unfair bidder selection complaint was declared by participants to have emerged. Whilst the complaint was resolved, an escalation based on the grounds of an unfair bidder selection process gives an early, pre-procurement example where unsolicited contract risk has materialised, representing another factor that contributed to a delay on the signing of the contract. This displays how risk may cascade, by demonstrating how a claim against the Contracting Authority for unfair bidder selection can result in considerable delay when getting the framework onto contract. Of course in this case, the delay is concerned with

the pre-procurement phase of the contracts' life-cycle, and therefore at this stage, has no direct correspondence to the analysis of the written contract.

8.7. Summary

The themes discussed in this section represent a set of emergent themes that alluded to by interview participants in discussions surrounding Case Study A's Framework Agreement. Whilst a range of determinants appear to have been highlighted as important discussion points, for the purpose of analysis, these have been discussed in terms of their overarching risk categories. Unsurprisingly, due to the collaborative intentions of the framework, representation risk appears as a prominent coding theme amongst emergent responses, a pattern that could be of significance when cross-examined with the written contract to extract empirical value. Furthermore, each risk category presented exudes a number of determinants which originate in common themes. Following this logic, issues surrounding the throughput of work, delays to the early, front-end management and implementation stages of the contract (such as mobilisation and contract signing), and organisational restructuring appear to regularly exacerbate each of the RPFC risk categories in a number of interrelated ways.

CHAPTER 8

- PART B -

8.8. Science & Technology Services: Case Study B

Case Study B represents a framework contract which aims to deliver a particular branch of science and technology services (STS) to the MOD by engaging with the private sector. By encompassing a range of technical capabilities, the framework is comprised of multiple prime Contractors, each remaining responsible for a proportion of the overarching framework, or a separate capability pillar. With this in mind, Case Study B appears to adopt a contractual structure that is more complex than that of Case Study A. The reason for this is that, the prime Contractors are not only responsible for the management of their assigned capability area, including the management of sub-contractors (or self-delivery), but the framework also requires an interface to be set-up between the prime Contractors (i.e. where the statement of requirement is broad and therefore falls into more than one capability area). Although Case Study B exhibits a fragmented structure comprised of multiple prime Contractors, in principle the framework adheres to a similar vision of Case Study A in that it aims to facilitate the delivery of recurrent transactions through collaboration with private sector organisations.

8.8.1. STS – Case Study B: The Written Contract

The case study will be deconstructed into its analysis components and described following the same ordering that was established when setting out the research design. A detailed account of the findings unveiled during the analysis of the written contract will therefore be presented first, and will be succeeded by the interview findings.

8.8.2. The General Defence Conditions (DEFCONs)

As with Case Study A, Case Study B's contractual terms and conditions are structured in a similar way since it contains a set of General Defence Conditions (DEFCONs) in the first section, before the Special Conditions and supporting annexes are presented. Since the contract has been constructed in such a way as to keep the two types of contractual conditions distinct from one another, these will be discussed in separate sections throughout this Part B, beginning with the findings that were drawn from the analysis of the contract's General Conditions.

8.8.2.1. Representation Risk

When coding the DEFCONs, 55 per cent of the General Conditions coded fell under the representation risk category. Whilst variances in the precise DEFCONs written into the

framework occur between Case Study A and B (in total, seven new conditions appear in Case Study B and three that were present in Case Study A do not appear, showing their differences), the percentage remains identical and implies that whilst the intended purpose of the DEFCONs may vary subject to the purpose of the framework, the structure in terms of representation risk protection priorities are closely correlated within these two STS frameworks (Table M). As already posited in the evaluation of Case Study A's DEFCONs, representation risk is of considerable importance since it represents the parties' interests in terms of their information and relational sub-components. Of the two, the DEFCONs predominantly exhibit strong undertones of information risk, a priority of the Contracting Authority when commissioning for Science and Technology services. Since the intangible transfer of knowledge is key to this particular case study (as opposed to a tangible goods transaction), protection of the knowledge created is assumed to be of significant interest to the Contracting Authority. Indeed, without ownership of these information rights, the Contracting Authority's future capability is susceptible to becoming obsolete.

Information risk is a prominent theme within Case Study B's DEFCONs, partly due to the nature of the defence and security industry and partly a result of features specific to the broader Science and Technology domain. Within the written Framework Agreement, two strands of information types can be identified. The first (Type 1) refers to the information required for the fulfilment of the contract and includes the provision of contextual and process visibility between the contractual parties. The second, (Type 2) refers to the information that underlies the intent of the contract, namely the technical or capability information sharing. When developments are made to Type 2 information (i.e. technical capability), the principal priority of the Contracting Authority becomes the protection of these technical advances through the enforcement of information protection laws. Case Study B's written contract implements DEFCON 531 – the General Condition with the intent to protect the parties from threats relating to the Disclosure of Information. With this in place, the entire relationship between the Contracting Authority and the Contractor(s) is subjected to this overarching General Condition, the purpose of which protects and enables the free-flow of information between the Contracting Authority and the Contractor for the purpose of the framework. Whilst the clause ultimately protects the Contracting Authority from informational risk, the clause sets-up a protective relationship between the two parties, which if sacrificed, would prompt wider legislative implications to prevail. Observing the Case Study B contract, the General Condition (DEFCON 531) appears to have been carefully constructed by MOD to treat all information disclosed in connection with the contract as confidential, adhering to its obligations under the Freedom of Information Act (FOIA) and the Environmental Information Regulations (EIRS). The risk migration patterns observed within the contract's Special Conditions however, would

suggest that the sharing of information (for the purpose of the contract’s daily operation) places greater onus on the Contractor (as detailed in the succeeding Section 8.8.4). In this instance, the free flow of information between the contracting parties is not guaranteed, nor does it abolish the underlying threat of asymmetric information.

Risk Category	DEFCONs (%)	Risk Sub-Group
Representation Risk (R)	55*	Cooperation: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Communication. Expectations. Relationships: inter/intra party risk, supply-chain risk. Commercial Exploitation: IP, Compilation Right.
Performance Risk (P)	17*	Time Cost Quality
Finance Risk (F)	18**	Price Remuneration Penalties
Contract Risk (C)	10**	Liabilities of both parties (spread of risk). Breach.

* (R) and (P) risks are identical in percentage to Case Study A.

** (F) has dropped by 2% and (C) increased by 2%.

Table M: Percentage of risk categories accounted for in Case Study B’s DEFCONs including sub-groupings.

8.8.2.2. Performance Risk

Ex-ante risk to performance is anticipated under a number of DEFCONs, accounting for 17 per cent of the General Conditions found within Case Study B. Although performance risk is comprised of facets relating to time, cost and quality, Case Study B’s DEFCONs place a significant focus on quality monitors. Quality can be subdivided into two components under the DEFCONs (i) quality of the performance of the contract, which builds towards (ii) the quality of the end deliverable. Observing examples of quality of the performance of the contract, both DEFCONs 602A and 602B require the Contractor to ensure that performance of the contract complies with the quality requirements and the Quality Plan, as specified in the formal contract. Whilst immediate performance risk is transferred here towards the Contractor, it would be assumed that where quality of the end deliverable is concerned, an element of risk is still maintained by the Contracting Authority, who ultimately has to assess the outputs of the contract. However, if the outputs (i.e. the good or service delivered under the contract) are accepted according to the criteria, yet later found to be defective, the risk which would otherwise be placed within the Contracting Authority’s remit is covered by DEFCON 525.

Under this condition, goods that are accepted and later found to be defective, may be claimed by the Contracting Authority on the grounds of contract breach. These subtle interlinkages that operate between the General Conditions section of the contract therefore prime the contract with greater robustness, under which the Contracting Authority protects itself from performance related risk. Again, it would appear that the General Conditions provide a foundational risk mitigation platform, from which the Special Conditions can begin to develop further customised risk prevention measures, specific to the nature of the contract. In addition to these interlinking features exposed when examining the DEFCONs, the transfer of performance risk under these General Conditions exhibits heavy onus on the Contractor, making them liable should any downside risks materialise, both during and post-contract delivery.

8.8.2.3. Finance Risk

Finance risk accounts for 18 per cent of the General Conditions coded and primarily concerns the obligations of the Contractor to submit relevant financial information (e.g. DEFCON 523; 605), produce fair and reasonable pricing (e.g. DEFCON 127; 534) and comply with the UK's fiscal legislation (e.g. DEFCON 46; 619A). Accordingly, the nature of the risk transfers under the finance risk category predominantly stems from the Contracting Authority towards the Contractor, however there are cases where the Contracting Authority recognise an obligation to comply with common law (DEFCON 522) and establish a commitment to pay correctly approved bills within a 30-day period. Such a migration of risk from the Contractor to the Contracting Authority under a General Condition is not unexpected, since under simple transactions the Contracting party often ascertains the risk of the Contracting Authority in return for remuneration, which must comply with the Late Payment of Commercial Debts (Interest) Act 1998. Finance risk under the DEFCONs section of the contract appear disproportionate in number, with many risks being absorbed by the Contractor, however, what must be remembered is the ultimate risk of payment and related cost rests in the Contracting Authority's remit, a pattern that would be expected to be replicated and transpire throughout the Framework's Special Conditions.

8.8.2.4. Contract Risk

In the analysis of Contract A, it was highlighted that contract risk represented a relatively small proportion of the coded DEFCONs (in this case, ten per cent). Again (in line with Case Study A), what must be highlighted is the gravitas of the DEFCONs that fall within the contract risk category. Indeed, the contract risk conditions are often assumed to hold connotations that are greater than the sum of their parts. Such conditions relate to the overarching enforceability of the contract (DEFCON 538), contract amendment (DEFCON 503; 538; 620), and the rights to

contract breaks or termination (DEFCON 656; 92). Each of these conditions hold ultimate supremacy over the existence of the contract and in Case Study B, are held at the discretion of the Contracting Authority. Once again, the DEFCONs impart the majority of risk within the Contractors remit, where noncompliance is threatened by the prospect of contract termination and the negative connotations that surround such a consequence.

8.8.3. The General Conditions (DEFCONs): Concluding Remarks

The initial coding of the written contract incorporates the analysis of the DEFCONs. This primary section of the contract is regarded as being a standard, non-negotiable element that is pre-agreed with industry to aggregate negotiation and leverage, and is underpinned by central MOD policy. Upon application of a coding analysis, this section of the contract reveals a domineering transfer of risk from the Contracting Authority towards the Contractor. Proportionately high, one dimensional flows of risk within the DEFCON section of the contract is considered to be common practice, since these are conditions that are imposed for compliance under stringent MOD policy. Without these General Conditions, the foundations of the contract would not be considered robust enough to deal with the highly sensitive content that is implicit within the defence sector, nor would good practice be enforceable, therefore on these grounds, it is unlikely that the contract would be executed. As one would expect, high volumes of one-directional risk transfers impact primarily on the Contractor, whom becomes liable for non-compliance with the contract (either in its Representation, Performance, Finance, or Contract components). Ultimately from the perspective of the General Conditions, such a transactional basis deems the Contracting Authority as the power holder from the start of the contract, since it holds the residual rights of control. Asset ownership is an important feature here since intrafirm transactions with one-sided control rights can prompt inefficiencies that are consistent with a hold-up problem, whereby the owner (i.e. the Contracting Authority) has the ability to hold up the other party involved (for a full evaluation of the hold-up literature, see Chapter 4). For now this assumption will be acknowledged and considered in line with the findings that emerge from the content analysis undertaken on the Special Conditions of the Case Study B contract.

8.8.4. Analysing the Contract Spine: The Special Conditions (SC)

In previous analysis of Case Study A, it was anticipated that a level of similarity between the General Conditions and the SC sections of the contract would become evident. The reasoning for this is that it adds clarity and reinforces the contract, through the reiteration of the contract's fundamental conditions. The DEFCONs however differ in their purpose, since these provide the overbearing requirements of the contract that are issued for policy compliance, making them extremely stringent and are therefore eliminated from any negotiation. Special

Conditions on the other hand, enforce conditions that are specific to the nature of the contract, aspects of which are generally assumed to be renegotiable, if the contract is considered to be incomplete. Given that the SCs are somewhat unique to the contract, there is no guarantee that the conditions in Case Study B will mimic that of Case Study A. While the two case studies do not display identical contract spines, they appear extremely close in their structure (Table N) and depict coding distributions that are not entirely dissimilar - a pattern which could be due to their placement in the realm of defence Science and Technology services.

Risk Category	SC (%)	Risk Sub-Group
Representation Risk (R)	32*	Cooperation: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Relationships: inter/intra party risk, supply chain risk. Commercial Exploitation: IP, Compilation Right.
Performance Risk (P)	17*	Time Cost Quality
Finance Risk (F)	24**	Price Remuneration Penalties
Contract Risk (C)	27**	Liabilities of both parties (spread of risk). Breach.

* (R) and (P) risks decreased by 7 per cent when compared to Case Study A,

** (F) increased by 3 per cent and (C) by 12 per cent, (see Section 8.8.4.4).

Table N: Percentage of risk categories accounted for in Case Study B's Special Conditions, including sub-categories.

8.8.4.1. Special Conditions: Representation Risk

Observing the risk migration map presented in Figure 31, what can be deciphered is that Case Study B depicts a strong likeness to the visual patterns assembled in Case Study A (Section 8.3.3.1). To fully understand the structural dynamics underlying the written contract, there is a need to consider both the balance of transfers occurring between the Contracting Authority and the Contractor(s) as well as the extent to which these risk transfers interlink along the contract spine. Considering the latter case, many representation risk migrations display a degree of interconnectivity with other clauses along the contract spine. Either these are explicitly referenced using clause numbers, or interpreted as being closely related during the coding process. The interlinkages identified by the Contracting Authority (e.g. a clause within Condition 25 makes a direct reference to Condition 10), and subjectively during the coding process, are comprised of a complex structure whereby risk to one clause may be mitigated in

another closely related condition. Whilst this provides a robust safeguard to risk through the reiteration of certain conditions across the entire contract, it may also provide a platform for systemic risk to cascade within the contract, as the clauses are no longer isolated.

Of the aggregate representation risks transferred, 87.5 per cent were identified as migrating from the Contracting Authority towards the Contractor and subsequently 12.5 per cent flowed in reverse, transferring a component of representation risk back towards the Contracting Authority. Considering first the former case, the contract displays a particular intent to administer protection from information risk, both in terms of the knowledge created as a result of the contract, and the knowledge transfer concerned with the contract operability. Taking a specific example, “Condition 25: Principal Obligations and Responsibilities of the Contractor”, protects the information required for the operation of contract to be submitted to the Contracting Authority by the Contractor. Understandably, the requirement for this form of knowledge transfer appears recurrently throughout the Special Conditions, providing the Contracting Authority with a continuous stream of information which facilitates the monitoring of the contract. Whilst this process is beneficial to the *ex post* performance of the contract, it encourages an asymmetry of information transfer to prevail between the two parties – a pattern that is illustrated by the high volume of directional arrows above the horizon of the migration mapping tool (Figure 31). Without prior knowledge of the contract, this disproportionate knowledge sharing pattern could be assumed to denote a simple buyer-seller transaction where longer-term relationship gains are not intended by the parties. Case Study B however, represents a Framework Agreement, which in theory, is selected from a menu of contracting mechanisms due to its collaborative and flexible features. Case Study B instead fails to implement a two-way collaboration in terms of the provision of information sharing. This single directional flow of information implicates the Contractor by making the firm susceptible to a knowledge deficiency that is essential for the operation of an efficient contract. Considering this structural abnormality, it can be assumed from the outset that the contract (when played out in actuality) is susceptible to challenges resulting from asymmetric information flows.

8.8.4.2. *Special Conditions: Performance Risk*

Case Study B exhibits a low level of performance risk migrations under the contract, amounting to just 17 per cent of all coded risks. Turning attention towards the performance specific risk transfers (Figure 32), a hugely disproportionate pattern emerges whereby ninety per cent of the risk flows migrate from the Contracting Authority towards the Contractors remit. This imbalance of performance risk is only one percentage point off that exhibited in Case Study A, implying some degree of resemblance between the two contract structures.

Under the performance risk category, an imbalance of transfer in this case is insignificant not solely because performance risk is proportionately smaller when positioned alongside the other RPFC risks, but in the context of the wider contract, performance of the Contractor represents one of the objectives of intrafirm transactions. Performance of the contract in this case can be considered as being a secondary effect of risk in many cases, for example, where information flows that are deemed essential to the functioning of the contract become distorted or hidden, the performance of the contract may be sacrificed. More specifically, suppose the Contractor required a certain document (or Government Furnished Information) to be provided by the Contracting Authority, without which, the research being self-delivered by the Contractor could not progress. If the Contracting Authority did not cooperate with the request (and it is not bound by any contractual obligation to do so), then a delay on the task is likely to occur and a milestone deliverable failed. The greater the rate of failure, the more the framework is considered to be subjected to non-performance – a result that was ultimately held at the digression of the Contracting Authority. Whilst this example is merely hypothesised, challenges to contract performance might materialise in a different risk category and have a cascading effect on the performance of the contract, a feature which is not as prominent in the analysis of other risk categories.

Whilst the performance risks do not appear to act as a primary risk facilitator, patterns of interconnectivity exist between the SC components along the contract spine. Case Study B's written contract exhibits examples where the conditions referenced both with explicit links (e.g. reference to Condition 25 is made in Condition 5), and those that can be interpreted as conditions or clauses that provide alternate support to another condition, in the event that a claim is made. Most notably, links between the conditions in the contract spine gravitate towards two specific categories: "Deliverables" and the "Principal Obligations and Responsibilities of the Contractor", since these are considered as being almost wholly incorporated for the purpose of performance management.

8.8.4.3. Special Conditions: Finance Risk

The finance risk observed in Case Study B appears to be largely dissimilar to the risk migration patterns described in Case Study A, since it shows a prominence in its transfers above the horizon of the migration map (Figure 33). A dominance of migration arrows above the horizon is consistent with the patterns revealed under the other risk categories thus far. The emphasis however is lesser so, since a greater frequency of risk is returned to the Contracting Authority, by the Contractor(s). In some cases this return transfer of risk is a result of risk neutralisation, a phenomenon which occurs when one party transfers a risk, and to some degree, a proportion of that risk is returned back to the party with which it originated. Such a pattern is anticipated

within finance risk since in many cases, the Contracting Authority accepts some formalised finance risk (often associated with cost and payment) in return for the work that the contract was commissioned for. Interestingly, the Conditions under finance risk demonstrates broad interconnectivity across the contract spine which would suggest that a considerable number of the contract's special conditions are underpinned by some degree of financial management when being implemented.

8.8.4.4. Special Conditions: Contract Risk

Contract risk represents a risk category that is characterised by considerable statutory force, insomuch that the gravitas of the conditions outweigh the frequency of their appearance in the written contract. Whilst this provides reasoning for its lack of emergence in Case Study A, contract risk patterns are much more prominent in Case Study B, accounting for 27 per cent of the aggregate risk migrations. An observation worth noting at this point is that, from all of the clauses coded as holding contract risk, 37 per cent were entirely unique to Case Study B (i.e. they were not found in Case Study A), which provide a considerable increase in prominence of this category. To provide some background on this observation, some examples incorporated entire conditions (e.g. Condition 31: The Entire Agreement) whilst in other Conditions also found within Case Study A, a series of new clauses were added to make provisions that apply specifically to Case Study B (since this case study comprises of more complex common enabling service applications).

As with all other risk migration analyses, the transfer patterns are proportionately greater above the horizon (Figure 34), which in this case affirms the Contracting Authority's ultimate control over the contract (i.e. its power to terminate in the event of contract breach). Another example of this contract risk migration can be observed in accordance with the unlimited liability provisions offered to the Contractor(s) under the contract. Again in this case, the Contractor is bound to absorb considerable risk according to the terms of the contract. Whilst this is the case, the migration patterns do allow for some risk to be returned back to the Contracting Authority (17 per cent), providing an element of relief to the Contractor. Explicitly, the Contracting Authority indemnifies the Contractor where a "Transfer of Undertaking (Protection of Employment)" arises as a result of the Contracting Authority's own negligence or amendment to the contract, by absorbing liability and any financial costs in such cases.

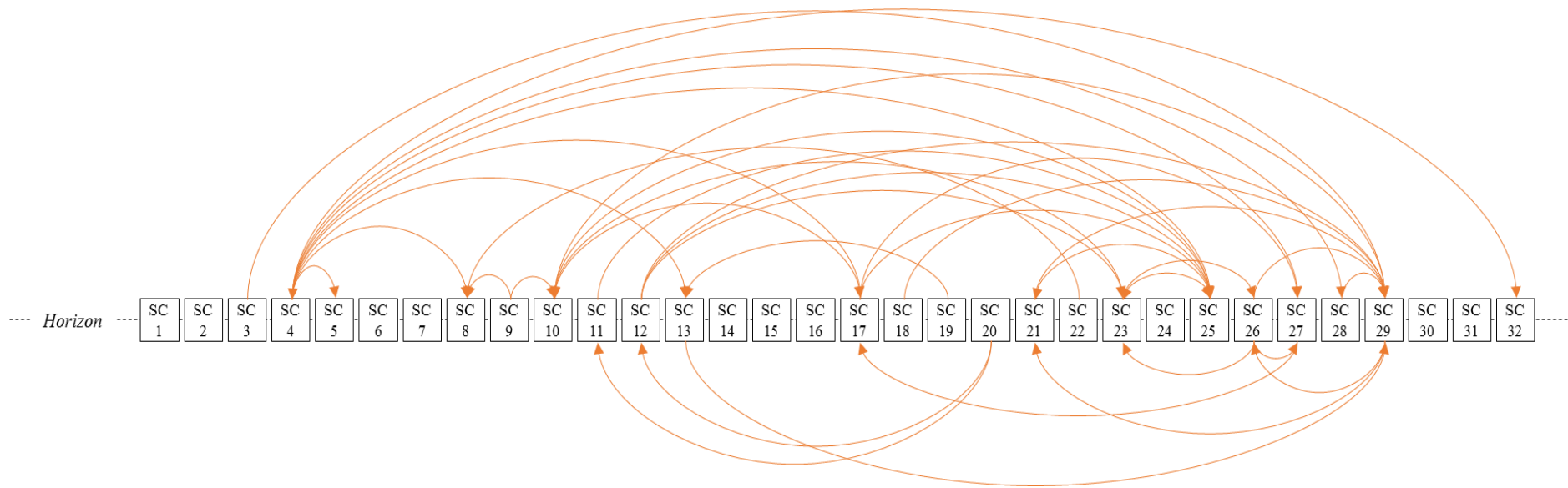


Figure 31: (Above) A map illustrating the representation risk transfers found in the Special Conditions of Case Study B.

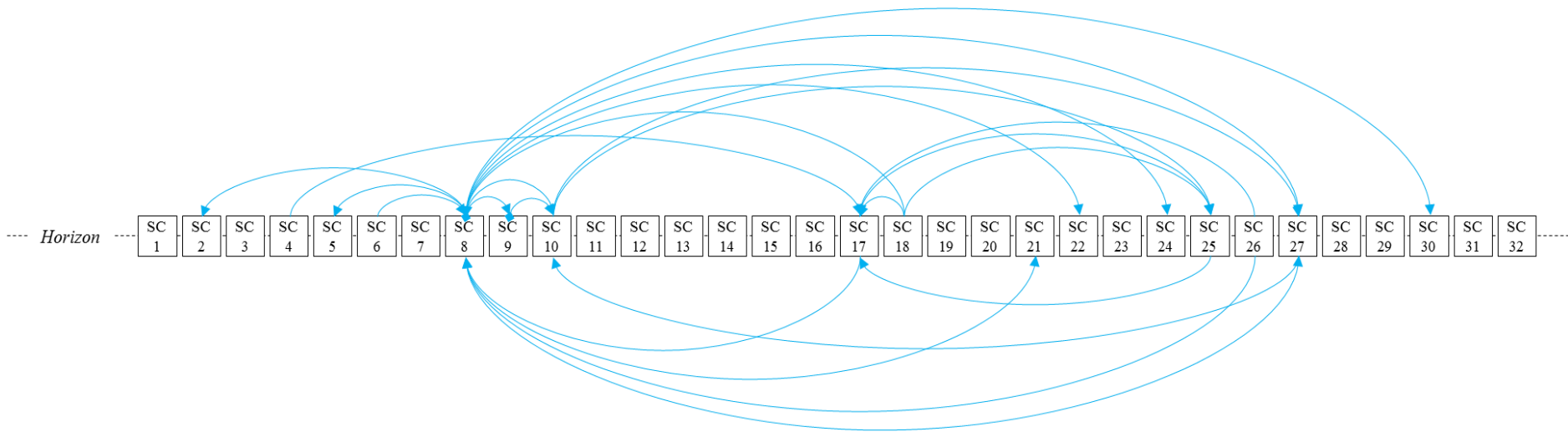


Figure 33: (Above) A map illustrating the finance risk transfers found in the Special Conditions of Case Study B.

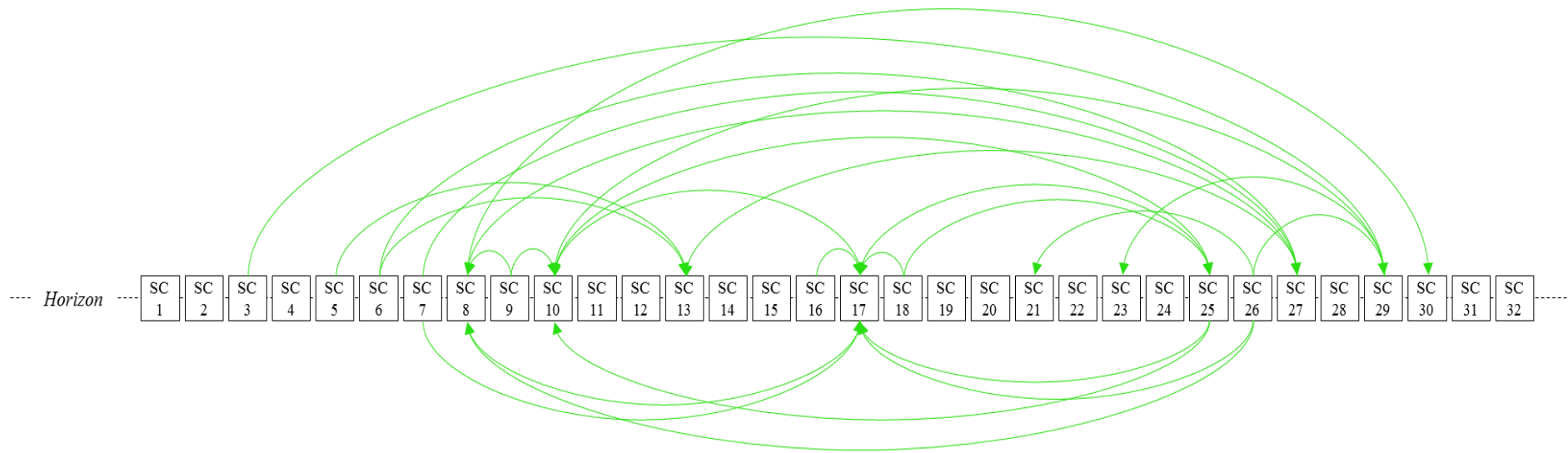


Figure 34: (Above) A map illustrating the contract risk transfers found in the Special Conditions of Case Study B.

8.9. Pre-determined Interview Themes

The pre-determined interview themes are supported by a number of sub-themes and questions, all of which are detailed in the proceeding Section 8.5. The following description of Case Study B's findings are deconstructed in the same way by presenting these in the same sequential ordering that the semi-structured interviews followed (beginning with the pre-contract, before moving onto the contract duration and finally, the contractual relationships).

8.9.1. Interview Theme 1: Pre-Contract

(a) Specifications

The specifications to a project (underpinned by a contract) are set during the early set-up of the project and guide the decisions made during the contracts commencement. In the case of a framework, each piece of project work allocated to the framework will consist of its own individual specifications, grounded largely on its heterogeneous technical requirements. During the interviews, the initial question surrounding specifications prompted the participants to recall the specifications that were set at the framework level, for each of the primes to adhere to. Interestingly there was obvious disparity between the answers offered by the personnel in technical roles to those in commercial or project management type roles. Specifically, the majority of technical personnel interviewed approached the question by discussing the frameworks specifications in terms of the capability structure and its technical axis, whereas the commercial and project management professionals discussed the framework's functional specifications. The reason for this separation of interpretation relates to the way that the Contracting Authority have structured its internal organisation. In particular, participants highlight that the commercial and technical axes are kept separate, giving validation for the two variations in answers. In this case, the interview question was positioned towards the framework's functional specifications, in order to develop a greater understanding of the construct's overarching vision.

The most prominent specification set by the framework was identified by participants as being the prime Contractor's choice of delivery mechanism (i.e. its decision to either (i) self-deliver the tasks coming through the framework, (ii) partner-up with other prime Contractors in a shared delivery, or (iii) task the work through the sub-tier suppliers). The specification was set to limit the Contractor(s) from absorbing all of the throughput, and limited the primes to a cap of between 40-60 per cent self-delivery – the purpose of which was to ensure the sub-tier suppliers were utilised throughout the framework. Another specification area discussed was

based around the response times to requests, implying that the timeliness was a priority of the Contracting Authority when designing the construct. Finally, a few participants discussed the framework's functional specifications as incorporating guidelines on fixed man-day rates, milestones and payments. On the whole, the participants agreed that the framework was a complex mechanism, underpinned by a number of specifications which require careful interpretation and education. In line with this, some private sector participants mention how a number of the framework guidelines took a considerable amount of time to interpret (to the extent that these were still being clarified for some time after the competition had been won). This was due not only to the size and complexity of the framework structure, but is also a repercussion of a change in personnel from the team tasked with setting up the framework, to the team tasked with managing its through-life.

The second question relating to the frameworks' specifications aimed to decipher whether the Contractors entering the open competition were given any opportunity to discuss or negotiate around the specifications. The purpose of this element of the interview was to reveal the extent to which the Contracting Authority were willing to develop a collaborative relationship with the Contractor(s) during the early design stages of the construct, and what limitations there were from establishing a free negotiation of specifications. In general, the participants identified that during the bid selection phase, the discussion of the specifications underwent a clarification process, rather than any negotiation. A significant number of clarifications were received by the Contracting Authority at this stage, reflecting the nuances in interpretation of the framework's requirements, which in addition to the interpretative barriers discussed in the previous paragraph, was identified by some participants as being a result of a disparity in the use of technical terminology between public and private sector workers. By limiting discussions to a clarification process, it would appear that whilst the Contracting Authority invites collaborative behaviours, these are limited to a restricted number of clarification questions as opposed to negotiation. Prior to this however, the Contracting Authority hosted an industry day to openly discuss and shape the design of the framework mechanism with the industry players. With this in mind, it is recognised that the private sector organisations in attendance were given an early opportunity to influence the design of Case Study B's overarching Framework Agreement.

The final aspect covering the specifications of the framework sought to reveal the outcome of their negotiation or clarification. Since it was stipulated that there was no negotiation, rather a clarification process during the pre-contract phase, the outcome merely required the Contracting Authority to set up a temporary process for responding to clarification requests.

In line with this, the interview participants continued to clarify that there were no amendments made to the specifications, since negotiations were prohibited under the open-competition structure followed.

(b) Contract Award

The second question area addressed during the semi-structured interviews prompted a discussion about the framework post contract award. The primary topic addressed the design of the contract's terms and conditions in terms of their level of standardisation. The question therefore provides insight into the level of contractual flexibility incorporated into the framework contract, following the awarding of the contract(s) to the prime suppliers and prior to the formal signing of those contracts. The participants identified that the contracts underpinning the framework were standardised in terms of their terms and conditions and near identical across the capability areas. Where exceptions to this standardisation of clauses do arise is in the contract's variation of rates on self-delivery and in terms of their key performance indicators. In this sense, the general consensus among participants inferred that each contract offered to each prime Contractor consisted of a set of standard MOD terms, yet showed some degree of customisation in terms of the rates and key performance indicators. In this instance, certain members of the private sector interview sample mentioned that the customised elements made the contract more rigid in terms of expectations and the penalties incurred. Furthering this view, private sector participants also highlighted that whilst the contracts do adopt some customisation, on the whole these are very one-sided agreements, positioned in favour of the Contracting Authority.

Having established the degree of rigidity and standardisation associated with the Case Study B contracts, the following semi-structured interview question sought to enquire whether both parties to the contract were given equal opportunity to negotiate the terms and conditions. This particular question only concerned the participants that were commercially involved during the contract set-up phase, and therefore only some of those interviewed were able to respond. Where participants did respond, it was revealed that the Contracting Authority offered no room for the negotiation of the terms, prior to contract signing. Aside from this however, what did materialise was the opportunity to clarify any uncertainty regarding the interpretation of the contractual terms, where necessary. As a result, no discussions of the terms and conditions amounted to any amendment of the drafted contract, rather it proceeded through to the contract signing phase as a non-negotiable agreement.

8.9.2. Interview Theme 2: Contract Duration

(a) Delivery

The first topic of discussion relating to the contract's duration draws a focus towards the deliverables required by the contract. Not only do questions regarding the deliverables imposed provide further contextual information to the researcher, but it indicates whether the contract is achieving these performance milestones in reality. Since the Case Study B framework incorporates multiple prime Contractors, the structure in terms of deliverables varies from that of Case Study A and a number of the interview participants indicated that there are no overarching deliverables assigned to the framework that all of the prime Contractors were obligated to deliver. Alternatively, the remaining participants disagreed with this statement, and instead inferred that whilst some of the deliverables are project specific (and therefore often different across the areas of specialism covered by the framework), all Contractors are still required to satisfy high-level reporting obligations such as monthly reviews, management information (such as reports, presentations etc.). In general therefore, it was agreed that there are no deliverables as such imparted within the framework itself, instead the framework requires that a set of performance metrics (measuring Key Performance Indicators) are adhered to and managed by each of the prime Contractor(s).

The previous questions surrounding the implementation of deliverables provides essential information regarding the frameworks fragmented structure, which implements top-level performance metrics, for which the Contractor(s) are accountable, and low-level deliverables that are set on a task-by-task basis. With this in mind, where low level deliverables on individual task work fail to meet deliverables, the performance metrics of the prime Contractor(s) become difficult to satisfy, and risk falling below the performance targets. Naturally therefore, the participants approached an interview question which aimed to reveal whether there had been any failures associated with reaching the KPI's set at the tasking level, made applicable on the occasions where self-delivery is opted for. On the whole, all participants submitted that the prime Contractor(s) were operating effectively and in alignment with the expectations of the KPIs. Whilst this implies that few difficulties have arisen, it was noted by a number of participants as being related to the low throughput that had been experienced across each Contractor(s) area of specialism. A low throughput of work places much less pressure on the Contractor(s) and as a result, makes the KPIs much more achievable. Some participants highlighted this factor, implying that if work throughput were to increase,

it is likely to make meeting the KPIs much more challenging – not only as a result of the increased throughput pressures, but because the KPI structure becomes ineffective.

Expanding on this, a number of the interview participants discuss the KPIs as being overly complex since they require the Contractor(s) to respond with the required information within very short timeframes in order to access their management charge, which encourages quality to become sacrificed. With only a low throughput filtering through the framework at the time of interview, the time factor was described as being manageable, however many participants recognised the tight timeframes set in the KPIs as being challenging and in need of amendment. In particular, the way that the KPIs are structured and measured concerns the cumulative performance of the Contractor(s) across a quarter. With this in mind, one particular participant highlighted that by structuring the KPIs in this way, one failed deliverable within that quarter could skew the remaining performance of the Contractor(s) for the remaining quarter, penalising the Contractor(s) rather than incentivising them.

(b) Performance

The second area to be covered when discussing the contract duration relates to how the framework is performing. The initial discussion with the participants concerned the contextual underpinnings of the framework, in terms of the performance themes that it had been based upon (i.e. time, cost and quality). By confirming these critical themes with the interview participants, the researcher is able to identify whether the performance themes observed during the written contract analysis match those perceived in practice by key personnel involved with running the contract. When questioned directly about the key performance themes that underpin the contract, all participants indicated both time and quality as being the focal point of the framework both in terms of the top-level performance metrics and in the delivery of specific requirements. Cost was mentioned on a number of occasions, however appears to be less prominent in this case study framework, perhaps because the pricing of work competitively is considered common practice in the defence sphere.

The semi-structured interviews then progressed towards establishing whether there had been any onset of risks associated with the contract's duration, which has hampered its performance or caused measurable failures to materialise. The first key problem that has been raised repeatedly by participants from both sides of the contractual interface was related to the low work throughput levels which on its own, suggests that the framework is not operating as effectively as envisioned. A low throughput therefore is described by many participants as being the root cause of a number of associated issues and on this occasion was identified as

being caused by MOD internal funding issues (which stalled the throughput for approximately six months). One example of an issue that originated as a result of low throughput relates to the management of the allocation of work for either self-delivery or delivery via sub-tier suppliers (which was intended to be divided equally). More specifically, participants highlighted that where there is low throughput, the prime Contractor(s) are more inclined to take the work for themselves under self-delivery, acting under their own self-interest (see Chapter 4) and thereby forcing their sub-tier of suppliers to remain idle without work. The private sector personnel interviewed describe this throughput issue as causing relational frictions to emerge from the supply chain, which on occasion is reciprocated and/or relayed to the Contracting Authority. Figure 35 provides an illustration of how these perceived performance failures interconnect, to cause a systemic pattern of risk to infringe on the contract.

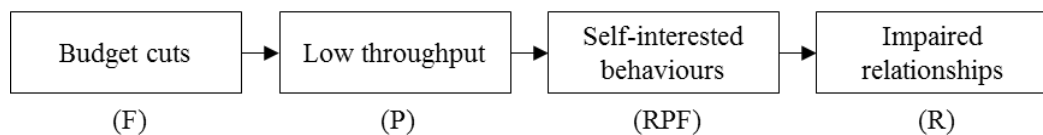


Figure 35: A causal map depicting a number of risks that collectively affect the framework's performance in Case Study B.

A second prominent performance failure to be discussed by the interview participants surrounded a security issue (Figure 36). Whilst the theme was not as prominent in the findings as the throughput problem, it appeared in multiple responses and identified as being a result of a classification issue whereby a proportion of the work running through the framework was of a lower classification (official sensitive) than it should have been. The participants expanded on this issue by stating that the framework was created for secret or classified work, and therefore prompt legislative questions regarding the procurement process followed. Where work is below the secret or classified level, it requires the contractual mechanism to go through the European Union's OJEU process. Therefore when official sensitive work came through the framework, the contract was perceived to be defiant on the grounds of procurement legislation. Some participants identified the origin of this contract risk to have been a result of mobilising the commercial unit within Dstl and educating these commercial team members about the classification of work that may or may not enter the framework's pipeline.

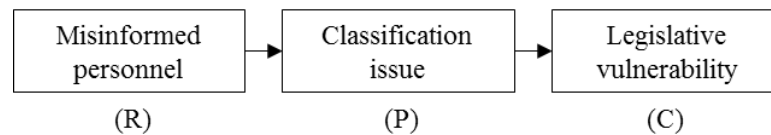


Figure 36: A causal map depicting a number of risks that collectively affect the framework's performance in Case Study B, originating from misinformed personnel.

The final area to be addressed under the performance topic concerned both the Contracting Authority's and the Contractor(s) perception of both their and their counterpart's performance. In most cases, the responses reflected positive answers, particularly in terms of the prime Contractor(s) performance. The prime Contractor(s) were revealed to be proactive and in most cases, high achievers in terms of their delivery of the framework. However, these responses were based upon the statistical or measured information available to the participants, and discounts important influences such as a low throughput, which in different circumstances (such as a high throughput) are likely to cause an increase in performance failures due to volume of work pressures. As a result, whilst from the top-level, the participants implied that the performance was good, many also acknowledged the presence of teething problems, which have eased the occurrence of any performance related pressures. Incidentally, the Contracting Authority has a less positive response, evidenced by the number of issues that have originated from Dstl, specifically in their organisational changes in structure, reallocation of budgets and resultant throughput disparity. Despite this, the framework was described by interview participants as being a success, and expected to develop into an effective construct in the STS realm.

8.9.3. Interview Theme 3: Contractual Relationships

The final pre-determined theme covers the contractual relationships built between the contracting parties both from a corporate and personal perspective. By enquiring into the corporate relationships, the interviewer is able to further understand the past experiences that Dstl have had with the Contractor(s) undertaking the work. Where the Contracting Authority has sustained a regular course of dealing with the Contractor(s) or a good relational experiences with that party, the relational risks associated with the contract are often minimised, since a positive (or negative) corporate reputation will often filter throughout an organisation. Likewise, the pre-determined theme also covers personal relationships since these provide insight into the daily operability of the contract. Poor personal relationships between key personnel working on the contract may cause fractious behaviours, challenging the performance of the contract.

(a) Corporate Relationships

The interview participants provide insight into the relational foundations that the contract has been built upon (in terms of prior engagement between the Contracting Authority and the Contractor(s)). As with Case Study A, both public and private participants recognise that the Contracting Authority has a strong history of outsourcing defence contracts to the Contractor(s) tasked with delivering the work under the Framework Agreement. Since this particular framework is divided into specialist areas (and delivered by four Contractors) it was recognised that some of the contracted organisations have formed greater ties with Dstl than others, however all have had previous dealings with Dstl. Of course, a regular course of dealing does not suggest that the corporate relationship was necessarily good. When questioned about the strength and success of the corporate relationship however, all participants voiced the relationship to be good from a corporate perspective (that is, the organisation as a whole view their contracting counterpart positively). By examining corporate-wide opinions, all projects undertaken between the contracting parties become relevant, and whilst this provides the research with contextual information, it is not project specific. The second component of the pre-determined theme therefore examines the personal relationships held between the key personnel directly involved with facilitating the contract.

(b) Personal Relationships

Understanding the nature of Case Study B's personal relationships builds on the corporate relationships that are often formed through a combination of experiential and/or shared-experiences of personnel working within an organisation. The second component of the third pre-determined interview theme aims to develop a deeper, project-specific understanding of the personal relationships that exist between the individuals interfacing from both sides of the contract (i.e. the relationship between the Contracting Authority and the Contractor). In the majority of cases, each participant mentioned that they have regular communication with their opposite contracting party. Those with no regular contact were participants who supported other team members and had no direct contact, or were only involved with communicating during the contract set-up (and no longer engage in the contract).

Often regular contact of this nature would suggest that the parties have formed a good rapport, facilitating strong communication lines. However, when the participants were questioned about these regular interfaces and personal relationships, opinions were mixed. The reason for this is that, from the Dstl side, the participant's responses varied depending on which Contractor the Dstl participant was making reference to. Since the contract is divided into four

categories of technical capability and primed by four separate organisations, the relationships held by Dstl are likely to vary by organisation. In general, Dstl recognise that the personal relationships are good in most cases, however a small proportion of answers mention tensions with one particular Contractor which have emerged due to an issue relating to an unexpectedly low level of work throughput (further discussion can be found in Section 8.9.2. [b]). In this case therefore, the relational turbulence is merely a product of a risk that has materialised elsewhere in the contract. From the private Contractor perspective, a similar response was gained. In almost all cases, the participants from the Contractor(s) organisations responded positively, yet the same negativity was observed in the interview undertaken with the Contractor experiencing throughput problems.

The logical line of questioning under the relational interview theme so far infers that both the Contracting Authority and the Contractor have strong communication lines, facilitated by regular contact and on the whole, good relational rapport. As a result of this, when asked whether the participants thought a good personal rapport contributes to better management of risks associated with the contract, all agreed. Even where some issues have arisen, the strong working relationship developed between the contracting parties appears to have formed a cooperative environment for which problems may be resolved constructively.

8.10. Emergent Interview Themes

In order to ensure the research remains consistent with the previous Case Study analysis, the emergent interview themes must also be presented. The following section therefore mirrors the ordering of the findings which were described in Section A of this Chapter 8 by separating the emerging themes derived from the interviews into the RPFC risk categories.

8.10.1. Emergent Interview Themes: Representation Risk

As previously identified, representation risk is comprised of two sub-categories: relational risk and information risk. Within Case Study B interviews, prominent risks emerged within both sub-categories, providing sufficient reasoning for the two categories to be discussed independently. There is however, a close link between the two in that, *relationships* appear to have a close influence on the amount of *information* passed between the contracting parties, and likewise, the sharing of information between the parties appears to have a positive effect on the strength of the relationships held between the contracts' personnel.

(a) Relational Risk

Relational risk can be further subdivided into its interaction types: internal relationships and buyer-supplier relationships, since the context affiliated with each interaction must be interpreted differently. The sub-categories (Table O) that emerged during the coding process are those which are believed to have a direct effect on the contractual relationships, these are: (i) communication (which is considered to have a direct influencer on the state, or even type of contractual relationships – are they purely transactional or are they collaborative?), (ii) education (do the parties openly communicate using knowledge transfers?) and (iii) negotiations (how do the parties exert relational power?). It must be stressed that education and negotiations both involve forms of communication, yet in some instances, communication can include stand-alone data.

Primary Risk	Sub-Theme(s)
Relational risk: (Internal relationships / buyer-supplier relationships.)	Communication. Education. Negotiations.

Table O: Case Study B, relational risk and sub-themes.

Internal relationships occur in two-fold, either internally within the Contracting Authority and/or internally within the Contractor's organisation. The interviews conducted for Case Study B only identified issues stemming from internal relationships within the Contracting Authority's organisation. The first issue pinpointed by interview participants is the apparent disconnect that exists between the technical and commercial practitioners. The Contracting Authority runs its technical and commercial teams independent from one another, which ultimately restricts quality assurance in terms of screening the technical requirements when these pass through commercial. As a result, participants describe issues with the quality of the technical requirements, which commercial teams are unable to identify due to the absence of technical familiarity. Furthermore, some participants identified instances where the allocation of tasks to the framework's 'Lot structure' (each 'lot' represents a capability category that is managed by a private industry specialist, or, prime Contractor and is a term adopted in EU regulations) had been passed on to the wrong capability area. Inconsistencies such as those already mentioned ultimately result in further delays due to clarifications made by the

Contractor, and in some cases, contract negotiations may materialise on the grounds of liability where work outside of the Contractor's domain occurs.

The buyer-supplier relationships are described as good, however some participants disclose discontentment with the way the Contracting Authority refused to structure the contract around collaborative negotiation during its set-up. Negotiation as a sub-theme was heavily discussed across the cohort of participants and each recognised the Contracting Authority's interest to retain ultimate control over the contract, in essence making the arrangement transactional. Whilst this is not unusual, it was highlighted as an issue since the framework was advertised across the wider defence industry as a collaborative mechanism, implying that the buyer-supplier relationship would be less restrictive and more open. What this formed is relational behaviours identical to those observed in a traditional contract, rather than that of a relational contract, contradicting the overarching vision of the framework and damaging supplier trust.

(b) Information Risk

The analysis of the interview transcriptions reveal a number of sub-themes that can be attributed to the primary risk classifications adopted throughout the study (Table P). Following a detailed analysis process, the most prominent emergent theme to be coded as an information risk highlighted a problem with the disclosure of information between the Contracting Authority and the Contractor (which consequently has a knock-on effect with the flow down of information from the prime supplier to the sub-tier suppliers). The interviews revealed a consistent pattern whereby supplementary information that would act as a contributor to the early visibility of the framework's pipeline was identified as being withheld by the Contracting Authority, and in doing so, caused increased uncertainty amongst the supply base. The reason for this lack of disclosure of information was presented as being a result of two behavioural stimulants, closely related to the hidden information paradox - the first originates from connotations relating to the sensitive nature of the work being undertaken, and the second was identified by participants as being a result of the scarcity of tasking throughput within the framework. The throughput of work into the framework has been highlighted as a significant shortfall of the contract, whereby estimates severely outweigh the actual value of throughput made available to the Contractor(s). As a result, risk adverse behaviours appear to be adopted internally within Dstl and early sight of the pipeline is being shrouded by the Contracting Authority in order to avoid presenting the Contractors with potential work opportunities that may not materialise.

Primary Risk	Sub-Theme(s)
Information Risk	Disclosure of information. Information classification. Information Protection (IP).

Table P: Information risk sub-themes, Case Study B.

A second information risk identified by interview participants referred to issues with the way the framework deals with security classifications. The contract itself was developed as a mechanism to deliver STS work that required the UK’s National Security to be taken into account. Whilst in this instance the interest of the Contracting Authority rests on the necessity to protect sensitive defence information, a noticeable trade-off occurs between balancing a rigid, firmly classified contract structure with achieving a fast transactional mechanism. Interview participants highlight that the initial purpose of the framework was to develop a contracting mechanism that benefits from quick commissioning timescales, something that is written into the Contractor’s delivery conditions. However, as the contract has played out, participants identify how the rigidity of the security aspects imposed on the contract had caused challenges to arise in other aspects of the contract. In this case, the essential focus on satisfying National Security was reported to onset significant time delays. To provide an example, when signing up new sub-lot suppliers to the framework, time delays were encountered where relevant clearances had to be undertaken.

As a result, imposing a combination of the two contractual boundaries: strict timelines on the Contractor(s) *and* high security classification caused conflict, which may result in the occurrence of two possible outcomes. The first is that the prospective work is awarded to those already cleared to work at the necessary security classification by the prime Contractor(s) (which in theory, may increase the chance of self-delivery by the prime supplier(s), undermining the purpose of a competitive framework at sub-contract level). In this case, each Contractor is incentivised to meet its Key Performance Measures, which are heavily centred on timelines. Alternatively, the supplier fails to meet their KPI targets and as a result receives a financial reduction to its remuneration, a scenario which, following contract economics logic, is less likely to materialise.

Following the analysis of interviews, it is apparent that a prominent interest of the Contracting Authority in Case Study B can be attributed as emerging under information risk, yet the characteristics of the Contracting Authority's protection do not appear compliant with aspects of performance (i.e. time). What this demonstrates is the contracts apparent inability to balance risk, causing a knock-on effect, whereby new risks cascade between one another causing a systemic pattern of interconnected risk to emerge.

8.10.2. Emergent Interview Themes: Performance Risk

The performance of the contract can refer to a number of facets such as time, cost and quality. Whilst these subdivide the performance by theme, the contracts performance is ultimately measured using a set of performance metrics designed to identify whether the contract is meeting its overall purpose. The participants interviewed for Case Study B analysis were selected from a cohort of individuals that have direct engagement with the contract and are therefore aware of the contracts ultimate goals. Whilst it may be anticipated that the opinions and variances in outlook relating to the contract performance will range between participants, all participants identified a severe lack of work throughput as imposing a major challenge on the performance of the contract. During the contracts open competition, annual estimates on the level of throughput obtainable by each prime Contractor under the framework were advertised - a value that the Contracting Authority are far from achieving in reality. By setting high value throughput estimates, the Contracting Authority set early expectations both internally and amongst its prime Contractor(s) and its inability to achieve these forecasted measures by such significant proportions is interpreted by its stakeholders as being a failure on the contract to perform.

The throughput of work within a framework is a phenomena that may only be represented by estimates, rather than sure figures. Whilst the interview participants recognise that the advertised budget is indicative and the framework does not hold any obligation on the Authority to commit to such estimates, the variances that arose between the estimated and actual throughput is described as being so inaccurate that it challenged the day-to-day functioning (or performance) of the contract, and caused relational and reputational damage to the Contracting Authority. Furthermore, when asked why such a shortfall of throughput has emerged, participants point to a number of contextual stimulants relating to policy changes and changes to organisational structure within Dstl. Despite the fact that strategic policy remains reasonably stable, the contracting organisation recently underwent a significant change to its budget structures causing huge delays and cuts to funding across its divisions. Uncertainty in budgets devolved from policy change evidently has a direct effect on the level

of throughput experienced by the framework and a subsequent interconnectivity with performance failure.

Primary Risk	Sub-Theme(s)
Performance Risk	Performance themes (i.e. time, cost, quality.) Contract performance. Performance management.

Table Q: Case Study B, performance risk and sub-themes.

A closely linked feature stemming from the apparent throughput shortage occurring within the contract prompts further cascaded failure on the contracts performance management measures. In interview, some conversations digressed towards the inadequacy of the contract's Key Performance Indicators (KPIs). The participants who disclosed information on the KPIs provided insight into how the rigidity of these performance measures causes obvious problems to the running of the contract, particularly in terms of the marking scheme used to measure the Contractor's delivery rates. The way that the KPIs measure the performance of each prime Contractor is based on a quarterly percentage of the work completed. In light of significant throughput delays, these percentages are relative to low inputs and therefore, the weighting of each task is proportionately larger than it would be if throughput were high. In other words, under the current KPI structure, if one piece of work is rejected against the contracts' marking criteria, the prime Contractor's entire target for that quarter will be affected, as will the Contractor's remuneration for the entire quarter. From a higher level, the reputability of the prime Contractor with regards to performance can be shrouded by a single performance mishap, regardless of other successes. This issue therefore provides two examples of contractual failures on behalf of the Contracting Authority. The first criticism expressed among participants is the obvious disregard for flexibility of the KPIs, an aspect which is not often formally set prior to contract signing. In addition to this, the materialisation of low levels of throughput is an aspect that the Contracting Authority appear to have failed to plan for and has subsequently emerged as a critical risk stimulant within the framework, capable of causing cascading failure to be triggered in any of the RPFC risk categories.

According to participants, time delays prevail as the most common shortfall on delivery against the contract, and are seen to be exacerbated on the part of the Contracting Authority.

The contract itself rigidly ties each of its prime Contractor's to tight timescales in terms of their responsiveness in either self-delivering the work (21 business days) or contracting the work out to the sub-supplier base (35 business days), yet, as mentioned in Section 8.10.2. (b), rigid requirements on security classifications impose significant pressure on the prime Contractor to adhere to these contracted timescales. In addition to this, the interview data suggests that often performance is hindered by misaligned interpretations between the Contracting Authority and the Contractor(s) when a Statement of Requirement is released, due to the subjective nature of some informational components provided by the Contracting Authority in the documents. In both cases, information risk issues pose an obvious threat to the performance of the contract due to shortcomings in knowledge transfer or in the contradictory clauses that have been incorporated into the contract.

8.10.3. Emergent Interview Theme 3: Finance Risk

Upon the examination of finance risk, three sub-themes emerged from the interview discussions. The most dominant of the three themes concerned issues with the Contracting Authority's internal funding approval. During the set-up of the Framework, Dstl experienced large changes to its budgetary structure and project funds were reduced and redistributed among newly formed divisions causing large scale difficulties to Project Managers internally, who needed to secure funding before any work could be sent through the framework (a repercussion derived from 'Project ROAD' and Dstl's organisational restructure). Finance risk can therefore be considered as one of the underlying causes for the low levels of throughput experienced insofar. Stemming from this reduced funding, participants identified how a direct effect on the prime Contractor's remuneration can be observed, whereby low throughput causes constrained payments both in terms of self-delivered tasks and management fees. In this case, where the contract is failing to deliver under its throughput expectations, huge finance risk is described as being imposed on the Contractor, whereby the cost of maintaining a responsive project team outweighs the expected monetary return from the operation of the contract.

Primary Risk	Sub-Theme(s)
Finance Risk	Funding. Payment. Price.

Table R: Case Study B, finance risk and sub-themes.

8.10.4. Emergent Interview Theme 4: Contract Risk

During the interview analysis process, participants discussed contract risk in two dominant sub-themes (Table S). The first, legal compliance, impacts the entire legality of the framework and therefore poses substantial risk on the Contracting Authority. Whilst concerns on legal compliance were not frequently discussed by participants, one threat did arise in relation with this sub-theme which arose from a misunderstanding of communication issued to the project team. To provide some context; in government, contracts are required to comply with European Procurement legislation (e.g. OJEU), however, the Case Study B framework was granted essential exemptions from these regulations on the grounds of National Security (i.e. UK only). Such exemptions provide the framework with the ability to achieve its purpose as a quick, flexible construct, whilst protecting the interests of the UK's National Security. Despite many participants recognising the exemption from European procurement law, problems were indicated as arising during the mobilisation of the contract due to a misunderstanding of the communication by the project team regarding the granted exemptions.

Liability was highlighted predominantly by the private sector participants due to it being unlimited. Whilst unlimited liability is to an extent expected under a MOD contract, such a contractual burden has caused implications to emerge which conflict with the frameworks flexibility. In particular, participants mentioned a renegotiation of liability following the submission of a piece of work that was considered beyond their scope for delivery and therefore was not covered by their firms insurances. To undertake work of this nature, the private firm required amendments to their liability boundaries, since without this, the work would not be able to be undertaken as directed by the Contracting Authority. In this example, the written contract is assumed to have contained standardised elements, which do not always align to the intended purpose of the contract and therefore causes the need for contract optimisation through negotiation – a common procedure adopted to manage long-term, incomplete contracts.

Primary Risk	Sub-Theme(s)
Contract Risk	Legal Compliance. Liability.

Table S: Case Study B, contract risk and sub-themes.

8.11. Summary

Considering both the written contract and interview data is a crucial process within the research analysis which unveils how the written contract impacts on the playing out of a long-term service transaction. Specifically, Case Study B demonstrates a correlation between the standardised structure of the written contract and its apparent inability to mitigate the cascading effect of systemic risk. Risk is a phenomenon that is characterised by its unpredictability, and by design, the contract exists to provide an underlying mechanism that attempts to manage risks, should they arise. The way in which risk mitigation should be implemented is however somewhat dependent on the purpose of the contract in terms of its transaction type, its timescales and its outputs. In line with this, a single-source contract would clearly not align in a context where a relational, long-term transaction is sought after. In long-term contracts, a collaborative relationship between the contracting parties is a fundamental element which aids efficiency. The written contract should therefore align with the vision of the arrangement in order to meet the expected outcome of the contract. Case Study B however displays patterns of risk transfer which indicates that a one-sided contracting mechanism is in operation, whereby the Contractor absorbs the majority of ex-post risk. In all interview coding categories, participants refer to issues or pressures that infringe on the Contractor as a result of this one-sided transfer and therefore, any evidence collaborative risk-sharing is assumed to be disregarded from the Framework Agreement. Clearly then, the contract architecture is not designed in a way that fulfils a collaborative or flexible contract, and the contract is condemned to encountering fraught intra-party relationships from the offset. Summarising the specific risk patterns that emerge within the contract, it appears that an overbearing risk stimulant arose from significant organisational change within the Contracting Authority's firm, causing resultant risks to arise in each of the risk categories.

CHAPTER 8

- PART C -

8.12. Introduction

The final part of Chapter 8 presents a consolidated, cross-case illustration of Case Study A and Case Study B, a process which aims to extract comparative patterns from both STS case studies (i.e. Case Study A and Case Study B). At this stage of the analysis procedure, the triangulation technique is only to be employed to gain a combined picture of the commonalities that exist within the Science and Technology Service domain within the UK's defence sector, drawn from the key themes presented in Part A and Part B of this chapter. It is worth noting that the following findings chapters (Chapters 9 & 10), which represent the remaining two case areas will not undergo a triangulation at this stage of the research, since the associated case areas (Health and Social Services and Computer and Related Services) consist of single, independent contracts which provide a wealth of information on their own. Once each case area has reached a point whereby a set of key findings have been extracted from the data analysis, then all three case areas: Science and Technology Services (made up of the triangulated Case Study A and B), Health and Social Services (Case Study C) and Computer and Related Services (Case Study D) will undergo a thorough triangulation. This final stage of data triangulation will be undertaken to reveal any significant consistencies or conflicts in the themes which may exist across the entire set of data (presented in Chapter 11) in order to reveal a set of generalised trends that may be used to better understand the nature of risk in the defence sectors service commissioning practice.

8.13. Triangulating the STS Case Studies

Following the analysis of two independent case studies in Part A and Part B of this chapter, one further development must be executed at this stage in order to bring the findings into alignment with the research design. Since the STS case area consists of two smaller case studies (whilst the other two case areas consist only of one single case study) to bring the case areas into alignment, the STS case studies will be triangulated to generate a single set of common findings. This will be done to ensure that each case study area has a single, consolidated set of findings which may be used in the final triangulation of all three case areas to build new knowledge of the extant state of systemic risk in the UK defence sector's service commissioning practices.

To proceed with a detailed cross-case examination of the two STS case studies, the technique originally presented in Chapter 6, Section 6.11 (and refined in Chapter 7) will be implemented. This section will therefore begin with a discursive application of the three triangulation phases, before revealing the finalised cross-case STS findings. At this point it is worth noting that the application of the first of the three triangulation techniques is not entirely practical in this instance, since a typology triangulation of two case studies which relate to the same case area (and are therefore grounded on similar contextual characteristics) would offer very little comparative insight. Whilst this has been highlighted, the two will still be mapped on a typology position matrix, since other contextual differences might become evident, such as the value or size (and complexity) of the contract.

8.13.1. Typology Comparison

The construction of a typology position matrix represents the first step towards cross-case comparisons, and therefore triangulation. Observing Figure 37 below, it is evident that the two case studies (despite both being categorised within the STS case area) are varied in terms of their advertised “contract value” and in terms of their “complexity, risk, duration”. The typology matrix is one that has been adapted from the MoD’s baseline standards of contract management guide and provides a visual basis for which the two STS case studies may be positioned graphically. Although the typology offers a top level insight into the disparities between the contracts, where their values differ significantly, it must be highlighted that the level of complexity of a contract is hard to determine upfront (that is, before the contract has been completed). The typology comparison therefore accounts for this factor and instead, bases its horizontal axis position predominantly on the contract’s duration (which may stimulate greater complexity). Providing a description of the typology position matrix for clarification purposes, it can be discerned that Case Study A represents an STS contract that is of lesser monetary value, over a relatively short timeframe. Alternatively, Case Study B is a label attributed to a high value (level 3) contract, expected to operate over a medium timeframe.

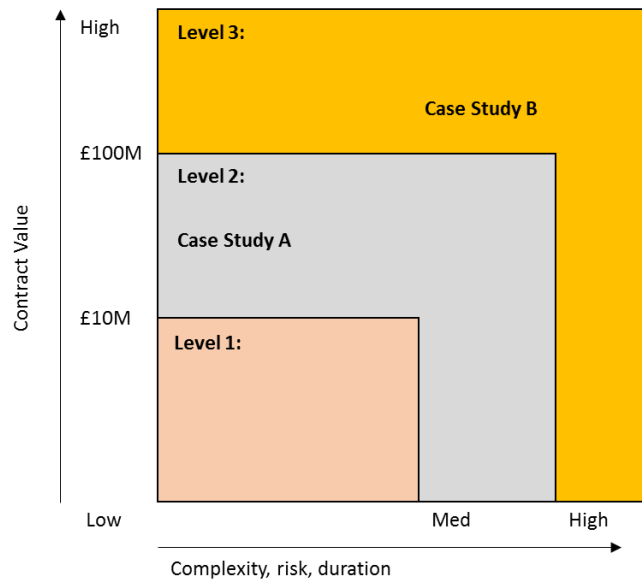


Figure 37: Typology position matrix (adapted from the MOD’s baseline contract management standards).

8.14. Forced Pairing: Written Evidence

The second phase towards achieving a triangulation which avoids unwanted bias is to implement forced pairing. The technique is one where groups of cases (the optimal amount of which is considered to be between 4-10 case studies) are divided into smaller, random groups for more manageable comparison purposes. In this case however, the comparison requires only two STS case studies and therefore the process of grouping cases for comparison is not a forcible action, rather it is an essential process. Comparisons will be made, however these will focus predominantly on the written evidence (the contract analysis data) since this is numerical and can therefore be easily compared through tabularisation. The qualitative data extracted from spoken evidence (i.e. interviews) will then be cross-examined for its pattern similarities by adopting the third triangulation phase: juxtaposition. As we will see, juxtaposition enables case components (or themes) to be processed visually, successfully illustrating whether the thematic patterns occur in just one, or both case studies. The juxtaposition of data will be covered in Section 8.15, following the comparison of the written evidence which will be presented in the same ordering used in Part A and B, beginning with the cross-case examination of the General Conditions.

8.14.1.1. General Conditions

Detail about the role of the defence contract’s General Conditions was provided in an earlier section of this thesis (Section 8.3.1). These conditions, known in practice as DEFCONs not

only represent an obligatory component to the defence contract, ensuring that it remains compliant with defence policy, but also represent conditions that are pre-agreed with industry, making the contracting process more efficient by rescinding the need for re-negotiation at each contract award. DEFCONs are a set of pre-written conditions, inserted into the contract from a template DEFCON guide and selected by the contract drafter upon careful consideration of crucial contextual features, such as: the nature of the requirement, the procurement mechanism to be adopted, current legislation and policy influences, amongst others. Undertaking of cross-case analysis of the coded DEFCONs and inputting the figures into Table T, the structural similarities of the two STS case studies may be compared. Observing the table, the number of General Conditions that have been incorporated into each STS contract remains either identical (as in the case of representation and performance risk related General Conditions), or reflect only slight variances between the two case study contracts (VAR = 2). What this suggests is that Case Study A and Case Study B contain a very similar DEFCON structure (though the General Conditions selected from the DEFCON guidance may contain some variation) which is coherent with the standardised, pre-specified purpose of these types of contractual condition.

Risk Category	Case Study A DEFCONs (%)	Case Study B DEFCONs (%)	Mean	Variance
Representation Risk (R)	55	55	55	0
Performance Risk (P)	17	17	17	0
Finance Risk (F)	20	18	19	2
Contract Risk (C)	8	10	9	2

Table T: A tabularised comparison of Case Study A and B's general condition structure (DEFCONs).

8.14.1.2. Special Conditions: Inter-party Risk Transfers

The migration maps constructed in the previous sections of this chapter provide a visual depiction of the written contract structures. The data feeding into the visual tools may also be presented in a raw statistical form. Whilst the visual maps provide quick, easy to read snapshots of the contract structures, for the purpose of comparison in this section, the numerical data will be tabularised to show the distribution of risk transfers between the Contracting Authority and the Contractor(s) in both Case Study A and B. Once the percentages representing these transfers have been tabularised, to aid further comparisons to be made, the

table will also be populated with figures which calculate the mean and variances between the two case studies (Table U).

Risk Category	Case Study A (%)		Case Study B (%)		Mean		Variance
	CA → C	C → CA	CA → C	C → CA	CA → C	C → CA	
Representation Risk (R)	78	22	87.5	12.5	82.8	17.3	45.1
Performance Risk (P)	89	11	90	10	89.5	10.5	0.5
Finance Risk (F)	70	30	75	25	72.5	27.5	12.5
Contract Risk (C)	79	21	83	17	81	19	8

Table U: A tabularised comparison of Case Study A and B's inter-party transfer of risk.

Providing some explanation of the figures presented in Table U, it is evident that both of the case study contracts examined contain terms and conditions which transfer high proportions of legal onus from the Contracting Authority, towards the Contractor's remit. Observing the variances, those closest to an identical pattern, or zero-variation imply a likeness in terms of the way risk is distributed between the parties. Interestingly the two case studies are most similar in their transfers of performance risk (VAR = 0.5) implying that perhaps the underlying figures represent a common characteristic of these STS contracts, whereby the Contractor ascertains risk associated with delivering the specified requirements and performance obligations, subject to contract. Again, a small variance in contract risk is drawn from the data, implying that the conditions underpinning the distribution of contract risk between the two parties bears some similarity (VAR = 8). The conditions underpinning this category of risk is often associated with insurances, indemnity and liability, termination and exit strategy (to name a few) which all represent contractual conditions that are essential to the statutory robustness of a contract (i.e. without these, the legal position of the contract is compromised). The contract risk themes located within a contract are therefore likely to be similar in circumstances where the context underpinning the contract are contained within the same sphere of practice, owing to the similarities found in the distribution of risk between the Contracting Authority and the Contractor in both cases.

Where the variance is at its furthest from representing an identical set of data, is in the representation risk category (VAR = 45.1). What accounts for this variance is the higher frequency of risk transfers found within the independent analysis of Case Study B. Despite this, both Case Study contracts transfer high proportions of risk towards the Contractor and should therefore not be treated as a statistical measure that is of insignificance, particularly where other data samples (such as spoken evidence) have not yet been cross-examined.

Furthering this, from an overall perspective it can be deduced that both Case Study A and Case Study B (and therefore the STS contract sample) contain close patterns of replicability in terms of how the contracts distribute risk. At this point therefore, it can be assumed that in the case of the STS case area, the written contracts have a tendency to be written in a way that protects the Contracting Authority from high proportions of risk, leaving the Contractor to ascertain such risk. Whilst this may be evidenced, what must be acknowledged is the STS context, that is, the contracts examined in both Case Study A and Case Study B represent research contracts, whereby the outcomes may be somewhat risky, since by nature, knowledge can be gained from both success and failure in research.

8.14.1.3. Special Conditions: The Migration of Risk

The final aspect of the written evidence to undergo the (forced) pairing phase of cross-case analysis is the migration of risk that occurs between the special conditions. Table V tabularises the coded contract conditions, splitting them by RPF category to illustrate which category of risk is most frequently migrated internally between the contract's own conditions. By comparing these figures between Case Study A and Case Study B, evidence-based observations can be made that allow the investigator to decipher the priorities of the contract writer. The more interconnected a risk, the more robust it is assumed to become, since it becomes interlinked and supported by other closely associated conditions throughout the contracts structure (through citation within the text). Where conditions exhibit interconnectivity in this way, a second assumption can be made: if a condition has been cited across the contract for structural robustness, then it is likely that the contract writer considers the condition to be of significance to that contract (since things of little importance are rarely protected). Looking at Table V, the variances between the Case Studies for the migration of the risks is not as near-identical as in other comparisons already made. In this case, it is probable that the higher variances relate to the bespoke nature of the Special Conditions component of the contract. In other words, what must be recognised is that both Case Study A and Case Study B's Special Conditions sections of the contract will be tailored specifically to suit the distinct requirements of those contracts. Whilst some degree of structural similarity may occur, the two Case Study contracts are expected to vary in their migrated risk patterns, since the Conditions underpinning the migrations are not likely to be completely identical (providing a rational explanation for the variances displayed in Table V).

Risk Category	Case Study A (%)	Case Study B (%)	Mean	Variance
Representation Risk (R)	39	32	35.5	24.5.
Performance Risk (P)	24	17	20.5	24.5.
Finance Risk (F)	21	24	22.5	4.5
Contract Risk (C)	16	27	21.5	60.5

Table V: A tabularised comparison of Case Study A and B's contract risk migration.

The variances calculated in Table V provide validation for the bespoke nature of a contract's Special Conditions, implying that the migration of risks will depend on how the contract writer has structured these contractual conditions. A contract that tailors its special conditions to the requirements of one commissioned project is therefore going to differ from a contract which sets dissimilar requirements for another commissioned project. Whilst this explains the variances found between Case Study A and B, it must be noted that although the figures appear to be higher than those calculated previously, they do not condone the case study contracts for bearing any similarities. In fact, given the autonomy associated with writing a set of Special Conditions (when compared to the standardised DEFCONs), the variances do not exhibit huge dissimilarities. Both Case Study A and Case Study B represent frameworks which commission for Science and Technology Services, and with this in mind, the cases will contain some structural similarities where commercial managers undergo common training, implementing MOD mandated templates, and, employ Learning From Experience (LFE) (that is, if Case Study B was commissioned for after Case Study A, experiential learning is likely to have influenced the contractual decisions made when constructing the Case Study B contract).

8.15. Juxtaposition of the STS Cases: Spoken Evidence

In the instance where two case studies fall into a single case area (i.e. two individual contracts attributed to one STS case area), the juxtaposition process represents a crucial cross-case analysis tool, which will ultimately satisfy the data triangulation process. To implement the juxtaposition phase of cross-case analysis, the case components (or themes) that have emerged from the within-case analysis of Case Study A and Case Study B's spoken evidence will be cross-examined, to identify where comparisons between the cases may be made. The juxtaposition phase of triangulation focuses on the spoken evidence (i.e. interviews) since these represent qualitative forms of data, which are not easily comparable until they have undergone thematic coding. The separation of the interview data into themed components was achieved in the within-case analysis (described in Part A and Part B of this Chapter 8), yet these require juxtaposition in order to identify whether any further commonalities or

differences have emerged during the playing-out of each case study contract. The juxtaposition of both STS case studies will be illustrated using diagrams, split by the RPF categories to enhance manageability, beginning with the representation risk themes that were derived from the independent analysis of Case study A and B.

8.15.1. Spoken Evidence: Representation Risk Components

Figure 38 provides a graphical depiction of the similarities and disparities between the representation risk themes that were identified during the within-case analysis of Case Study A and B. In this case, two relational sub-themes appear as thematic components in both case studies (C1 and C3) implying that both constructs were inhibited by issues relating to communication and education (in terms of knowledge of the contract, as opposed to qualification). The first component: communication, was a theme that was detailed by participants in both case studies as being a result of a communicative disparity between two of the internal departments involved with setting up and running the project. When a disconnect in communication arose in between the commercial and technical arms of the project teams in both Case Study A and Case Study B, it caused a breakdown in internal communication and led to relational strains to implicate the operability of the contract (both cases are detailed in Part A and Part B of this Chapter 8).

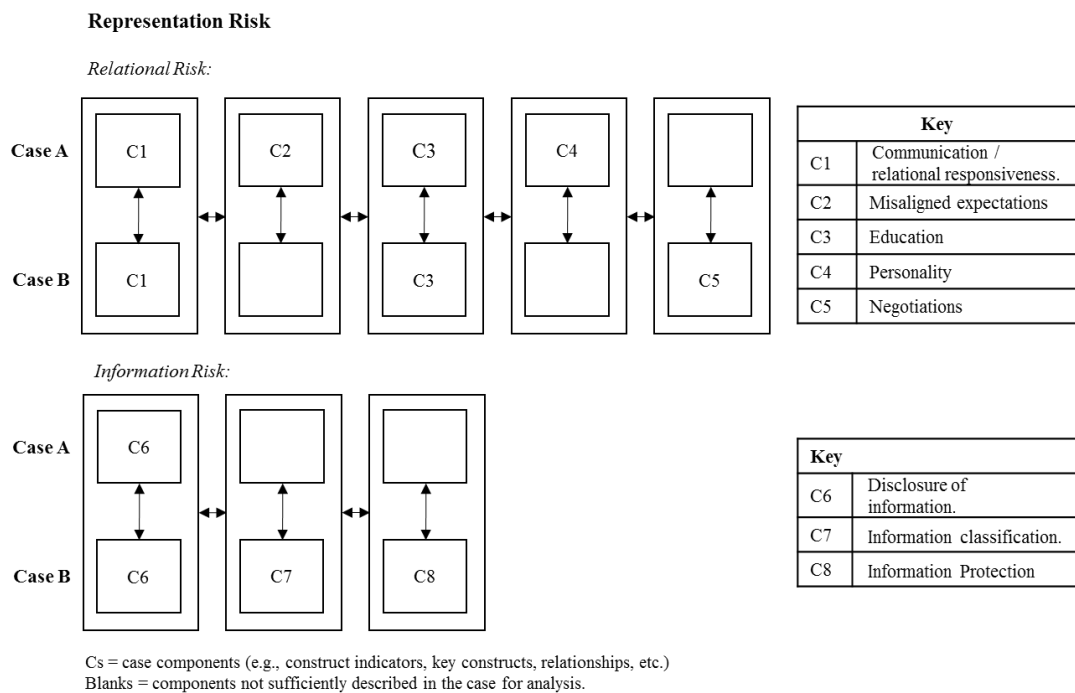


Figure 38: A juxtaposition of the representation risk themes deduced from within-case analysis of Case Study A and B.

The second sub-theme of the representation risk category: information risk, revealed only one cross-case similarity (C6). The information risk appearing in both case studies relates to the disclosure of information associated with facilitating the contract's day-to-day operation. It therefore refers specifically to the way that information is shared between the parties, and internally amongst project teams and closely associated stakeholders. Problems with information sharing under a contract may arise for a number of reasons, yet in the case of the STS contracts, it is apparent that this may be explained in conjunction with the high frequency of information risk migrations mapped by the visual mapping tool, which places a high proportion of information to be generated by the Contractor(s) and shared with the Contracting Authority, with little information being shared with the Contractor in return.

In addition to this, it was revealed in both case studies that communication was an inhibitor to both contracts, a theme that can be closely associated with the contracting party's willingness to share information with one another. In addition to this, the remaining two information risks identified in Figure 38 (C7 and C8) resided in Case Study B only, meaning that there was no observable commonalities between the case studies for these independently derived components (further details of these can be found in Part B of this Chapter 8).

8.15.2. Performance Risk Components

The performance risks of Case Study A and B that were divided into thematic components revealed commonalities in their patterns when juxtaposed with one another (Figure 39). In particular, the juxtaposed component C9 revealed time and cost performance to have suffered as a result of a structural change to the Contracting Authority's organisation. Where structural change had been implemented in the Contracting Authority's organisation, budget allocations were revealed (predominantly in Case Study B) to have impacted on the Contractors costs. Uncertain divisional budget allocations in the Contracting Authority's organisation resulted in a freeze on throughput, which left the Contractor with cost pressures associated with maintaining its staffing resources for contract implementation. In addition to this both Case Studies revealed a time constraint which again originated in the structural changes to the Contracting Authority's organisation. Whilst the structural change was being implemented, the time parameters for the contracts performance were pushed back. Specifically, where change brought frozen throughput, estimated throughput became delayed and expected milestones became delayed, shifting the contracts expected performance indicators to the right. Whilst two key performance themes had a similar degree of impact on the contract, it should be highlighted that these represent a repercussive performance effect which have resulted from the contracts weak resilience to structural change in the commissioning organisation.

The second correlating theme to have been identified relates to the performance of the case study's contracts (C10). Performance of the contract is guided by the perception of the key stakeholders, supported by their own interpretation of performance measures or information shared by others that relates to the performance of the contract. In Case Study A, the interview participants felt that the contract was underperforming because it failed to align with the estimated values that were attached to the contract during the set-up phase of the contract. Case Study B held a similar view of the contract's performance, again identifying the overestimated throughput values as being a cause that had overstated performance expectations. Where an overly optimistic estimation of work throughput is set in the front-end of the contract that fails to align in actuality, the contract is perceived as failing to perform. This is further exaggerated in cases where the performance measures that are based on ex ante figures are not adapted to account for changes in ex post throughput.

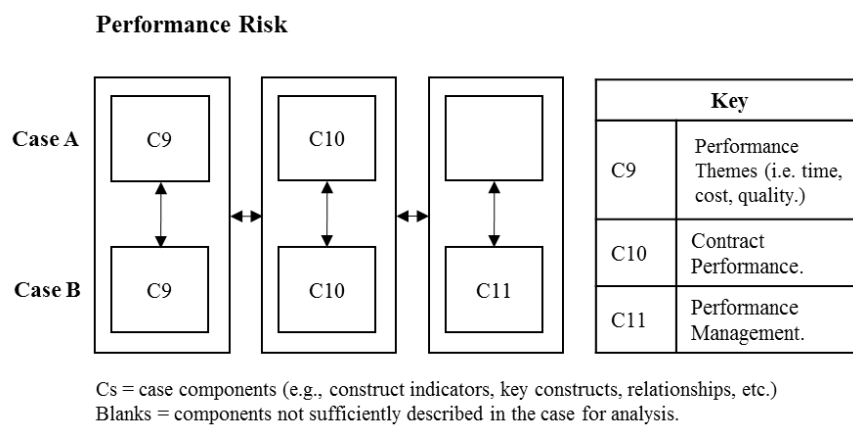


Figure 39: A juxtaposition of the performance risk themes deduced from within-case analysis of Case Study A and B.

8.15.3. Finance Risk Components

The finance risk components deduced from the within-case analysis conducted on each case study independently revealed two recurrent themes (Figure 40). One case component (C12) found to appear in both case studies was associated with funding issues. Providing further background to this theme, the Contracting Authority organisation (which was the same defence organisation for both case studies) experienced tight budgetary cuts and restraints, a problem that was inflicted on the organisation from higher level commands. It became evident therefore, that the funding lines associated with both case studies experienced cutbacks that

were a result of the same overarching (and external) influence, a risk that is difficult to predict, but one that is not uncommon for a public sector organisation such as the MOD.

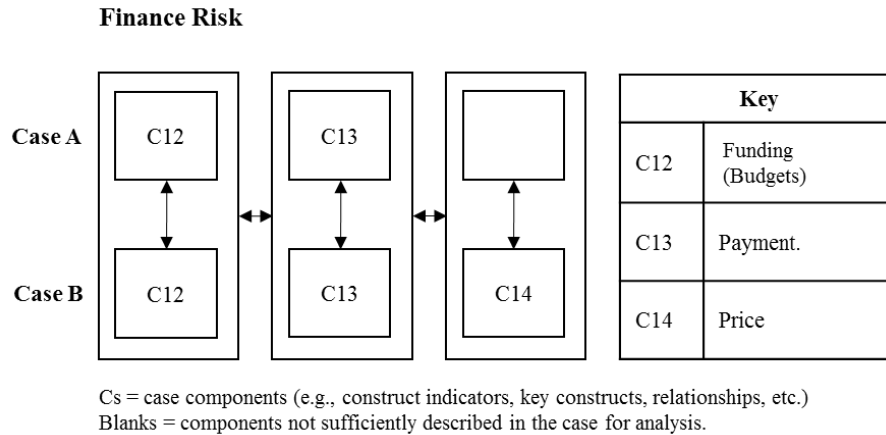


Figure 40: A juxtaposition of the finance risk themes deduced from within-case analysis of Case Study A and B.

The second component to correspond to both case studies was connected to payment (C13). Payment problems were acknowledged by the interview participants as being a result of frozen throughput (when budgets were cut or temporarily withheld) or as a result of an inaccurate forecasting of throughput in the projects front-end. In the both cases, where the budgets allocating the throughput of work become reduced by the Contracting Authority or where throughput is overestimated, the throughput of work available to the Contractor becomes affected to the extent that the expected payments for that month, quarter or year become underachieved. Whilst frozen budgets protects the MOD from overspend, risk of reduced payment threatens the Contractor’s profitability and day-to-day cash flow, placing a strain on the contract in other aspects, such as supporting the costs associated with the resourcing of project staff and other crucial overheads.

8.15.4. Contract Risk Components

Contract risk components consist of one thematic commonality: C16 legal compliance (Figure 41). Case Study A’s legal compliance issue was revealed in Part A to have been related to an unfair bidder selection accusation made during the bid phase of the procurement process. Though the claim was eventually resolved, it caused the contract signing to become delayed during the claim’s resolution. Likewise, Case Study B experienced issues with legal compliance during the early commencement of the contract which were caused by early

teething problems. Specifically, the contract was intended to only approve work which was categorised in terms of its security classification as being either Secret or Classified in nature. What was reported was the approval of work throughput that did not meet this criteria, and as a result, this threatened a breach of the EU Procurement regulations. Whilst both issues were recognised and managed instantly by the Contracting Authority, both cases display an onset of legal compliance related risks that have originated from the early procurement or front-end phases of the project set-up.

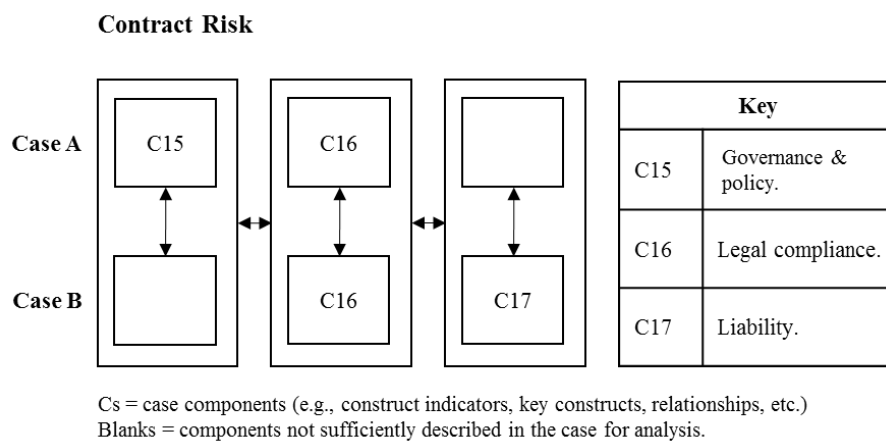


Figure 41: A juxtaposition of the contract risk themes deduced from within-case analysis of Case Study A and B.

8.16. Summary

This final part to Chapter 8 intends to draw comparisons between the two STS case studies in order to achieve a robust triangulation of two case studies. Despite there being some differences in terms of the typology of the two case studies, both represent Science and Technology Service contracts and exhibit some similarities, following the adoption of forced pairing and juxtaposition techniques. The structural elements of the written documentation (i.e. the contract) confirms that the standardised components of both STS contracts (the General Conditions) are almost identical, whilst the customised sections of the contracts (the Special Conditions) unsurprisingly only bear some degree of structural similarity. Whilst it is acknowledged that two disparate contracts are likely to contain differing contractual terms and conditions (prioritising different contractual themes), Case Study A and B do contain some noteworthy similarities in terms of how the contracts have played out (as evidenced by the spoken data analysis), which infers that both the written structure of the contract and any

externalities beyond the contract (such as organisational structure) play an important role when making sense of the cases examined.

Considering the evidence obtained during the cross-case data analysis, the triangulation of the two STS case studies may be reduced to three core findings, which are recognised as playing a central role in the STS case area. The first theme relates to the contractual relationships held between the parties under a Framework Agreement (the construct selected in both case studies). The purpose of the framework construct was to impose a collaborative working arrangement between the contracting parties. What has become evident however is the ineffectiveness of the intended collaborative behaviours, caused by withheld information sharing and related communication. Some of this has developed as a result of performance issues under the contract, which have in-turn cause negative behavioural characteristics to impinge on the contract, implying that risks appear to exhibit causal links between risk themes. A second prominent theme relates to the contract's resilience to changes made in the corporate landscape. This finding is one that has become evident in both case studies, emerging out of two core thematic areas such as the performance and finance risk categories. Finally, the third overarching comparative finding relates to the front-end and/or mobilisation phase of the contract, which appears to have been reduced in response to time pressures during the contract set-up, causing a number of errors to infringe the contract (e.g. throughput estimations, awareness and communication of legal compliance aspects, and so on). A more detailed discussion of these overarching STS themes can be found in the formal report [Science & Technology Services Case Study: Findings Report, Version 1.0, 20/10/17], stored securely by Dstl under the contract number: DSTLX-1000098922.

The comparisons made between the case studies also reveal patterns of disparity. As discussed already, the standard conditions contained within both case studies appear to be closely related, diverting the focus of the comparisons towards the customised elements of the contract (i.e. the Special Conditions). Whilst the Special Conditions contained in both contracts show representation risk to be a prominent theme within both case studies, the variances in their transfer rates and migrations appear quite disparate from one another. What this implies is that whilst the category appears to be a priority of both contracts, the dynamics of the representation risk category (i.e. the way these are constructed to behave in terms of their transfer between the parties and migration between the conditions) are structured differently, a feature that is typical where the data examined consists of two independent contracts, constructed with differing outputs in mind. Similarly, the variances found between the case study contract's risk categories were discussed as being significant where the interconnectivity

of the contractual conditions were concerned. Again, this further confirms the level of customisation written into the contract's special conditions.

Aside from the disparity in the structural elements of the written contracts, the chapter presented a visual juxtaposition of the core themes emerging from the spoken data (or interviews). By constructing these diagrammatically, the researcher is able to view where the themes reoccur in both case studies or where prominent themes emerge in one case study and not the other. Where themes appear only in one case study, clear differences in the case studies must be accounted for. In the findings discussed, whilst eight of the nine core themes discussed were flagged in both case studies (making them comparable patterns), a higher number of the themes appeared only in one case study. Following a similar stance to the one proposed earlier, it is acknowledged that differences between two independent cases are probable, grounded on the notion that the two case studies differ in terms of their written structure (demonstrated by the forced pairing of the case studies) and their contextual requirements (as depicted in the typology position discussion). Forming a high level snapshot of the STS area must therefore not disregard the importance of acknowledging the differences between the cases, since this is what makes them unique and identifiable. However, for the purpose of this thesis, the commonalities exhibited between Case Study A and Case Study B form evidence of shared thematic components that assist the research with the characterisation of the Science and Technology Service area. Having triangulated Case Study A and Case Study B, the STS case area will be incorporated into the final triangulation of all three case areas (STS, HSS and CRS) in Chapter 11.

CHAPTER 9
RESEARCH FINDINGS
Health & Social Services Case Study

9.1. Health and Social Services (HSS): Case Study C

The Case Study central to this chapter represents a contractual arrangement that has been designed to deliver a specific type of Health and Social Service (HSS) outputs to a MOD sponsor. Whilst work commissioned by the defence sponsor represents a specialist area that is often broad in scope, in this case, the commissioned work refers specifically to a HSS service that delivers support to a large cohort of end-users within the civil service.

As a result, the commissioning of support services within this Health and Social (H&S) aspect of defence is of prime importance since it concerns specialist support to human welfare, making it a potentially very sensitive and/or politically charged commissioning contract, with interest from stakeholders as far reaching as the public eye. It is therefore paramount that the type of contract underpinning the HSS service work to be undertaken by industry suppliers is structured appropriately to ensure that maximum benefit can be realised by the defence department.

9.1.1. A Short Note on Terminology

For terminological clarity, the Health and Social (H&S) sphere assumes a broad definition, encompassing both H&S related equipment purchases and H&S service commissioning concepts. This Case Study however concerns only the latter service commissioning case, denoted as Health and Social Service(s) (or HSS) commissioning. Such a clear distinction is advocated throughout this chapter and beyond since the type of output transferred in each H&S case requires different considerations. Commissioning for HSS through engagement with industry concerns the provision of services which are impalpable, as opposed to those that are transferable through a palpable exchange (i.e. equipment). The contract type selected by the Contracting Authority in the commissioning of HSS must therefore be robust enough to ensure that the service required is obtainable, given its intangible state, yet flexible enough to aid progressive enhancements to the contract to be made over time.

9.2. HSS - Case Study C: The Written Contract

The contractual requirement for Case Study C is complex. The written contract has therefore been structured into a set of schedules (**Error! Reference source not found.**) in order to make the contract more navigable. One Schedule (containing the contracts' Terms and Conditions) remains the most influential component of the contract architecture, having been ranked as the number one priority in the contracts' order of precedence. The remaining schedules to the contract become effective only upon referral to the schedule containing the contractual Terms and Conditions (T&Cs), confirming its overarching legislative influence on the entire agreement. For this reason, the analysis of Case Study C was undertaken according to the contract's order of precedence, beginning with an in-depth coding analysis of the T&Cs (inclusive of its supporting Annexes). The reason is that the schedule containing the T&Cs embodies the central component for the contractual delegation of responsibilities and risk migrations under the entire contract and is therefore the prime referral point for the settlement of contractual inconsistencies or disputes.

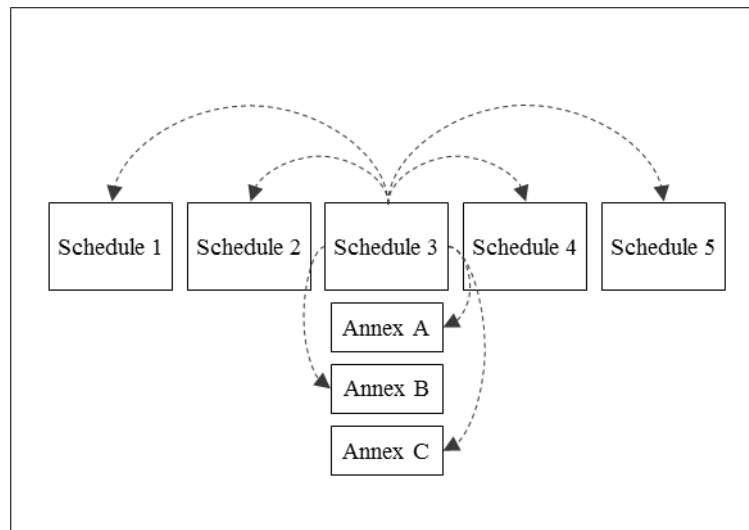


Figure 42: An example of Case Study C's contract structure, depicting how its schedules might interrelate with its Annexes and other remaining schedules.

9.2.1. Schedule 3: Terms and Conditions

The analysis of the written contract predominantly concerns the examination of the Terms and Conditions Schedule, under which some important observations must be noted. Unlike the case study contracts analysed in previous cases (i.e. Case Study A and B), the Case Study C contract conditions are amalgamated into a singular section, as opposed to providing a separation of the contracts' General Defence Conditions (or DEFCONs) and Special Conditions. Part of the reason for this non-separation is due to the complexity of the contract,

which requires the contract to interpret the service requirement through the use of a set of bespoke Terms and Conditions. The T&Cs Schedule of the contract (as well as other Schedules) has therefore been structured by MOD's Central Legal Services (CLS) using a set of customised terms and conditions which keep the navigability of the contract intact, rather than overloading it with multiple elements. Whilst the discourse structure of the contract provides no separation into General Conditions (GC) and Special Conditions, a number of conditions analysed replicate the GC's that are standardised in the MOD's DEFCON series. Other conditions (i.e. Special Conditions) have been customised in order to provide greater mortice on certain elements of the contract, and often in these instances, greater onus (in terms of the ascertainment of contractual obligations) appears to be placed on the Contractor by the Contracting Authority.

9.2.2. A Comment on a Schedule's Annexes

The Annexes to a Schedule consist of a range of standard contracting conditions, both specific to defence and national or European judicial boundaries. Furthermore, many of the Annexed sections reflect DEFCONs, whilst others are either the associated Defence Forms (DEFFORMs) or derived from European Law (such as the Transfer of Undertaking [Protection of Employment] or TUPE). In some cases, DEFCON conditions that are included within the main contract are also replicated in the Annexes (i.e. Schedule 3, Figure 42), however it is unclear why this is. Sections such as the annex on Insurance Requirements have been observed previously in other contracts (e.g. Case Study B) and suggests that this also reflects a standard defence condition, capable of being replicated in any contractual drafting process.

9.2.3. Analysing the Contract Spine: The General Defence Conditions (DEFCONs)

The evaluation of Case Study C will follow an identical contract analysis and evaluation process as the prior case studies, to assist with both achieving process validity and comparability between the studies in terms of the general patterns found. Whilst it has already been pertained that the Case Study C contract provides no structural separation of the DEFCONs and Special Conditions into definitive sections, the two will continue to first be analysed separately since both forms of condition differ somewhat in their contractual intentions. The DEFCONs are a standard set of defence conditions aimed towards enforcing defence policy on the Contractor with the intention to settle the RPFC risks within the Contractors' remit. From the outset, and prior to analysis of the DEFCONs, it is assumed that the DEFCONs represent the protection of the Contracting Authority from contractual risks which are priority considerations to be accounted for under the general defence contract. Without this level of baseline protection, the contract would therefore be highly susceptible to

contract breach and the ensuing consequences. The assumption of the Contracting Authority's protection is therefore grounded on the standardised nature of DEFCONs, which are traditionally allocated to defence contracts following the MOD's commercial procedure.

Risk Category	DEFCON (%)	Risk Sub-Group
Representation Risk (R)	44	Information Risk: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Commercial Exploitation: IP, Compilation Rights. Relational Risk: inter/intra party risk, supply-chain risk. Communication. Expectations.
Performance Risk (P)	13	Time Cost Quality
Finance Risk (F)	28	Price Remuneration Penalties
Contract Risk (C)	16	Liabilities Breach Termination

Table W: Percentage of risk categories accounted for in Case Study C's DEFCONs including sub-groupings.

9.2.3.1. Representation Risk

When coding the DEFCONs, 44 per cent of the identified General Conditions coded fell under the representation risk category. In keeping with past case studies, representation risk assumes the highest ranking position of all the categories, implying that whilst the intended purpose of the DEFCONs may vary subject to the purpose of the contract under examination, the structure in terms of representation risk protection priorities show close correlation across each case study so far. As aforementioned in the prior case studies, representation risk is of considerable importance since it represents the parties' interests in terms of its (i) information and (ii) relational subcomponents. Of these two subcomponents, the DEFCONs predominantly exhibit strong undertones of information risk, a priority of the Contracting Authority when commissioning for the Health and Social services that are required by the MOD. Since the intangible transfer of knowledge is key to this particular case study (as opposed to a tangible goods transaction), protection of the knowledge created is assumed to be of significant interest to the Contracting Authority. Indeed, without ownership of these information rights, the Contracting Authority's future capability (in terms of knowledge permitting in-house delivery in the future) is susceptible to becoming obsolete.

Information risk is a prominent theme within Case Study C's DEFCONs, partly due to the nature of the defence and security industry and partly a result of features specific to the nature of the contract being examined. In Chapter 8, the research identified two forms of information. Type 1 refers to the information required for the fulfilment of the contract and includes the provision of contextual and process visibility between the contractual parties. Examples of this type of information related condition include items such as: Progress Reports, and, Notices. The second, (Type 2) refers to the information that underlies the intent of the contract, namely the technical or capability information sharing. When developments are made to Type 2 information (i.e. defence capability), the principal priority of the Contracting Authority becomes the protection of up-to-date information through the enforcement of data protection and disclosure regulations. Case Study C's written contract implements a DEFCON which aims to protect the parties from threats relating to the 'Disclosure of Information'. With this in place, the entire relationship between the Contracting Authority and the Contractor is subjected to this overarching General Condition, the purpose of which protects and enables the free-flow of information between the Contracting Authority and the Contractor for the purpose of the contractual arrangement. Whilst the clause ultimately protects the Contracting Authority from informational risk, the clause sets-up a protective relationship between the two parties, which if sacrificed, would prompt wider legislative implications to prevail.

The representational risks identified as being comprised of relational risk appeared less frequently in the coded DEFCON analysis. Whilst the relational DEFCONs are not totally obsolete, the low coding pattern needs some explanation. In many cases, a contract will not enforce a huge number of relational clauses due to relationships often being a product of human interaction. Therefore in many cases, the relational health underpinning a contract is often governed by the interconnected nature of risk. In other words, relational problems are often incurred as a result of the onset of risk elsewhere in a contract. For example, where critical information is withheld from one contracting party to the extent that it causes implications to the delivery of the project, then the relationships are likely to become fractious between the contracting parties. As already mentioned, a small number of the DEFCONs do exhibit relational conditions, the DEFCON representing 'Equality' is a General Condition that aims to satisfy relational rights (bounded by legislative requirements) between the Contracting Authority and the Contractor. In addition to this, the 'Dispute Resolution' DEFCON is a crucial contractual condition that aims to settle any relational issues incurred throughout the duration of the contract.

9.2.3.2. Performance Risk

Ex-ante risk to performance is anticipated under a number of the Case Study C contract's DEFCONs, accounting for 13 per cent of the General Conditions – the lowest percentage of the four RPFC risk categories. Although performance risk is comprised of facets relating to time, cost and quality; Case Study C's GC DEFCONs place a significant focus on quality monitors. An example of the quality measures in place (such as the 'Quality Principles and Quality Plan' DEFCON), indicate that the contract is predominantly concerned with the quality of output, a feature that correlates with the requirement for the contract to offer a good service to the end-users, protecting the Contracting Authority from any potential damage to its public image. Performance features are also evident in the Special Conditions that were drafted into the contract, and further, in the supporting Annexed sections, both of which will prompt further discussion in the later sections of this chapter.

9.2.3.3. Finance Risk

From analysis and measurement of the Case Study C DEFCON structure, finance risk accounts for 28 per cent of the General Conditions coded and comprises of a number of obligations, the majority of which are placed on the Contractor. The General Conditions found within the finance risk category relate to the Contractor's obligation to submit relevant financial information, implement the appropriate (fixed) contract price mechanisms, and, to ensure compliance with the UK's fiscal legislation. Accordingly, the nature of the risk transfers under the finance risk category predominantly stems from the Contracting Authority towards the Contractor, however, as was found in the previous Case Study B, there are cases where the Contracting Authority recognise their commitment to compliance with common law whereby the Contracting Authority is obligated to correctly pay its approved bills within a set time period. Such a migration of risk from the Contractor to the Contracting Authority under a General Condition is not unexpected, since under simple transactions the Contracting party often ascertains the risk of the Contracting Authority in return for remuneration (a feature which must comply with the Late Payment of Commercial Debts (Interest) Act, 1998). Under the DEFCONs section of the contract, finance risks appear disproportionate in number, with a higher frequency of risks being absorbed by the Contractor, however, what must be remembered is the ultimate risk of cost (or overspend) relating to payment remain the sole responsibility of the Contracting Authority, a pattern that would be expected to be observable when analysing the Special Conditions to the contract.

9.2.3.4. Contract Risk

Sixteen per cent of the General Conditions contained within the Case Study C contract – the second smallest category of the RPFC risks. In the previous findings chapters, it has been highlighted that contract risk may only represent a small proportion of the coded DEFCONs a relatively small proportion of the coded DEFCONs, but the gravitas of the contract risk related DEFCONs should be acknowledged. In most cases, the conditions that have been allocated to the contract risk category during the coding process reflect conditions that have an overarching enforceability of the contract, contract amendment, and, the rights to contract breaks or termination. Each of these conditions hold ultimate supremacy over the existence of the contract and in Case Study C, are held at the discretion of the Contracting Authority. Once again, the DEFCONs impart the majority of risk within the Contractors remit, where an act of noncompliance is threatened by the prospect of contract termination and the negative connotations that surround such a consequence (e.g. a sustained course of dealing becomes less likely).

9.2.4. Analysing the Contract Spine: The Special Conditions (SC)

The following section introduces the patterns observed among the special conditions of the Case Study C contract (Table X). In the opening sections of this chapter, the structure of the contract was presented, which differs from those previously analysed, since the General Conditions and the Special Conditions to the contract are all contained together along the contract spine, as opposed to independent sections. However, for ease of analysis and to achieve consistency across the analysis process, the two are discussed separately. This section of the chapter concerns the contract's Special Conditions and provides a written account of the core patterns drawn-out during the analysis of the contract.

Risk Category	SC (%)	Risk Sub-Group
Representation Risk (R)	35%	Information Risk: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Commercial Exploitation: IP, Compilation Rights. Relational Risk: inter/intra party risk, supply-chain risk. Communication. Expectations.
Performance Risk (P)	16%	Time Cost Quality
Finance Risk (F)	17%	Price Remuneration Penalties
Contract Risk (C)	32%	Liabilities Breach Termination

Table X: The percentage of risk categories accounted for in Case Study C's Special Conditions.

9.2.4.1. Special Conditions: Representation Risk

Representation risk is the most frequently occurring risk category within Case Study C's T&Cs, across both the General Conditions and Special Conditions. In both Case Study A and Case Study B, the representation risk category also resulted in being the most regularly occurring category, implying that perhaps there is a commercial standard or process underlying this reoccurring pattern. In addition to this, further insight can be derived by observing the types of Special Conditions incorporated into the contract. In the case of Case Study C, variances emerge since the contract incorporates a significant number of informational risk related conditions, aimed towards protection of data. The primary reason for the insertion of these conditions relates to the context surrounding the nature of the contract. Since the contract falls within the HSS realm, both personal and highly sensitive data require gathering, handling and processing by the Contractor. As a result, the conditions must be carefully written to ensure that the sensitive nature of the data is protected.

The dynamics of the representational risk patterns are depicted in Figure 43. The first risk dynamic examined and mapped by the visual diagrams is the degree of interconnectivity between the contract's conditions. In general the contract exhibits particularly interconnected patterns between its conditions and sub-clauses. Many of the conditions therefore contain direct citations to other interrelated conditions within their sub-clauses, which aim to reiterate the purpose of the condition across various related elements of the contract, making it more robust. The high frequency of representation risk migrations implies that the interconnectivity

of these conditions has been stated in writing by the party responsible for drafting the contract (i.e. the Contracting Authority), who ensures that the clauses are consistent and do not contradict themselves across other parts of the contract. Whilst the distribution of migration arrows are wide-reaching across the contract spine, the highest density appears in the third quarter of the map, where the conditions protecting the supply of information are positioned.

The second dynamic, which relates to the transfer of risk between the Contracting Authority and the Contractor exhibits a greater frequency of migration arrows above the contract spine, implying that the Contracting Authority is placing greater onus on the Contractor than vice versa. Whilst this may be the case, the frequency of migrations above the horizon is not vastly disproportionate to the frequency found below the horizon. By way of comparison, the previous two case studies illustrated much higher levels of disproportionate risk transfers between the contracting parties. The balance of risk transfers in Case Study C would therefore appear much more collaborative in terms of the balance of information sharing features and inter-party relationships. Of course, at this stage in the analysis, the migration map only acts as a provisional indicator of risk patterns that are likely to infringe on the contract during its duration. It is therefore not until the duration of the contract is examined (by conducting interviews), that a clearer assessment can be made.

9.2.4.2. Special Conditions: Performance Risk

Coinciding with the pattern revealed in the DEFCON analysis (Section 9.2.3.2.) the Special Conditions (SCs) proportion of performance related risks represents the lowest ranked category (only sixteen per cent of the SCs were coded to the performance risk category). Looking at Figure 44, the migration map also presents a visualisation, populated with a significantly low number of risk migration arrows. At initial glance, it can be ascertained that Schedule 3 of the written contract (the Terms and Conditions) does not provide for performance related mechanisms, and instead, these are contained within the Annexes to the schedule or within the supporting schedules. In particular, these are contained within the contracts Statement of Requirement (in terms of deliverables), contained in Schedule 1 and a related annexed section – covering performance failures of the Key Performance Indicators. In this case, the analysis of the written contract is constrained by the structure of the contract, which differs significantly from the two frameworks already analysed in Chapter 8. Despite this, the analysis still reveals a number of patterns that begin to describe the underlying characteristics of the Case Study C contract. Firstly, the migration of risk prescribed by the contract appears in two clusters. This implies that where there are coded themes relating to performance of the contract, there is a tendency for the Contracting Authority to interlink these

obligations. For example, the condition on leases provided a reference to the adjacent condition on the Contracting Authority's asset. Where the two conditions connect is on the premise of performance quality, specifically, where the Contracting Authority grants the lease of an asset to the Contractor, it becomes the Contractor's obligation to assure the asset for its quality. If quality in this case was not checked and further enforced by another related condition, then the performance of the contract may become threatened by faulty assets.

Finally, under the performance risk category, the transfer of risk between the parties appears to be proportionately higher from the Contracting Authority towards the Contractor (seventy five per cent) than in other categories. Performance risk transfers in commissioning imply that one party, in this case the Contracting Authority, requires the expertise of an external supplier to deliver a service. Therefore, to satisfy the contract (and deliver the contract) the supplier must perform its binding obligations, and naturally, these obligations must reside with the supplier (or Contractor) in order to incentivise them to produce and deliver the requested work. With this in mind, a 75-25 per cent split of performance risk is not considered to be unusual. Another feature that is more specific to this Case Study C is the higher rate of risk neutral transfers. On the migration map, a neutralised risk is one where the risk carried above the horizon is mirrored below the horizon, (so that the arrows follow a cyclical direction). When interpreting this cyclical pattern, what must be assumed is that there is a shared onus of risk between the parties (i.e. both parties take on a proportion of responsibility for satisfying the clause in question). Looking again at the Condition on Authority's Assets, the Condition places dependencies on both parties to fulfil their obligations in order for the Condition to be satisfied contractually. To give a simplified example, the Contracting Authority is bound by contract to provide the specified assets required by the Contractor to fulfil its duties, however, once this is fulfilled the Contractor must then certify the quality (within the specified timeframe). The ultimate performance relating to this element of the contract therefore rests in the remit of both parties.

9.2.4.3. Special Conditions: Finance Risk

Finance risk accounts for seventeen per cent of the aggregate coded risks within Case Study C. In this case, a larger proportion of risk is found to be transferred to the Contractor from the Contracting Authority. This transfer of risk can be seen to relate to the Contracting Authority's tendency to write a series of dependencies into the contractual conditions, which appear in their sub-clauses. Whilst in many cases, the ultimate outcome of the overarching condition may be the Contractor's receipt of compensation, in this case, the Contracting Authority first require the Contractor to submit its financial documentation and evidence of completed work.

To some extent therefore, the Contractor must first ascertain some financial risk, prior to remuneration. Aside from this, the diagram in Figure 45 also illustrates patterns that offload risk to the Contracting Authority. In general this pattern may be explained by considering that contractual arrangements often follow a rule of thumb whereby the Contractor takes on performance risk (amongst others) in order to generate a profit. Often therefore, a proportion of risk in the finance category would be assumed to return to the Contracting Authority as they absorb the obligation to pay their supplier upon completion of the work, or milestones.

The interconnectivity of the risk migrations between the contract's conditions, like the other risk categories discussed so far, appear within certain clusters. Each are clustered in this way to reflect the structure of the contract, which appears to be ordered according to themes with finance related themes being mostly positioned in the middle section of the contract. A significant frequency of arrows above the horizon migrate towards the end of the contract spine, where information relating to the contract's pricing mechanisms and payment procedures are contained in the Annexes. A final trend worth noting is that the finance risk category exhibits a degree of risk neutrality, whereby both parties ascertain a proportion of risk (in a dependency-type relationship). This therefore further supports the notion that the contract enforces cooperation between the parties by stipulating where they are required to work together in order to satisfy the contract's terms and conditions.

9.2.4.4. Special Conditions: Contract Risk

The final category to be discussed in terms of the Case Study C contract is contract risk. In this case, the contract exhibits a contract risk weighting of thirty two per cent, the second most frequently coded category in the contract. In previous contracts (Case Study A and B), the contract risk has been coded to a much lesser extent, and explained by the gravitas of the clauses associated with the category (i.e. termination ceases the existence of a contract). In this case however, a higher percentage of contract risk has been coded, suggesting that the contract shows some disparity in its written structure when compared to the framework contracts evaluated in Chapter 8. The transfer patterns between the two contracting parties again appear dominant in the transfer of risk from the Contracting Authority towards the Contractor (representing seventy per cent of the contract risk transferred). Given the nature of contract risk, which is commonly associated with themes such as termination, exit management, liability and insurances, it is expected that a higher frequency of contract risk would be allocated towards the Contractor in this way. The remaining thirty per cent of transfers from the Contractor towards the Contracting Authority, with almost all of the returns of risk being a result of neutralised risk clauses and shared ownership of these obligations.

Furthering this, by looking at Figure 46 the direction of transfers depict only one example of a risk transfer that moves entirely from the Contractor's remit towards the Contracting Authority. In this particular case, the clause associated gives the Contractor the written right to terminate the contract (in accordance with Condition on Bankruptcy and Insolvency) where the Contracting Authority assigns any of the rights of the Contract to a non-Central Governing body. Other than in this particular example, the Contractor is not entitled to terminate the contract, except where strong evidence is given (and is therefore subject to the Contracting Authority's discretion).

In terms of the migration of risk between the contract's conditions, the map portrays a pattern that connects the Special Conditions from opposite ends of the contract spine. The logic surrounding this movement again relates to the way that the contract has been indexed. For example, what can be observed is the strong interdependencies found between the Condition on Duration of the Contract, and the Termination condition(s) located at the end of the contract's spine (such as a Condition covering the consequences of expiry or termination). In this case, the duration of the contract is determined by the termination of the contract, that is, where termination occurs prior to the agreed contract end date, the duration of the contract is shortened, interconnecting the two closely via the threat of early termination.

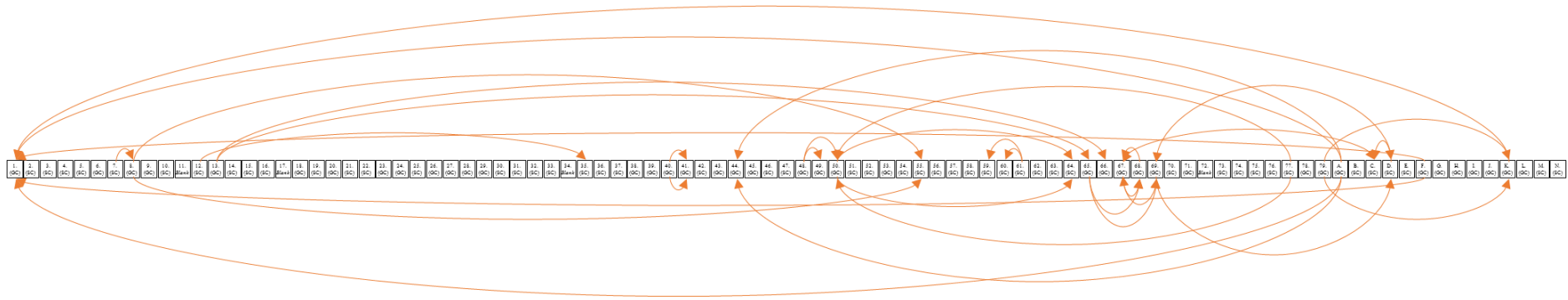


Figure 43: (Above) A map illustrating the representation risk transfers found in Case Study C's T&Cs.

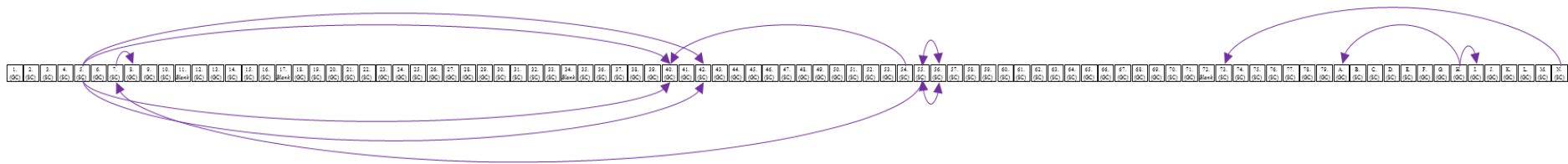


Figure 44: (Above) A map illustrating the performance risk transfers found in Case Study C's T&Cs.

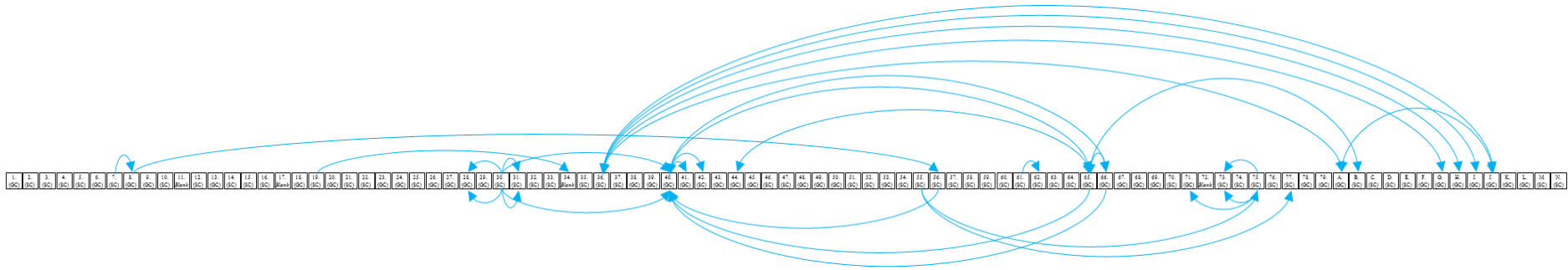


Figure 45: (Above) A map illustrating the finance risk transfers found in Case Study C’s T&Cs.

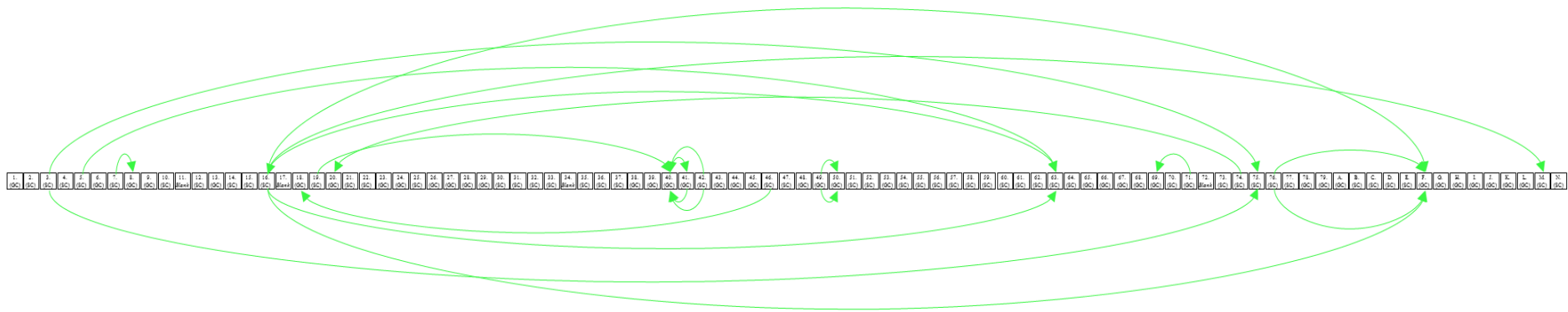


Figure 46: (Above) A map illustrating the contract risk transfers found in Case Study C’s T&Cs.

9.3. Pre-determined Interview Themes

Having presented a written evaluation of the key themes and patterns derived from the initial written contract analysis, the following section will provide the next step to the knowledge building process. It will therefore present a discussion of the key themes that have been disseminated from conducting a set of semi-structured interviews with participants from both sides of the transactional interface. In this case, the participants from the public sector (MOD) and private sector include a range of project managers, commercial and technical professionals, all whom have had an active involvement or added value to the contractual arrangement at any one moment in time. Following the same interview structure introduced in Chapter 8, and for enhanced readability this Chapter 9 will separate the discussion into three sections, aligning with both the ordering of the semi-structured questions and the findings previously discussed.

9.3.1. Interview Theme 1: Pre-Contract

The pre-contract component of the semi-structured interviews consists of two broad thematic discussion areas, prompted via a series of questions (Figure 28, Chapter 8 [Part A]). This section aims to provide a description of the amalgamated participant responses to each of these questions in order to reveal the true nature of the Case Study C contract, during its early conception.

(a) Specifications

The opening question to the semi-structured interview begins with a contextual stance, which invites the interview participants identify and explain the specifications that were set during the conception of the contract. An important contextual feature to be considered prior to the discussion of the participant's answers is that the contract represents the outcome of competition to replace a time-expired contract, and so, the requirements closely replicated those found in the precursory contract, with a small number of technical additions. When asking the participants for their input on what the re-let specifications were, the responses appeared split in interpretation, based upon the participant's role in the organisation. The participants who maintained technical roles provided answers that were based on the contract's scope and therefore discussed the new enhancements to the service being commissioned for. Other participants, particularly from the commercial sphere approached the question by discussing the commercial solution and priorities of the contract – which in this case were identified as being time and budget. Whilst the two types of response indicate that there may be some disconnect between the technical and commercial axis (within the public organisation, who at this point are assumed to write the project specifications), it is acknowledged that the

commercial priorities of the contract are what govern the viability of the technical scope (i.e. if a small budget is a priority, then an expensive technical requirement would undermine the contract).

The second question surrounding the pre-contract specifications revealed that not all participants had active engagement during the setting up of the contract. When asked about the level of negotiation that occurred between the parties during the setting of the specifications, those who were involved during the set-up provided detailed responses. Indeed, the participants recalled that the specifications did not undergo any negotiation between the parties for a two reasons. The first was due to the procurement route taken, which encompassed a restricted competitive process (as opposed to an Invitation to Negotiate), prohibiting the opportunity for any open negotiation between the contracting parties. The second factor implied that because the contract represented a re-let contract, it was already focused in scope and therefore negotiation was not required. Whilst it is clear that negotiations did not occur during the set-up of the contract, the contract was thought to have been guided by a combination of defence policy and learning from the precursory contract. In addition to this, clarification meetings were said to have been held, however these were subjected to formal commercial practice and therefore carefully managed to ensure that all bidders were treated with equal opportunity.

(b) Contract Award

The second topic covered under the pre-contract section of the interviews shaped a discussion with participants about the contract's award. The first question set by the semi-structured interviews prompted the discussion of the format and structure of the contracts terms and conditions in order to decipher how these had been written along with the reasons behind such choices. When asked whether the contract employed standard or customised terms and conditions, the participants provided a mixed response with some implying that the contract was reasonably standard in terms of the documentation, whilst others described it as being customised. Aside from these responses, the commercial participants (who were closely involved with drafting the contract) clarified that the contract was indeed a bespoke contract, comprising of both standard defence conditions and narrative conditions. Furthering this, one participant revealed that the contract was custom made by the Central Legal Service (CLS) to achieve a bespoke structure, which explains why the contract's General and Special Conditions are not contained in separate sections (as a standard contract would), but compiled together in a narrative (or bespoke) format.

The level of negotiation incurred during the setting and subsequent agreement of a contract's terms and conditions is a topic that reveals the level of cooperation that the contract was subjected to during its development. In this case, all participants who had active involvement at the pre-contract stage indicated that the contract was written solely by the Contracting Authority, with no negotiation or input from the Contractor. Again, participants explained that the one-sided process was standard practice, since the contract was confined to the European procurement regulations that govern open-competition procedures. As a result of this, all participants confirmed that there were no contributions to the contract's terms and conditions, provided by the private organisation, suggesting that the setting of the terms and conditions was rigid and compliant with the overarching regulations.

9.3.2. Interview Theme 2: Contract Duration

The contract duration component of the semi-structured interviews consists of two broad discussion areas surrounding (a) Deliverables, and (b) Performance of the contract (Figure 29, Chapter 8 [Part A]). Under each of these thematic areas, a set of pre-determined questions elicit a set of broad answers which enable the interviewer to gain data rich insights into the daily running of the contract.

(a) Deliverables

The opening question relating to the delivery of the contract invited participants to describe the deliverables that were set by the Contracting Authority, for the Contractor to deliver against. The majority of participants identified the deliverables as being concerned with output and highlighted how the Contractor is paid based on its billable activity, which is grounded on the number (or throughput) of end users utilising the H&S service. To deliver, the Contractor must therefore conjure a sustained interest from its end users, and establish quick response times to satisfy the demand for the service. In addition to this, one participant identified a second component of delivery requirement imposed on the Contractor. The participant labelled this as an 'enabling' element of delivery obligation, and detailed the Contractor's requirement to comply with the MOD's security requirements, together with the delivery of security data and any IT systems that underpin the contract delivery. Considering this stance, these enabling elements are perceived as being those that assist the performance of the contract, and must therefore be satisfied by the Contractor throughout the duration of the contract, subject to the terms and conditions imposed.

The second question concerned how the deliverables were assured and managed throughout the duration of the contract. In the interview responses, the participants mentioned the

regularity of performance reviews, together with the methods used to incentivise the Contractor through extensive targets which result in either a financial reward or penalty. Such incentives and remedies were detailed to be based on a combination of performance quality (measured through customer service responses) and the quantity of every end user that has been actively engaged in utilising the H&S service. Leading on from this, the final question surrounding deliverables touched upon the Contractor's effectiveness when reaching the set deliverables. The private organisation highlighted that the Key Performance Indicators (KPIs) were extensive, bounded by severe penalties. In addition to this, the KPIs put in place for prompting delivery were described as being particularly labour intensive for the purpose of capturing the necessary data. In other words, the KPIs required that a full sample of data, containing details of every end-user was obtained, as opposed to a representative data sample. A significant difficulty with reaching the deliverables was identified by both sides of the contractual interface and concerned early issues with the contract, following inaccurate throughput forecasts which resulted in tensions amounting between the contracting parties for the first five quarters of the contract, to the extent that the contract was in danger of being terminated.

(b) Performance

The performance element of the contract prompted the participants to discuss what they felt were the priorities of the contract in terms of performance theme. All participants identified quality to be the key priority of the contract, since the premise underpinning a Health and Social Service contract is that it impacts human end-users. Since quality was identified as being a critical priority of Case Study C, the participants elaborated on this topic by highlighting how a focus on the quality of the contract's deliverables results in the contract price being high. Timeliness of the deliverables on the other hand was only mentioned by one participant, making it a less prominent theme.

The interview discussions then progressed towards a discussion of the performance in terms of any difficulties or challenges which materialised during the running of the contract. The most prominent response identified a severe issue relating to the wrongly forecasted throughput volumes that had been provided by the Contracting Authority. The figures, which were estimated solely by the Contracting Authority involved little input from the continuing supplier, since (as it was revealed by the private sector in interview) the tender followed a competitive procedure with restricted interfaces. Furthering this, the throughput figures (which were significantly overestimated by the MOD), resulted in the realisation of a low throughput (relative to the estimated figures) and hampered the private organisation's ability to balance

costs and breakeven. As a result of the drop in throughput volume, the Contractor was faced with no option but to make cut-backs on resources, such as staffing. In addition to this, the Contractor reviewed the contract, cutting down on work that it had continued to deliver under 'goodwill', but was no longer formally itemised in the re-let contract. In line with this, a second issue highlighted by the public organisation was related to the incompleteness of the contract, which had been written by the legal teams to enhance flexibility, but which resulted in informal disputes over the pieces of work that the Contractor was contractually obligated to deliver. Finally, relational disagreements were also highlighted as a factor that caused unforeseen risks to infringe on the contract. In particular, the participants identified an element of disconnect between the Contracting Authority's internal commercial and project management teams (due to geographic location and cooperation). Likewise, fractious behaviours also arose in the buyer-supplier interface, however these were considered to be a repercussive of the problems associated with the overestimated throughput volumes.

Despite the performance problems that arose in the early duration of the contract, which were described by interview participants as being self-inflicted by the Contracting Authority, the majority of participants interviewed described the contract as performing well. The rationale provided by those participants detailed the Contractor's current results and target reviews, which evidence this opinion. The relationship was also touched on by some participants at this point, who described the relationship as being challenging in the past, yet has progressed towards recovery, allowing the contract to be seen with positivity in terms of its current performance.

9.3.3. Interview Theme 3: Contractual Relationships

Case Study C's contractual relationships are covered by the final predetermined interview area. In alignment with the other case studies examined so far, this section follows the same interview format in terms of its question structure (Figure 30, Chapter 8 [Part A]). The purpose of this final section therefore is to reveal the quality of the interfaces developed between the Contracting Authority and the Contractor both in terms of their corporate relationship and personal relationship, summarised below.

(a) Corporate Relationships

The first topic covered by the interview section on contract relationships aims to reveal the existing state of the corporate relationships between the two parties, whether this is built on relational history or corporate culture. When Case Study C's participants were asked whether their organisation has had any prior engagement with the other party, all participants

acknowledged a history with their contractual counterpart, based on the precursory contract having been run by the same organisation. In addition to this, some participants added that the supplier was also actively involved in delivering other MOD contracts, demonstrating a strong corporate history between the two organisations. Following the next question, the corporate relationship was described by participants as being very good, cooperative relationship between both sides of the contractual relationship. One interview participant supported this view, however they also suggested that the corporate relationship was stronger between the MOD sponsor and the Contractor, than it was with the MOD commercial team and the Contractor. This was thought to be due to the responses to problems with the contract, which were dealt with by the two MOD teams in different ways, with the MOD's sponsor team being more understanding towards the Contractor than the commercial team. Understandably, both teams were restricted by their obligation to follow commercial processes, which underpins the approach taken when supporting the Contractor during the onset of contractual risk. However, the approach taken when implementing these procedures are what give further evidence of disconnect between the MOD's internal Case Study C teams, who should align their methods for dealing with supplier queries under one set of common rules.

(b) Personal Relationships

The final theme discussed in terms of the contractual relationships was aimed towards revealing the participants personal relationships, and involvement with key personnel on a daily basis. All participants highlighted that they had or have had personal interfaces with particular members of the opposite side. Some however have had more communication than others, depending on when they were actively engaged with the contract (some participants were only involved in the set-up, or came in for the commencement phase), and depending on what their level of seniority was. For example, one participant in particular oversaw the contract at a very top-level, and therefore only became involved at 'desk-level' when issues arose. Having ascertained that each participant has had some engagement with key personnel on a daily basis, at some point in time, all were able to respond to a question regarding their experiences in terms of the rapport built with their counterparts. In all cases, the participants indicated that a good rapport was built with the opposing contracting party, with the exception of a timeframe where problems with the contract were escalated (i.e. during the onset of throughput and related issues).

Finally, having established that both contracting parties had developed a strong rapport with their contractual counterparts, it was acknowledged that the rapport built does aid the quick and collaborative resolution of any problems that emerge during the contract. Whilst this was

the general consensus amongst participants, a couple of those interviewed also highlighted that relational rapport is important, it does not eliminate other risks from infringing on the contract from outside the relationship (e.g. turnover of staff instantly breaks down personal rapport, and, other performance risks may emerge that are independent from the management of relationships).

9.4. Emergent Interview Themes

The following adds a new perspective to the interpretation of the interview data by considering the topics that were openly contributed by the interview participants, beyond the pre-defined interview structure. The section therefore presents a set of emerging themes that have been split by risk category, together with the sub-theme that prevailed during the thematic analysis of the Case Study C interviews. As with all the precursory case studies analysed, each emerging interview theme has been categorised using the same risk categorisation process adopted in the coding of the written contract to allow comparisons to be made. The following section will begin with a discussion of the emerging themes that constitute a representation risk, before moving towards the performance, finance and contract risk categories.

9.4.1. Emergent Interview Themes within Representation Risk

As previously identified, representation risk combines two sub-categories: relational risk and information risk. Within Case Study C interviews, prominent risks emerged within both sub-categories, providing sufficient reasoning for the two categories to be discussed independently. There is however, a close link between the two in that, relationships appear to have a close influence on the amount of information passed between the contracting parties, and likewise, the sharing of information between the parties appears to have a positive effect on the strength of the relationships held between the contracts' personnel.

9.4.1.1. Relational Risk

Relational risk can be further subdivided into its two key interface types: Internal Relationships and Buyer-Supplier Relationships, since the context affiliated with each interaction must be interpreted differently (Table Y). The sub-categories which emerged during the coding process are those which are believed to have a direct effect on the contractual relationships, these are: (i) Communication (which is considered to have a direct influencer on the state, or even type of contractual relationships – are they purely transactional or are they collaborative?), and (ii) Negotiations (how do the parties exert relational power?). It must be

stressed that whilst negotiations occurring between the parties involve forms of communication, in some instances, communication may warrant an independent theme.

Primary Risk	Sub-Theme(s)
Relational Risk:	
Internal Relationships/ Buyer-Supplier Relationships.	Communication. Negotiation.

Table Y: Case Study C, relational risk and sub-themes.

Internal relationships occur in two-fold, either internally within the Contracting Authority and /or internally within the Prime Contractor’s organisation. The interviews conducted for Case Study C only identified issues stemming from internal relationships within the Contracting Authority’s organisation. The primary issue relates to the interface that exists between the MOD sponsor and the Defence Commercial department, described by interview participants as challenging on two accounts: the first involves the geographic distance which separates the offices of Defence Commercial from the MOD sponsor’s team. As evidenced during interviews, the geographic separation that distances the two operating units, prompts disconnect in the relationships held between the departments, causing perceivable differences in the MOD’s stance on contractual matters. In cases where conflicting interpretations have arisen in aspects of the Case Study C contract, disputes on the method of internal resolution has separated the two departments, further widening the relational gap between the contracts core operating units. Further down the line, and as the contract matures, this geographical and relational detachment between the contracts two internal departments has manifested a blame culture, whereby the responsibility for emergent risks are, to some degree, shifted towards the opposing interface. It was therefore agreed by many of the interview participants that the co-location of Case Study C’s commercial and technical departments would prompt a more unified collaboration between the internal departments, which in turn would assist with a more efficient risk management process, should any risks escalate under the contract.

The buyer-supplier relationship underwent significant strain in the early life of the contract, prompted by the materialising of downside risks that challenged the operability and viability of the contract during the initial year of commencement. Relational risks appear predominantly

as a repercussion effect where other downside risks have infringed on the contract, causing a detrimental effect to the contracts' prefabricated requirements and expectations. Participants point to a range of stimulants responsible for the erosion of the buyer-supplier interface during the early stages of the contract, including the choice to adopt a competitive procurement mechanism over a negotiated procedure, a shortened transition phase and frequent changes to key personnel. Such stimulants represent the most prominent examples presented by participants, each provoking challenges to the building of stable and collaborative relationships between the contracting parties.

9.4.1.2. Information Risk

The analysis of the interview transcriptions reveal only two sub-themes that can be attributed to the information risk cluster (Table Z). On the whole, the occurrence of emerging Information Risks relative to the contract were infrequent, implying that information protection and security measures are sufficiently guarded by the written contract. In this way, Information Protection (IP) was observed as a priority of the contract, and was acknowledged by some participants as a theme that heavily encases the contract due its involvement with the handling of personal data. In line with this, it would appear that IP is deemed to be operating successfully under the contract, when mitigating the emergence of a negative information risk relating specifically to the protection of information.

Primary Risk	Sub-Theme(s)
Information Risk	Information Protection (IP). Disclosure of Information.

Table Z: Case Study C, information risk and sub-themes.

The second and most prominent information risk revealed an issue with the free-flow of information between the Contractor and the Contracting Authority. In this case, a range of participants alluded to the presence of an unwillingness or unresponsive attitude from the Contractor side in the provision of contract management data at the Contracting Authority's request during the early life of the contractual arrangement. To clarify, whilst the provision of certain information represents a formal obligation when clearly stated in the contract, some information that was previously provided by the Contractor as a token of goodwill was halted when the new contract (with reduced budgets) commenced. As a result, the Contracting

Authority perceived these informational cutbacks made by the Contractor as an unwillingness to assist with the provision of data for general management purposes, which caused underlying tensions materialised during the early stages of the contract, at a time where the goodwill and trust between the two parties was rapidly diminishing. It must be noted however, that since the early commencement of the contract, the relationships established between the Contracting Authority and the Contractor have strengthened as underlying issues with throughput figures and other related problems were resolved.

9.4.2. Emergent Interview Themes within Performance Risk

The performance of the contract can refer to a number of facets such as time, cost and quality. Whilst these subdivide the performance by theme, the contracts performance is ultimately measured using a set of performance metrics designed to identify whether the contract is meeting its overall purpose. The participants interviewed for Case Study C analysis were selected from a cohort of individuals that have direct engagement with the contract and therefore express familiarity with the contracts interim objectives and Key Performance Indicator criteria, as set by the Contracting Authority.

Primary Risk	Sub-Theme(s)
Performance Risk	Performance management. Contract performance. Performance themes (i.e. time, cost, quality.)

Table AA: Case Study C, performance risk and sub-themes.

9.4.2.1. Performance Management

The performance management themes referred to during the interview discussions will be evaluated independently, yet what must be noted is that these underlying risks act in conjunction with one another to the extent that further risks become triggered systemically, aggravating other risks affiliated with the representation, finance and contract risk categories. The most prominent risk to infringe on the Case Study C contract concerns the throughput volumes that were set by the Contracting Authority during the contract set-up. Over-estimation of the forecasted throughput originated as a repercussion of other performance management issues that materialised during the early pre-procurement stages, which in this case will be depicted as the underlying causes of the throughput dispute, however these also have the

capacity to act as independent performance risks. Before discussing the effects of the throughput dispute that materialised under the Case Study C contract, the causes will first be derived.

Cause (i): Choice of Procurement Mechanism

Whilst the level of throughput submitted by the Contracting Authority during the early commissioning stages of the contract has the capacity to operate independently as a standalone risk, there are two causes presumed to have held a close connection to the emergence of this performance risk. The first concern raised by participants surrounded the formal procurement process chosen. The service commissioned for by the Contracting Authority represents a re-let contract facilitated by an open Invitation to Tender (ITT) process, inviting private industry specialists to compete for the work. A number of interview participants however suggested that perhaps an invitation to negotiate (ITN) may have been a more suitable procurement process, enabling figures to be sense-checked by bidders, inclusive of the incumbent Contractor. By setting up the procurement in this way, it is thought that the throughput errors would have been subjected to a review from the industry experts, prompting an amendment of the figures prior to the formal acceptance of the contract. Though the suitability of the pre-procurement mechanism selected is confined to some debate between two branches of the public sector participants (namely, the commercial and project management teams), the notion that perhaps the adoption of an ITN might have allowed for greater scrutiny of throughput figures and costs put forward by the bidders should not be completely disregarded. Conversely, some participants argued that the ITT was in fact sufficient enough to ensure that the figures represented accurate estimations. In particular, it was held that the estimates were made accessible to the incumbent supplier (and all other competing bidders) so that these would be scrutinised, and further clarified if they appeared disproportionate. The subject therefore reveals an element of debate between the two representative parties.

Cause (ii): Service Continuation Timelines

The nature of the re-let service contract infers that there must be a continuation or smooth transition between the old and new contract, since unlike the purchase of defence equipment, the contract offers a support service that is depended on by human end-users, making a break in that service delivery problematic should it occur. The start of the re-let contract was set-up to overlap with the completion of the previous contract, ensuring a smooth continuation of the service provision to its users. Delays to the contract set-up process however caused significant strain on the contracts likelihood of reaching the fixed contract start date and as a result, the transition phase of the contract was significantly shortened. In cases like these, whilst the

documentation will undergo scrutiny from the central DPAS team, a shortened transition phase pressurises the process, making mistakes to the procedure more likely.

Cause (iii): Staff Turnover

Staff turnover appeared a number of times throughout the interview as causing management issues, particularly between the set-up and contract commencement phase of the procurement. Participants who mentioned staff turnover as an inhibitor to the functionality of the contract criticised that this structural change was exacerbated by the timeline delays that were already occurring. Where the delays in the front-end of the contract occurred, staff due to take-over at the pre-defined timeframes did so, yet this caused a blurring of responsibilities as key personnel overlapped their responsibilities, negatively affecting the transparency of task ownership during the contract’s early management.

9.4.2.2. *Overview of Throughput Effects*

As already alluded to, the over-estimated throughput figures resulted in significant challenges to the operation of the contract. When throughput appears considerably lower than the estimated quantities, significant risks infringe on the contract, if left unresolved. The key effects of this throughput problem was on the finance elements of the contract, where throughput placed significant pressures on the profitability of the supplier, the costings of the contract under new volumes and therefore the budget capacity. Furthermore, relationship pressures grew between the buyer-supplier interface, eroding trust and goodwill which had been built under the previous contract; and the internal commercial-technical interface, due to inconsistencies in their contract resolution approaches.

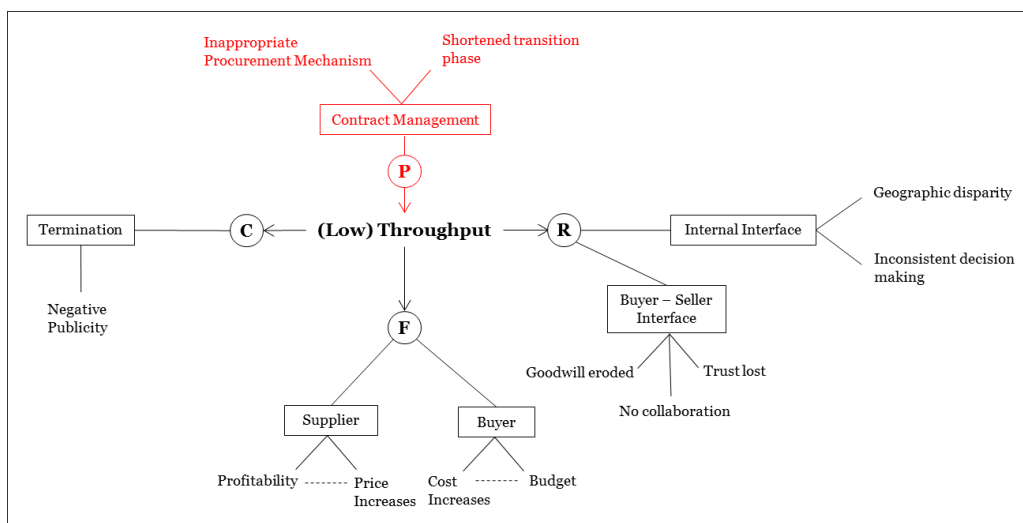


Figure 47: A causal map depiction of Case Study C's core emerging interview themes.

9.4.2.3. Contract Performance

The performance of the contract may be interpreted in two ways, either in terms of the project's ability to reach its overarching aims or outcomes, and/or, in terms of the short-term output performance of the Contractor upon the delivery of pre-specified milestones. Whilst there is a direct link between these two performance elements, these may not necessarily align. In other words, although the Contractor in Case Study C was identified by participants as delivering against the low volume of throughput demands (or short-term outputs), it does not guarantee that the overarching outcomes of the project will be achieved, particularly where the true estimates of the volume of throughput are not materialising in actuality. Despite this important distinction, the interview participants from both sides gave positive responses when describing the performance of the supplier, in terms of the overall contract. What this implies therefore is that no risks were perceived by the parties when referring to the immediate, day-to-day performance of the contract (and therefore no threats were perceived in terms of the provision of the contracted outputs at the reduced throughput level).

9.4.2.4. Performance Themes: Time, Cost, Quality.

The dialogue emerging from the Case Study C interviews revealed a number of performance themes, which relate specifically to the intended priorities of the contract in terms of its intended outcomes. In this case, the participants from both the public and private sector highlighted that the contracts purpose is to deliver value for money and a high quality service output. Cost and quality therefore remain the prominent performance themes in this context. With this in mind, it must be acknowledged that in the case of the Case Study C contract, the quality of performance was hindered as a result of the budget restrictions imposed on the contractual arrangement. Specifically, a private sector participant described the implications of delivering and maintaining a high quality service, whilst enduring significant cutbacks on budget and low throughput volumes, which posed a considerable challenge to the Contractor. In addition to these two prominent performance themes, time performance was mentioned by another participant as having little influence on this contract at the time of interview. In particular, the participant identified timing of the output delivery as being an area that is consistently achieved, and further stated that the focus of the contract was measured (and therefore driven) by demand, as opposed to time-restricting milestones.

9.4.3. Emergent Interview Themes within Finance Risk

Upon the examination of finance risk, four sub-themes emerged from the interview discussions. As depicted in Figure 47, most of the finance risks cascade from a throughput forecasting error. The reason for this is that the service demand (or throughput volumes)

running through the contract is directly related to the pricing mechanism of the contract (i.e. the rate of financial outgoings to the buyer/incomes to the supplier). From the supplier perspective, where ex-post throughput is lower than the ex-ante or estimated figures, the suppliers' payment expectations become unfulfilled and with it, access to profitable margins are quashed. Where the suppliers' access to profitable margins became unachievable, relational risks became pressing from the parent company, contributing to the fractious behaviours amongst the buyer-supplier interface and beyond (as described in Section 9.3.1.).

The Contracting Authority's budget setting process represents another significant financial implication to be highlighted by a number of the interview participants. The interview's revealed that the sponsors' budget had undergone a revision during the contract tender process and was reduced as a result of the throughput adjustment, requiring the potential bidders to deliver the same requirements, at a reduced cost in order to remain competitive. In past case studies, reductions to departmental budget allocations stemming from cost-saving initiatives in central government have occurred causing variances between expected and actual throughput values. However in this case, uncertain budgets remain to be a repercussion of overestimated throughput figures, since an underperforming throughput volume prompts the Contracting Authority to constrain its budget relative to the newly revised throughput estimations, ensuring it continues to satisfy public interest when generating contracts that achieve value for money.

Primary Risk	Sub-Theme(s)
Finance Risk	Budget. Price. Payment. Profitability.

Table BB: Case Study C, finance risk and sub-themes.

9.4.4. Emergent Interview Themes within Contract Risk

During the interview analysis process, participants referred to the existence of contract risk in three sub-themes. The first, contract termination, concerns the entire existence of the contract and therefore places substantial risk within the remit of either contracting party, should it materialise. Interview participants provided examples where the supplier was ready to terminate the contract as a response to the frustrations concerning the throughput volume

dispute. Again, the termination of the entire contract represents the breadth and gravity of repercussions that prevailed within the contractual arrangement as a result of issues in the contract management during the contracts' early set-up.

Legal compliance was mentioned by participants in a number of cases, yet merely to acknowledge the requirement for the enforcement of fair competitive procedures in compliance with European Procurement legislation. Contrary to this, only one participant implied the presence of a contractual management procedure which had the capacity to escalate to a level of non-compliance. In this instance, the overlapping nature of the re-let contract and the previous contract combined with poorly planned personnel job structures meant that one project manager was involved with the old and new contract as they overlapped. Had this not been managed with caution, MOD would have been liable to claims of undue competitive advantage during the open competition phase of the re-let contract.

Primary Risk	Sub-Theme(s)
Contract Risk	Contract Termination. Legal Compliance.

Table CC: Case Study C, contract risk and sub-themes.

9.5. Summary

Chapter 9 has presented a detailed description of the findings that arose during the analysis of Case Study C, which followed the contractual arrangement through its project lifecycle. Observing these findings from a top-level, a number of issues may be identified, some of which find their origins in the early contract set-up. The most prominent of these issues (which placed significant risk on the contract), was in the foreshortening of the contract mobilisation phase, in response to prior delays and inflexible timeframes on the contract start date. Indeed, the findings provide evidence of a 'snowball' effect that a shortened mobilisation phase appeared to have on the contract, stimulating further pressures to impinge on other areas of the contract.

In addition to this, the estimated throughput values were also identified as a significant risk to have impacted the Case Study. The figures inputted within the contractual documentation were significantly overestimated, causing exaggerated performance measures and disproportionate

expectations on the contract's anticipated outcomes. The chapter reveals numerous instances where this particular risk was discussed, and in particular, identifies where the throughput figures failed to be resolved due to the informational asymmetries found between the incumbent firm delivering the precursory contract (i.e. in contract re-let) and the defence customer commissioning for the new requirement.

One further conclusion drawn out of the research surrounds the resilience to organisational change at the MOD. Where regular change to the key personnel staffed on a project occurs, limitations in the knowledge and information transfer required to facilitate the day-to-day functioning are liable to occur. From analysis of the contract, it appears that Case Study C omits the inclusion of a contractual provision that could build in greater contractual resilience (i.e. by accounting for regular change or personnel serving short-term duties under the contract). Under the Case Study contract, changes to the contract personnel are deemed as being a regular occurrence, which if mitigated, could remedy the loss of knowledge associated with constant internal change within MOD.

CHAPTER 10
RESEARCH FINDINGS
Computer & Related Services Case Study

10.1. Computer and Related Services (CRS): Case Study D

The Case Study central to this research piece represents a contractual arrangement that has been designed to deliver a specific branch of Computer and Related Services (CRS) outputs to a MOD customer, which in turn, enables the roll-out of essential CRS to its end users across the entire MOD estate. The commissioning of CRS within the UK's defence organisation is of prime importance due to its setting. Defence Computer and Related Services are operated in complex and technically hostile environments where threats to informational and relative technical advantage are continuously evolving. It is therefore paramount that the type of contract underpinning the CRS work (if undertaken by industry suppliers) is structured appropriately to ensure that maximum benefit can be realised by the UK governments' defence department.

10.1.1. A Short Note on Terminology:

For terminological clarity, the Computer and Related Service (CRS) sector assumes a consolidated definition encompassing: the installation of computer hardware, software implementation services, data processing services and database services (WTO, 2018). It must therefore be highlighted that this service area does not reflect a simplistic purchasing decision for a physical piece of ICT equipment, but a service that supports the implementation of essential information networks. Such a clear distinction is advocated throughout the research since the type of output transferred in each purchasing choice requires different considerations. Commissioning for CRS through engagement with industry concerns the provision of services which are impalpable, as opposed to those that are transferable through a palpable exchange (i.e. equipment). The contract type selected by the Contracting Authority in the commissioning of CRS must therefore be robust enough to ensure that the service required is obtainable, given its intangible state, yet flexible enough to aid progressive enhancements to the contract to be made over time.

10.2. CRS - Case Study D: The Written Contract

The contract examined under the alias “Case Study D” represents a procurement activity set-up under the Public Services Network (PSN). The PSN is a high-performance network within the UK government which aims to establish a collective network infrastructure through the collaboration of various public sector organisations, whilst sharing resources and reducing duplication across the public sector. If a public sector organisation decides to adopt the PSN route for the procurement of its network infrastructure, a number of pre-defined contractual documents will be drawn-up. One component of the PSN framework is the Framework Agreement which represents the formal contract between the PSN and the Contractor. Under the standardised PSN Framework structure, and, in addition to the Framework Agreement, the contracting parties (i.e. the Contracting Authority and the Contractor) are to enter into a “Call-Off Contract” and utilise a “Call-Off Form”. By way of definition, the Call-Off Form facilitates the flow of amendments to the Terms and Conditions required by the Contracting Authority to the Contractor and is treated as a separate document under the PSN Framework approach.

Case Study D however, differs from the traditional PSN Framework Agreement structure since it combines the “Call-Off Terms” and the “Call-Off Form” in order to facilitate greater contractual clarity and certainty (Figure 48). Case Study D’s Consolidated Contract therefore represents and evidences the entire agreement between the contracting parties in relation to the Contracting Authority’s call-off under the Framework Agreement. Where any conflict arises between the Framework Agreement and the Consolidated Contract, it is therefore submitted by the parties that the Framework Agreement prevails.

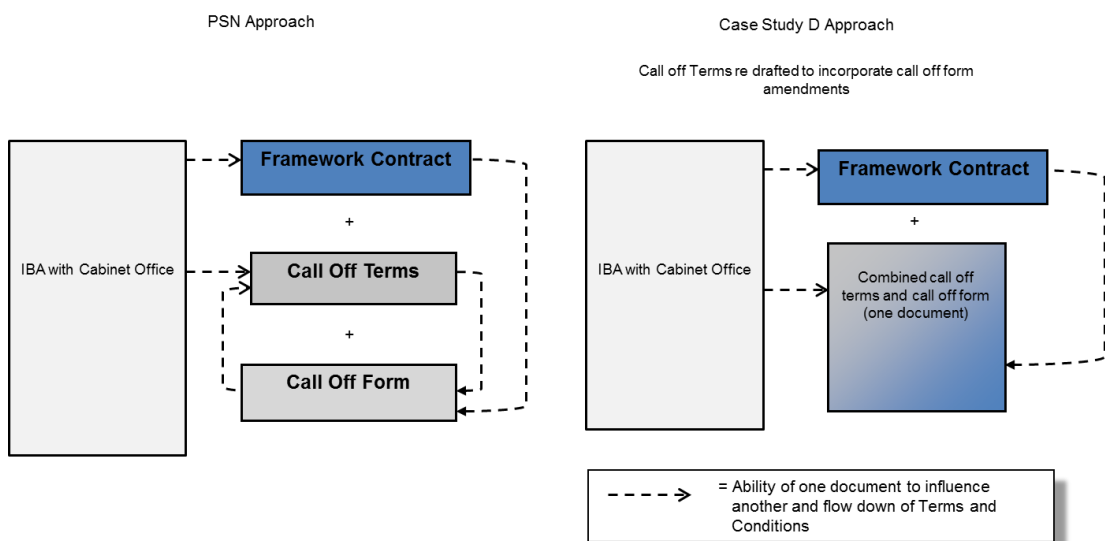


Figure 48: PSN contracting structure for Case Study D.

10.2.1. Case Study D: Contract Structure

Having identified Case Study D’s utilisation of the PSN Framework, it can be ascertained that the Consolidated Contract is therefore comprised of a pre-defined set of terms and conditions, under which, all PSN suppliers have signed and accepted the agreement and the call-off terms (Figure 49). Whilst the PSN Framework Agreement and Consolidated Contract is made up of an established template, the PSN contracting structure also grants users the opportunity to propose a set of special terms, provided there is no material amendment to the core agreement terms. Whilst some structural terms are provided for in the Case Study D contract examined, a considerable number of additional conditions have been added to the template structure. In addition to this, the content of those conditions differs significantly from the standard template provided by the Crown Commercial Services, demonstrating how the MOD have adopted a bespoke approach to its contract drafting process through the incorporation of its own defence specific terms.

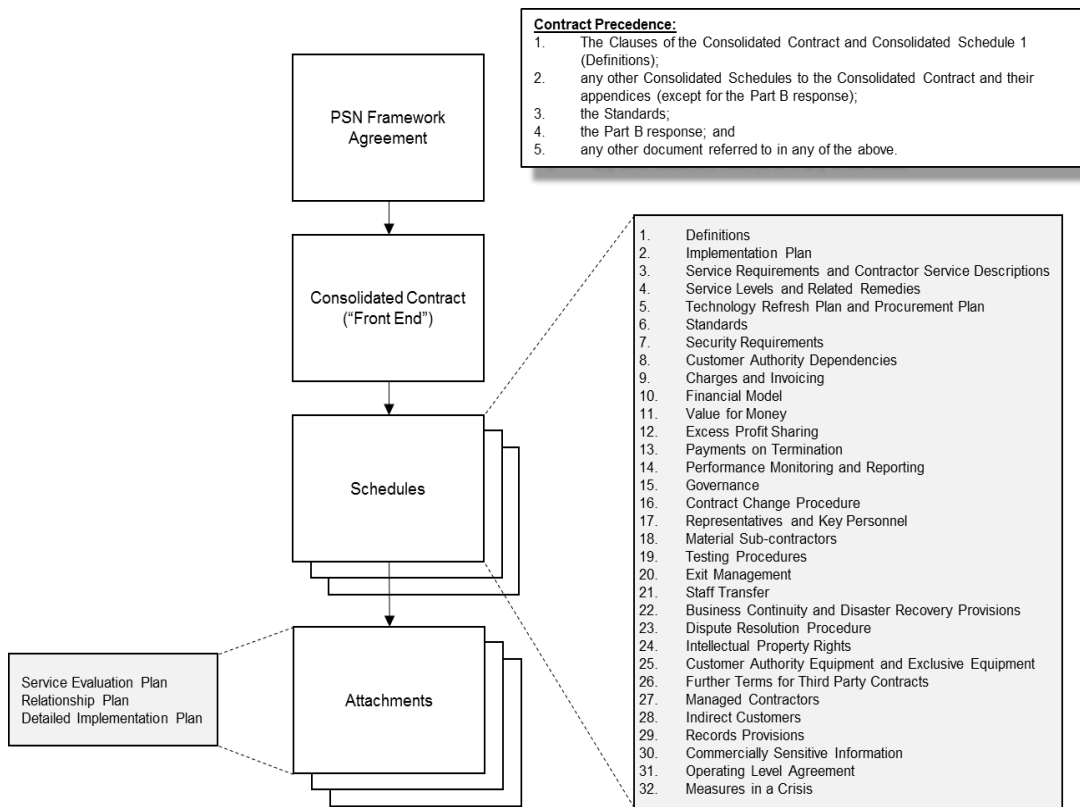


Figure 49: Case Study D contract structure.

10.2.2. Analysing the Contract Spine: PSN Terms and Conditions

The Call-Off contract represents the overarching document that contains the PSN Framework-specific terms and conditions. What must be highlighted at this point is that the structure of Case Study D's binding T&Cs are based on the Crown Commercial's set of terms and conditions, which are narrative-based as opposed to DEFCON based. In this sense, the Case Study D contract is considered to take on a unique structure when compared to the contracts previously analysed. Whilst the contract does replicate the Crown Commercial's Consolidated Contract template structure remarkably closely, the contract has been developed to incorporate the security considerations that are required by the MOD. The contract therefore reflects a hybrid structure, based upon the narrative template provided by the Crown Commercial's PSN Framework, but is tailored to include the essential defence conditions.

From analysing the conditions drawn-up within the core terms and conditions of the consolidated contract (excluding the supporting schedules), it was revealed that eighty nine per cent of the conditions mirrored the Crown Commercial's template identically. The remaining eleven per cent of conditions therefore incorporated some degree of customisation, even if only minor alterations and provide evidence of the tailored nature of the contract, particularly when cross-examined with the supporting schedules, which inputted further customisation (including three DEFCONs within Schedule 6). The analysis of the contract still codes the contract conditions by adopting the same method as in previous case study analyses. However, this chapter will present the findings using a different layout which does not separate the General Conditions (DEFCONs) from the Special Conditions. The logic surrounding this relates to the reasons previously discussed, in that, the hybrid and narrative structure of the Consolidated Contract conceals the ease of identifying the type of condition and therefore a clear distinction of the two for the purpose of discussion is eradicated. Instead, this chapter will present the written contract's observations that were obtained from the coding analysis by treating the conditions as a unified set.

Risk Category	Consolidated Contract Conditions (%)	Risk Sub-Group
Representation Risk (R)	45%	Information Risk: information sharing (i.e. past and actual facts, future cooperation and adjustment of the facts). Commercial Exploitation: IP, Compilation Rights. Relational Risk: inter/intra party risk, supply-chain risk. Communication. Expectations.
Performance Risk (P)	11%	Time Cost Quality
Finance Risk (F)	14%	Price Remuneration Penalties
Contract Risk (C)	30%	Liabilities Breach Termination

Table DD: Percentage of risk categories accounted for in Case Study D’s Consolidated Contract Conditions including sub-categories.

10.2.2.1. Representation Risk

The emphasis on representation risk within the Case Study D contract is comparable to the other Case Studies examined throughout the research. That is, representation risk accounts for the highest percentage of coded risks within the contract (forty five per cent in this case). As already highlighted, the contract does not separate its General Conditions from its Special Conditions, as the Case Study A and B contracts had done, and, likewise, due to the narrative style of the contract, the DEFCONs are not easily identifiable, like they had been in Case Study C. The structure of the contract however does aid readability by separating it into themed sections, which provides some explanation for the clustering of migrations within certain sections of the contract. By way of example, one section titled: “Intellectual Property, Data and Confidentiality” is one that would be assumed to fall within the remit of the representation risk category, since its sole purpose is to account for information risk (a sub-component of representation risk). This themed section of the contract, consisting of information-related conditions such as Intellectual Property Rights, Freedom of Information, and so on, is positioned in the second quarter of the contract (and visually observable in Figure 50). Upon examination of the contract during the coding analysis process, it was unveiled that a significant proportion of the clauses coded as representation risks were informational, as

opposed to relational. Despite this, what becomes apparent is the contribution of information sharing towards the building of robust contracting relations. In addition to this, in practice, it appears less common for a contract to explicitly constrain relationships to written clauses, yet in the Case Study D contract, the Condition stipulating the ‘Relationship of the Parties and Indirect Customers’ appears to enforce relational governance.

As already described, the way the arrows are positioned on the migration map represents two critical risk dynamics. The first relates to the transfer of onus between the contracting parties, and provides a depiction of the relational priorities of the contract. Interestingly, Case Study D’s allocation of representation risk between the contracting parties depicts a much more balanced ratio in terms of the frequency of arrows mapped above the horizon, and those mapped below the horizon (when compared to the other case studies). The closer the ratio of arrows mapped above the horizon to those mapped below the horizon are, the more collaborative the contract is likely to be. The reason for this is that the communication of information is considered to be more open, supporting the establishment of trust and equivalent relational ties between the contracting parties. In this respect, from an initial glance, the contract appears to place a greater focus on collaborative relational ties, or dependencies between the two parties (a feature that can be tested for its accuracy during the interview phase).

In addition to this, Figure 50 also provides evidence of the interconnected nature of those representation risks, a pattern that is in-keeping with second risk dynamic (i.e. the interrelatedness of the contracts conditions). Expanding on this, of all the contracts examined, Case Study D contains the highest number of citations written within all of its conditions (a pattern that can also be observed independently within the representation category). Observing the visual map, a large proportion of the mapped arrows appear to migrate towards the end of the contract spine, where the Schedules are located. Case Study D therefore adds greater contractual robustness by diverting the reader to its Schedules, which contain supporting information to the contracts conditions in much greater depth, and characterises the contract with even greater completeness. The significance of this pattern is that it provides an early indication of the systemic (or interconnected) nature of the risks mapped, as well as indicating the contract’s relatively high degree of contractual completeness (when compared to the previous case studies examined), which is often associated with having only limited flexibility.

10.2.2.2. Performance Risk

Analysis of the written contract revealed performance risks as being the least frequently occurring risk category, with only eleven per cent of the Consolidated Contract Conditions being coded to this overarching category. Despite this seemingly low coding rate within the written contract, the pattern closely replicates the low rate of performance risks that were coded in the prior Case Study C (where thirteen per cent of the GCs were coded as performance related risks, together with only sixteen per cent of the SCs). Observing the patterns visually depicted in Figure 51, the transfer of risk between the two contracting parties adopts a top-heavy structure whereby the migration of risk appears dominant above the horizon, implying that, under the Case Study D contract, the Contractor takes on a greater risk obligation to incentivise the successful delivery of the commissioned services. Of course, this seems sensible when considering the nature and purpose of commissioning services to an external supplier. Observing the migrations of risk depicted below the horizon, the transfers of risk from the Contractor towards the Contracting Authority occur less frequently. Where these do occur, they reflect a dependency between the contracting parties, such as the Contracting Authority's contractual obligation to provide Government Furnished Assets (GFA) to aid the Contractor's delivery of the CRS contract.

The interrelatedness of the risk migrations provide further insight when observing the directional flow of the arrows in Figure 51. Looking at the mapped performance risk migrations, the direction of the arrows travel from the front of the contract spine (where the performance related Conditions are located) towards the back of the Contract. In this case, the majority of the cited Conditions are not contained within the main body of the Consolidated Contract, and therefore reflect an interconnection between the contract's main body and its supporting Schedules. The Schedules to the contract contain a range of themes, yet a large proportion of these can be coded as performance related risk categories at first glance, since they reflect Contractor Service Descriptions, Service Requirements, Service Levels and Related Remedies, Contracting Authority Dependencies, Testing Procedures and Performance Monitoring. The interconnecting of the main body conditions and the Schedules indicates that whilst the main body conditions are based on a narrative discourse, the schedules are incorporated to provide a detached reference point, where greater detail on the specifications of the service and more descriptive performance related information can be found. It also provides some degree of flexibility to the contract, allowing for technical changes to the Schedules to be made, without compromising the core T&C's of the contract.

10.2.2.3. Finance Risk

Finance risk accounts for fourteen per cent of the contract's coding distributions, the second smallest of the four RPF categories. The financial conditions to a contract are incorporated by the contract writer often as a method to incentivise the Contractor to perform its obligations, in return for financial reward (or penalty, if the Contractor fails to adhere to its contractual obligations). This characteristic of the finance conditions is a pattern that assists with the evaluation of the migration mapping tool, in that, where the ratio of transferred risk above the horizon appears to be more prominent (when compared to other case study's finance risk maps) the Contractor may be bound to payment and/or profit capping mechanisms. Where the Contracting Authority imposes these incentivised financial mechanisms on the Contractor, the Contractor is susceptible to a limited financial reward, should risks start to infringe on the contract that trigger these financial penalty conditions. Despite the higher ratio of finance risk mapped above the horizon, a significant level of risk is also transferred in reverse from the Contractor to the Contracting Authority (Figure 52). The rationale for this resides in the predisposition of contracts to allocate financial risk to the Contracting Authority, since it is this party who ultimately pays for the service to be provided by an external supplier. The Contracting Authority therefore absorbs a level of risk under its obligation to pay the service invoices, absorbing on occasion some cost reductions or escalations. Although the payment mechanism may be controlled through a fixed rate agreement, costs may not be fully protected, and the Contracting Authority must therefore acknowledge some degree of finance risk under the contract.

Looking at Figure 52, a number of the conditions within the main body of the contract show interconnected associations. Whilst this is the case, the contract also migrates a significant amount of risk between the core terms and conditions and the contract's Schedules. Like the pattern discussed in 10.2.2.2., the link between the main body of the contract and the Schedules can be explained when observing the nature of the conditions that are interconnected. Providing further detail, the mapped migrations connect with Schedules 9-14, which are finance orientated schedules (i.e. they cover: Charges and Invoicing, Financial Model, Value for Money, Excess Profit Sharing, Payments on Termination). Each of the Schedules therefore act as a reference point for supporting the conditions found in the main body of the contract and offer greater clarity to the contract in terms of its financial terms.

10.2.2.4. Contract Risk

The final risk category to be discussed is the contracts susceptibility to contract risk. Contract risk protects the contracting parties (and overarching contract) from legislative failure, evoking

the requirement to activate essential provisions such as insurances, liability terms and ultimately termination. The Case Study D contract apportions thirty per cent of its risk provisions to the contract risk category, the second most commonly occurring risk category of the four RPFC risks. Observing Figure 53, the visual map appears to comprise of a high frequency of migrations, from across most sections of the contract spine, with more evident clustering occurring in the middle section of the contract. These clusters represent sections of the contract that concern indemnities, liability and insurance, as well as the contract term, termination and exit management, all critical sub-themes that underpin the contract risk category. The transfer of risk between the contracting parties ascertains a greater ratio above the horizon (implying that more risk is placed on the Contractor), yet the ratio between the upper section of the map and the lower section is not wildly disproportionate. That is, a significant ratio of the contract risk transfers, are also returned to the Contracting Authority from the Contractor. What this implies is that both parties absorb responsibility for ensuring that the contract does not become threatened by legislative implications, or termination. Where the Contractor ascertains greater contract risk is regarded as being a product of capped liability clauses and other restrictions set by the Contracting Authority.

Finally, the contract risk visual tool that has been mapped for Case Study D shows high degrees of interconnectivity between its conditions. As already highlighted, there is evidence of clustering around particular sections of the contract which concern the ultimate termination of the contract. The reason for the high citation rate of these conditions is due to their overarching significance, whereby failure elsewhere in the contract will often lead to the ultimate termination of the contract (following remedy attempts). As a result, many of the contract's clauses will make reference to these overarching termination conditions in order to ensure the Contracting Authority may exit from the contract where unsolicited circumstances arise.

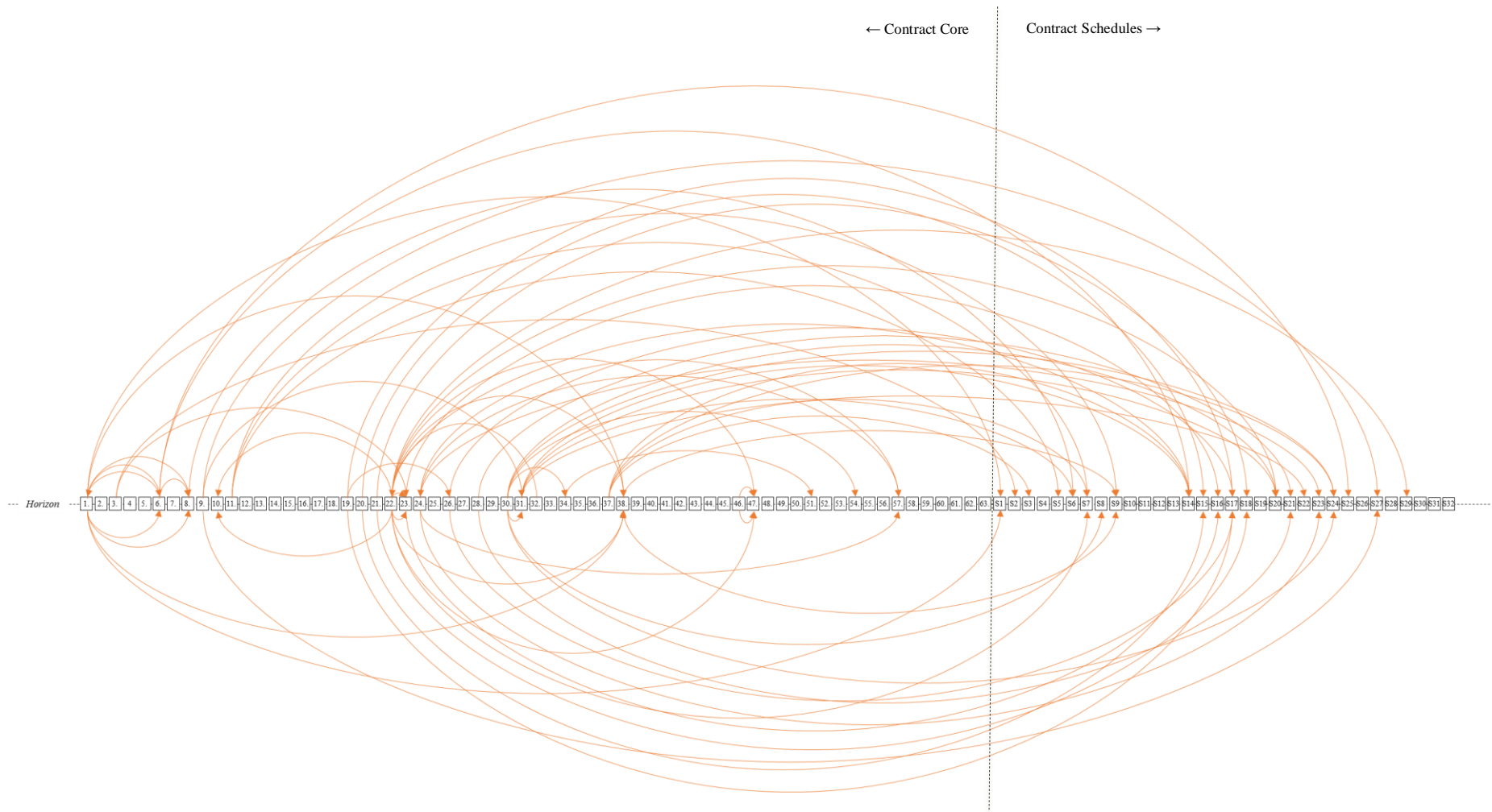


Figure 50: (Above) A map illustrating the representation risk transfers found in the Terms and Conditions of Case Study D.

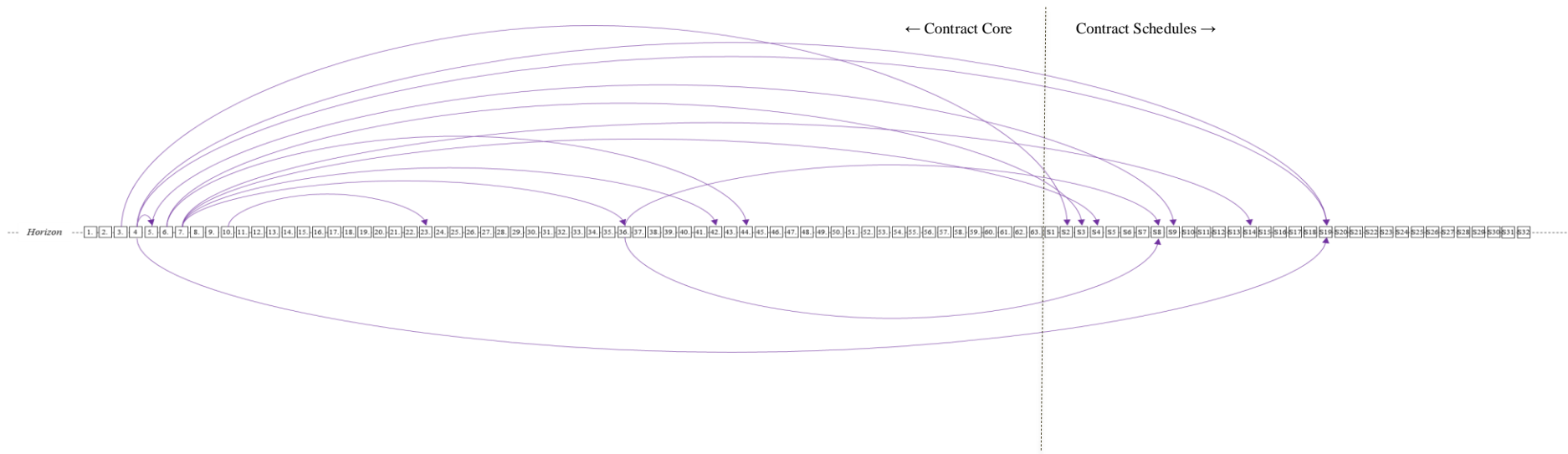


Figure 51: (Above) A map illustrating the performance risk transfers found in the Terms and Conditions of Case Study D.

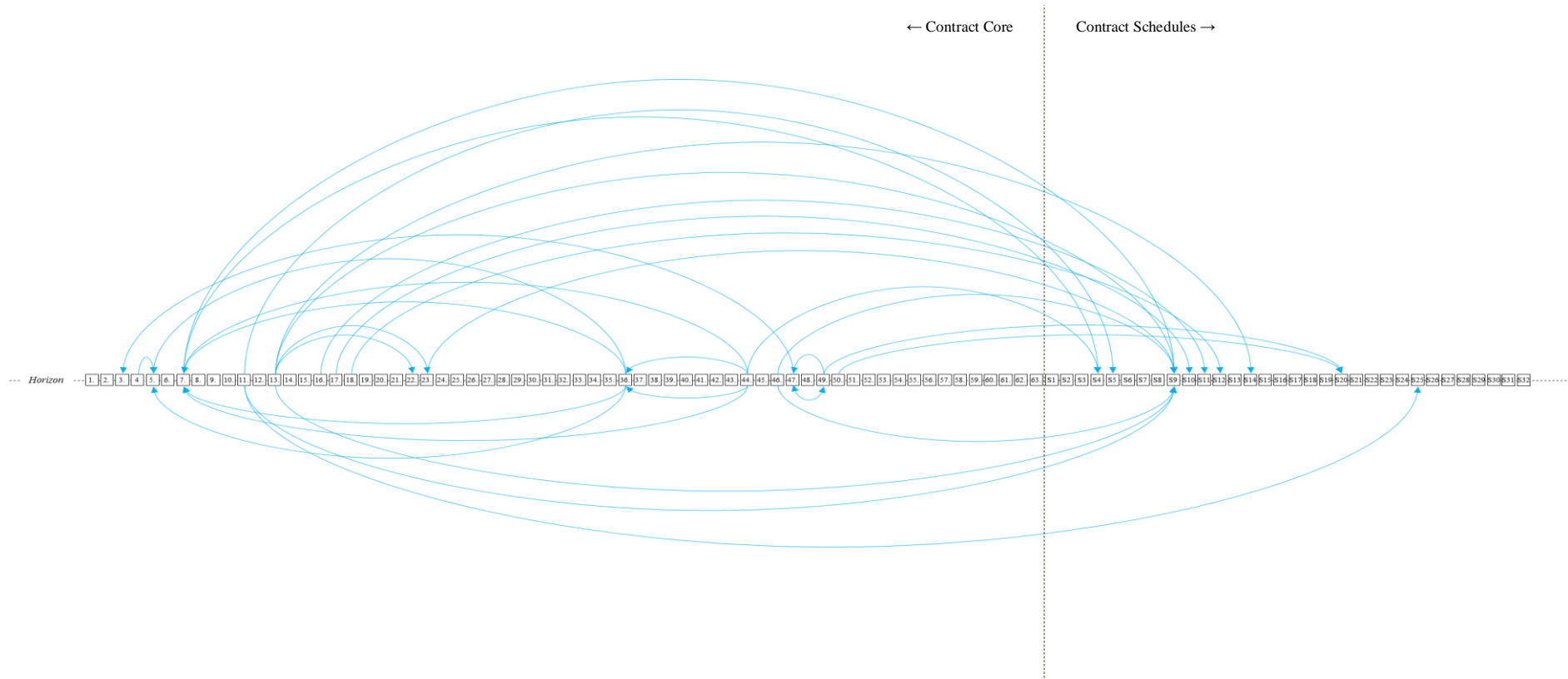


Figure 52: (Above) A map illustrating the finance risk transfers found in the Terms and Conditions of Case Study D.

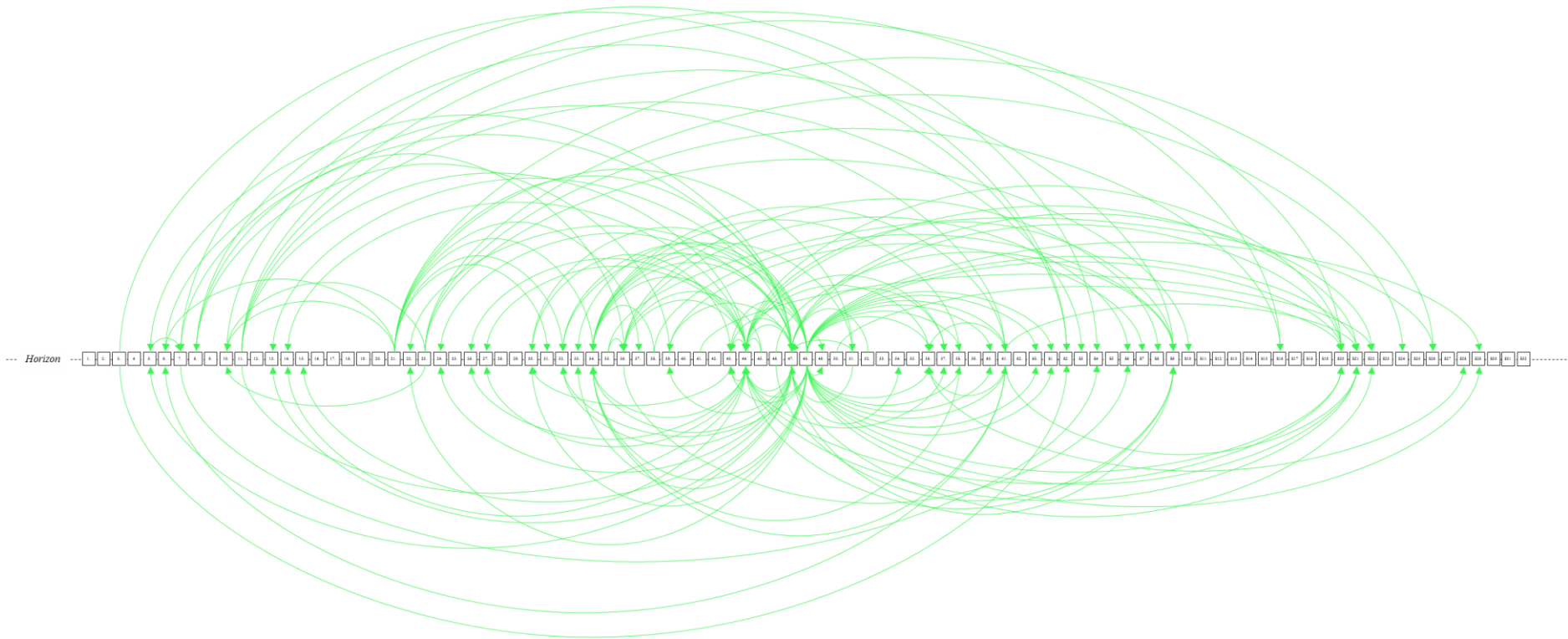


Figure 53: (Above) A map illustrating the contract risk transfers found in the Terms and Conditions of Case Study D.

10.3. Pre-determined Interview Themes

The following section provides a written account of the interview process and findings gathered from the conduction of semi-structured interviews with the case studies key participants. The first component of the interviews examines the responses to the pre-determined interview questions, which produce direct answers. This pre-determined pattern replicates the structure followed during each case study analysis, providing a platform for a comparison of the case studies at a later stage. The questions asked during the interviews follow a chronological structure, beginning with the pre-contract phase and moving into the contract's duration. The final element then considers the relational aspect of the contracting parties in order to enrich the spoken data with further contextual reflections.

10.3.1. Interview Theme 1: Pre-Contract

The first theme to be covered by the semi-structured interviews is the pre-contract phase. As detailed in the previous findings chapters, this element of the interview consists of two broad thematic discussion areas, which contains a series of pre-determined questions (Figure 28, Chapter 8 [Part A]). This section therefore presents the most prominent or frequently occurring thematic responses obtained when conducting this element of the interview. It begins with the initial setting of the contract's specifications, based on the Contracting Authority's idealised outcome, before discussing how the contract and procurement process was structured and implemented.

(a) Specifications

The first area of the Case Study to be addressed during the semi-structured interviews concerns the contract specifications. Like other responses, the Case Study D participants discussed the specifications of the contract in two-fold, either by discussing the technical scope that the entire framework covers, or the commercial priorities of the PSN framework. Participants adopting the technical response to the question provided information about the broad technical services that the Contracting Authority required. The commercial priorities element offered by a number of participants (mostly those adopting commercial roles) described the frameworks overarching operability requirements, and highlighted four key responsibilities, such as: the need to minimise costs, improve quality of service, remain agile and flexible to changing requirements, and deliver quick service response times. In addition to the technical/commercial perceptions of the interview participants, a small number of participants also mentioned the low-level requirements that are specific to the projects running through the framework. In this instance however, the research draws a focus towards the high level framework, since this is the overarching contract that governs the individual project work.

The second component of the specification area of the builds on the contextual description of the specifications gained from the participants by revealing the extent to which the setting of these specifications was negotiated. Not only does this inquisition provide further context into the procurement process adopted by the Contracting Authority, but it sheds light on the level of cooperation that is envisioned to develop between the contracting parties, following bid selection. In this case, the agreed consensus was that the CRS contract was not a negotiated procedure. Whilst some participants were not involved in the set-up of the framework contract (and were therefore not aware of the procurement procedure followed), those who had some involvement during the set-up phase revealed that there was no negotiation on the specifications. The reason for this was that the contract follows a PSN framework structure which contains rigid requirements, as set by Crown Commercial. Although this may be the case, further details submitted by the relevant participants (involved in the set-up) inferred that the Contracting Authority arranged a series of technical and financial workshops with all potential suppliers to discuss the technical matter, financial expectations and any associated complexities or queries. Expanding upon this, whilst negotiations were not prohibited during this set-up phase of the contract's life, the workshops delivered by the MOD customer were identified as being a form of clarification process (or to adopt the correct PSN terminology a 'discovery phase').

(b) Contract Award

The next phase of the semi-structured interviews required the participants to recall details about the contract drafting process, specifically to reveal whether the contract adhered to a standard or customised structure. In this case, because the contract represents a PSN Framework call-off contract, a standard template would be assumed to be implemented to ensure that the suppliers signed up to the PSN, were able to continue benefitting from contractual cohesion. Whilst the Contracting Authority had to satisfy this overarching purpose of the PSN Framework, the contract required a level of customisation in order to satisfy the security-focused requirements of the MOD. To elaborate further, the PSN was first developed by the Cabinet Office to be used by smaller organisations to procure against, and therefore the standard template does not account for the security concerns of the MOD. As a result, the interview participants described how the standard PSN call-off template required some alterations to be made by an external legal service, so that the narrative structure of the framework could be underpinned by the essential defence conditions. On this basis, all participants recognised the hybrid nature of the Case Study D contract, which required substantial legal advice and drafting to make the contract more robust and compliant with defence regulation.

The second pre-determined interview question broached the topic of contract negotiation, specifically whether there was any negotiation of the terms and conditions during their drafting. As already determined, the Case Study D contract follows a formalised bid process and therefore must implement fair procurement opportunities to each supplier. Whilst the relevant participants involved with the contract drafting process made it clear that the procurement was not a negotiated procedure, it was implied that the supplier workshops provided outputs that shaped the contract's design. In addition to this, it was divulged that following the selection of the successful bidder, and prior to the signing of the contract, the drafting process encountered some further amendments to the terms and conditions that were considered to be bespoke to the supplier (i.e. the Contractor's liabilities, price models, dependencies and other related caps).

10.3.2. Interview Theme 2: Contract Duration

The contract duration concerns the operation phase of the contract, following the formal signing and commencement. The semi-structured interview therefore presents a set of questions, which cover the performance of the contract during this time in order to unveil whether the contract is operating in-line with its preconceived expectations. Where a contract shows signs of regular failure or regularly escalated issues, the contract is deemed to be underperforming. This section of the interview therefore aims to reveal whether the contract is achieving its performance goals, and if not, begin to reveal any faults underpinned by poor practice.

(a) Deliverables

Moving onto a discussion surrounding the duration of the contract, the initial theme discussed related to the nature of the deliverables imposed on the Contractor. All participants highlighted that the Contractor was required to deliver the technical outputs detailed in the Statement of Requirement, in order to satisfy its delivery obligations. The technical aspect is underpinned by a delivery schedule, describing the Computer and Related Services that the supplier is expected to provide, which in the case of Case Study D comprises a collection of interconnected CRS components. In addition to this, a number of participants also identified the Contractor's performance related deliverables set by the Contracting Authority. This aspect concerns the Contractor's provision of measurable performance information to the Contracting Authority, which provides evidence that the Contractor is managing the contract effectively (i.e. in terms of managing risk, managing change and organic growth). Leading on from this, the second element of the discussion on the topic of deliverables concerned the way in which the identified deliverables were measured and safeguarded by the parties. Already it

has been revealed that the Contracting Authority has imposed performance management deliverables on the Contractor which require monitoring and recording. This process was described as being managed through a baselined schedule, which comprise of a number of milestones. Each project under the framework follows its own pre-conceived, or baselined schedule which is reviewed every two weeks by the Contracting Authority in order to assess any milestone slippages. The regularity of the review processes appear to be a restrictive process, made even less flexible by the payment incentives or penalties that are attached to the milestones.

The final aspect covering the deliverability of the contract prompts a discussion that aims to reveal where failures or problems associated with delivering the contract have emerged. Whilst the participants agreed that on the whole, performance in terms of reaching the deliverables was good, the most commonly referenced issue relates to the contract's dependency management structure. The way that the construct is structured requires the accumulation of a range of independent contracts covering different aspects of CRS, provided by different suppliers in the private sector. The framework however is based on the premise that these CRS activities must align and therefore implements a dependency expectation on the Contractor to recognise its dependency on other suppliers, as well as its dependencies with the Contracting Authority. In this case, dependencies have to be carefully managed and are recognised by the participants as being restrictive to the contract where a service is dependent on the implementation of another CRS component, which has been contracted to be delivered by another industry supplier. As a result, participants describe slippages in timeliness of delivery as a result of such dependencies on other industry suppliers associated with the programme. The second area relates to the Contractor's ability to manage change. This was primarily addressed in terms of the change in the procurement construct from the precursory contract, to the re-let contract which brought in a multiple service provider dependency structure (as previously discussed). In addition to this, change was also mentioned in as imposing problems from the change in technical requirements, which have been particularly high in occurrence and have placed time pressures on the contract (in terms of the time taken to approve and implement such amendments). Finally, one participant mentioned the transition between the precursory contract to the new contract as being a challenge which caused delays to the commencement and resulted in the requirement for redefining the schedules for various project deliveries.

(b) Performance

The key performance themes were identified by the participants to be predominantly time and cost related. Despite this, quality was perceived as being important to the service being delivered, however it was described by one participant in particular as being an afterthought of the contract, following time and cost priorities. Time and cost were considered as working hand-in-hand, reflected in a 'time is money' opinion that was held by a number of participants. In keeping with this, it was further recognised that the quality of the service output sometimes slips as a result of the time-cost balance. Having identified time and cost as the performance related priorities of the Case Study D contract, the second question covered by the semi-structured interview probed the participants to reveal where they felt risks had emerged that inhibited the performance of the (time and cost) objectives of the contract. Dependency management was mentioned again, since this was perceived as being a risk that caused the contract's timelines to shift to the right, delaying the contract. Likewise, the number of changes to the contract specifications was also highlighted as having an impact on the contract performance, in respect of both time and cost. Technological contracts, like that of CRS are susceptible to change since technology is always developing. Participants acknowledge this, yet identify change to have been even more prevalent as a result of time delays between setting-up the contract and its commencement, which resulted in changes in technology or specification advances during that time period. Where changes were initiated, the time taken to implement these within the formal terms of the contract caused further timeline delays, reducing the cost savings as a result. An additional risk acknowledged from the supplier side of the contractual interface related to performance problems that were caused by limited resources, which was identified to exacerbate the supplier's ability to meet the scheduled timelines.

Despite the occurrence of performance related risks, when the interview progressed towards the topic of the suppliers overall performance, the participants agreed that in general the supplier was performing well in terms of their delivery of the service. Whilst this was the general opinion amongst participants, they each acknowledged that there was further room for improvement. In addition to this, another public sector participant highlighted that whilst the delivery of the core services were good, the transitioning of the new contract from its precursory contract was not performed well.

10.3.3. Interview Theme 3: Contractual Relationships

The final element of the semi-structured interview covers the relationships that both support and are supported by the Case Study D contract. This portion of the interview covers the

behaviours and interactions that have emerged as a repercussion of issues in the set-up or duration of the contract, but may also act as a stimulant to derivation of contractual problems. The following sub-section covers these themes, by framing the interview into two categories: the overarching corporate relationship, and, the personal relationships.

(a) Corporate Relationships

The corporate relationship between the two contracting parties was described by participants as being long-standing and participants recognised that the private organisation also maintains other contracts with the MOD, implying that both organisations have both historic and current experience in interfacing with one another. When asked explicitly to describe the corporate relationship between the two parties, all participants bar one stated that the relationship was good, with some participants expanding on this by acknowledging that they have heard cases where the relationships have become strained at points in time. In addition to this, one participant took the stance that the relationship within the Case Study D contract was tense, however this was a repercussive effect of issues relating to the performance and associated behaviours of the contracting parties.

(b) Personal Relationships

The personal relationships that interplay between the buyer-supplier interfaces in a contract are what shape an individual's perception of the overarching corporate relationship. The personal component of the relationship therefore aimed to unveil whether there was any rapport developed between the key personnel involved in running the contract, and their counterparts. In all cases, the participants mentioned that they had regular, often as frequent as weekly communication with their contractual counterparts, which demonstrates that a collaborative relationship has been formed between the Contracting Authority and Contractor. To provide further evidence of this, the participants described the rapport built between the two interfaces as being strong and professional, to the extent that it assists with the resolution of any issues, should they arise. Where issues have arisen, the participants described the resolving of that issue as being a collaborative engagement where compromised outcomes were achieved. The contract therefore appears to encourage the sustainment of collaboration, not only influenced by the corporate perceptions of the organisations amongst the contract's key personnel, but in the way that these relationships are approached and facilitated by the contract.

10.4. Emergent Interview Themes

The emergent interview themes represent the derivation of perceptions taken from the interview sample, which were not alluded to through the use of semi-structured questioning techniques. Following the same structure as the proceeding case study finding chapters, the following section aims to present the emergent themes that were divulged naturally from the interview participant's own prioritised thought processes. That is, the important topics that each participant felt the need to impart to the interviewer when presented with the opportunity to discuss the Case Study D contract.

10.4.1. Emergent Interview Themes: Representation Risk

10.4.1.1. Relational Risk

The most prominent of the relational risks to emerge during the interview discussions surrounded the way in which the Case Study D contract incorporated dependency management between the two contracting parties. Dependency management is a theme that was positioned by a number of participants as being a response to the semi-structured interview questions (see Section 10.3.2.). In this sense, it is a theme that resulted from pre-conceived questioning, rather than as an emergent theme. Despite this however, some participants did discuss dependency management completely unprovoked by the semi-structured questions on occasion, often to emphasise the importance of this theme throughout the interviews.

Primary Risk	Sub-Theme(s)
Relational risk: (Internal relationships / buyer-supplier relationships.)	Dependencies. Interfaces (internal / external).

Table EE: Case Study D, relational risk and sub-themes.

The relationships constructed under the contract were discussed in the final section of the semi-structured interviews, and were identified as being good, collaborative interfaces between the Contracting Authority and the Contractor. On a number of occasions, some participants diverted the conversation to discuss the internal interfaces between the Contracting Authority's key personnel. What arose during these conversations was that there

had been instances where the relationships were strained as a result of staff turn-overs at different stages in the commissioning lifecycle. In particular, participants who were on-boarded for the main duration phase of the contract, with no prior involvement in the set-up phase, associated faults in the front-end management of the contract as contributing to failures in the contract duration. In addition to this, the experience of the project management personnel tasked with setting-up the contract was also spoken of by the same participants as being too ‘generalist’, and that the contract would have benefitted from the expertise of specialist technical staff from the project’s inception.

10.4.1.2. Information Risk

During the interview analysis, the risks identified as being related to information risks appeared to mostly consist of satisfied statements. In other words, where topics concerning the transfer of information was mentioned in passing by participants, in almost all cases, the action of sharing information between the contracting parties was perceived as being satisfactory. Where criticism did arise was where a participant discussed the transition phase between the precursory contract and the setting up of the new CRS contract (identified in Table FF as an ‘information sharing’ sub-theme). In this instance, the participant discussed how the sharing of information during the requirement’s conception stages could have been managed better and that the existing information surrounding the complexity of the service was not accounted for by those tasked with scoping the project. What this resulted in was various delays and complications during the early set-up of the contract, resulting in further time pressures to pervade on the contract’s duration.

Primary Risk	Sub-Theme(s)
Information Risk	Supply of information.

Table FF: Case Study D information risk and sub-themes.

Further factors associated with the supply of information were discussed by another public sector participant. Linking to the issue already mentioned, what was identified by one participant was the slow rate of informational transfer through the internal organisation, together with a hindered understanding of the contract’s intent among senior personnel. Where

the supply of information is restricted by understanding from the top level, the rate of information supply across the internal personnel is likely to be negatively affected.

10.4.2. Emergent Interview Themes: Performance Risk

The emergence of performance themes provide the researcher with additional insight into the real outcomes of the contract as it progresses through inception towards its day-to-day functioning. The previous discussion of performance related interview themes were those that directly probed the participants to discuss the contract’s performance themes. Whilst these were briefly discussed in the previous section (Section 10.3.2.), a number of additional themes emerged at different points during the interviews. The most frequently occurring of these performance related themes was that of time, not only in terms of the time taken to approve and action frequent contract change (see Section 10.3.2.), but also as a result of delays that originated in the projects’ front-end. In particular, participants discussed the transition between the old and new contract as being particularly time consuming, to the extent that it is still ongoing (due to be implemented fully during 2019). The explanation given to the delays that materialised in the early stages of the contract was described as being due to a combination of internal boundaries relating to the MOD’s slow governance processes, the over-optimistic behaviours of the front-end managers and limitations in the supply of up-front information (see Section 10.4.1. above).

Primary Risk	Sub-Theme(s)
Performance Risk	Performance themes (i.e. time, cost, quality.) Contract management.

Table GG: Case Study D performance risk and sub-themes.

The management of the contract is an aspect that prevails from the contract set-up, right up to its dissemination. Since Case Study D represents an on-going contract, the emerging discussions held with participants that were associated with this sub-theme concern only the set-up and current duration of the contract, from the point of commencement up to the date of the interviews. Given the participant’s focus on time delays in the prior segment of discussion, the contract management theme appears closely related. Indeed, participants associated the originating cause of the contract’s time-delays to be a result of poor front-end management.

Following this logic, the time delays associated with the duration of the contract were then identified by the participants as having a separate cause, namely, the frequency of change to the contract’s technical requirements. Whilst both of these represent factors that have contributed to time-delays, both are considered as being closely related to optimism bias and poor planning during the transition from the precursory contract to the new contract. As a result, it was thought that the contract could have been managed more effectively from the start. Whilst this may be the obvious solution to the problem identified by participants, further implications concerning the resource management choices made by the MOD also became evident. The changing of personnel part-way through the contract represents one further management mishap to have further implicated the smooth-running of the contract. Where changes to personnel occurred, participants identified the change to have placed additional pressures on staff as they attempted to implement a smooth transition. What resulted however, was additional demands on the existing teams to hand-over a complex workload over a constrained time-frame, causing further complications (and lost information) during the staff turnover phase.

10.4.3. Emergent Interview Themes: Finance Risk

The emerging interviews covering the finance risk category cover a range of sub-themes that were alluded to by the interview participants. Overall, whilst four sub-themes were identified as representing divisible finance topics (Table HH), the sub-themes relating to funding and profitability merely signify discussions that clarified the role that these play on the contract. The most crucial emerging themes relating to risk were therefore the conversations regarding the payment and pricing decisions made under the contract.

Primary Risk	Sub-Theme(s)
Finance Risk	Funding (budgets). Profitability. Payment. Price.

Table HH: Case Study D finance risk and sub-themes.

The emerging themes surrounding payment were related to the rigidity of the contract, in terms of the payment mechanisms enforced on the Contractor. Unsurprisingly, the participants that

mentioned issues with the payment procedures were all private participants. The topic of payment is an aspect of the contract that is always likely to be contended, with the Contracting Authority preferring rigid incentive schemes and caps to protect overspend against the Contractor's desire to maximise profitability. Therefore, where a rigid payment mechanism is implemented such that payments are tightly vetted, it would be considered unlikely for the public sector interview participants to raise concern. On the other hand, the private participants revealed that the payment mechanism was far too restrictive, to the extent that it placed unnecessary pressure on the Contractor's cash flow. The restrictive payment mechanism employed by the contract was identified by the participants as being a new feature of the contract, which implemented a 'fix now, argue later' philosophy. Whilst this approach is practical for the implementation of the CRS contract, it places additional cost pressures on the Contractor who is expected to fix problems with the service as they arise, with no immediate promise of payment from the Contracting Authority.

Another issue associated with this 'fix now, argue later' incentive is the associated costs of implementing this approach. Participants referred to an estimation failure in terms of the cost of resolving the faults associated with the precursory contract, to a state where the service was able to operate without fault (the time period referred to in this instance represents the mobilisation of the contract, that is, the essential infrastructural checks and implementation procedures required prior to the contract commencement). Such costs were unanticipated, since these were originally expected to have been resolved by a previous Contractor, and therefore represented an additional cost to the contract when undertaken by another supplier (made more costly by the restrictive timeframes for which this activity required completion).

10.4.4. Emergent Interview Themes: Contract Risk

The contract risk category is one that pervades a substantial proportion of the Case Study D contract, particularly when observing the visual mapping of the risk category (Figure 53). The high level of migrations in the written contract appear to bear a close correlation to the first sub-theme that arose out of the interviews as an emerging theme. Given the high frequency of migrations mapped by the visual tool, flexibility of the contract would be assumed to be fairly limiting, that is, the highly narrative structure requires the contracting parties to adhere to a detailed (and therefore numerous) set of contractual obligations. From the Contractors perspective, the framework limits the flexibility of the contract, particularly in terms of the performance requirements and deliverables. Whilst this is the case, the contract is not limited in terms of the Contracting Authority's ability to make changes to the contract.

Referring to the second key theme in Table II, an important contract risk to have emerged from the interviews was that, whilst the contract does not provide flex on the specified terms and conditions, the contract enables flexibility in terms of technical contract change. Case Study D represents a contract that is underpinned by a requirement for technological innovation and is therefore subject to change during its through-life as technology becomes increasingly advanced. Observing the written contract, the contractual clauses account for such changing technological requirements through incorporation of the Contract Change procedure. However, whilst changes to the services to be delivered are anticipated by the clause, its shortfall resides where the contract experiences change in significant proportions. Furthering this, the interview participants confirm that a large volume of change has occurred to date, the quantity and scale of which was not foreseen during contract set-up. Change to the contract is managed through a complex procedure, requiring various approval escalations which are time consuming and result in the contracted service being frozen for a period of time. Delays caused by internal approvals and scrutiny processes impact on the performance of the contract, where new progressive technologies take time to be implemented and milestone dates are not hit by the supplier.

The high level of change approvals to the service requirements of this particular case study were once again identified by participants as relating to the personnel responsible for the contract set-up, who were considered as not being suitably experienced. The front-end management team were described as being generic project managers and were therefore limited by their technical knowledge. Without such technical knowledge, the technical complexities associated with CRS requirements would fail to be considered in sufficient detail. It is therefore thought that had greater attention been allocated to the selection of appropriate technical personnel, then the necessity for contract change would be significantly reduced.

Primary Risk	Sub-Theme(s)
Contract Risk	Flexibility. Contract change.

Table II: Case Study D contract risk and sub-themes.

Contract change is a sub-theme that also encompasses change in terms of the structural change that occurred during the transition from a precursory contract, to one that was based upon an

entirely new framework structure (i.e. the PSN Framework). Whilst change in the transition from one service contract towards a new, re-procured contract is expected, if careful management is overlooked during the pre-procurement stages of the new contract, or if the structural change applied incorporates an untested contractual mechanism then the Contracting Authority must warrant that structural change and manage the consequences. Case Study D implements structural change by fragmenting the services previously delivered by a single supplier, into a structure that relies on the supply of CRS via more than one supplier, each governed by identical contract terms and bound by an overarching Framework Agreement. Evidence provided in the interviews suggests that fragmentation of the services into two separate providers was done fairly and in the interest of achieving technological innovation that satisfies the government's value for money incentive. However, whilst this aligns with wider defence strategy, repercussive risks have been acknowledged to have challenged the operability of the contract, both in terms of time delays and the associated behaviours that result from huge structural change.

10.5. Summary

The evaluation of Case Study D enables the research to identify cause and effect patterns across two data sets. From the examination of the written contract, what has become evident is the inability of the ex-ante contract to mitigate ex-post risks due to shortcomings in the front-end management of the contract, and how these are translated and safeguarded in the formal contract. Whilst the contract is structured using a hybrid contract (based on a standard template yet customised using narrative conditions), it sets poorly qualified expectations through the misaligned time schedules set for the service to be delivered. In-depth knowledge of the processes and time allowances required when setting up complex technical services appear to have been underpinned by the choices made in the front-end's resource management, resulting in an optimism bias which transcended throughout the duration of the contract. Had the front-end of the project been sufficiently managed, then the avoidance of early contract risk may have been mitigated. In-flight changes to the formal contract have been stimulated by the inadequate management of the front-end phase, a risk that has caused considerable time delays to materialise under the contract, due to the time spent amending the documentation and even more so, the time taken for the relevant level of approval to be processed.

Though the contract reflects its overarching incentive for enhanced collaboration between the contracting parties, collaboration in this instance is stimulated through a substantial reliance on inter-party dependencies. Whilst dependencies that are provided for in the contract and

subjected to its terms and conditions provide greater opportunity for collaborative behaviours, a careful balance is required. If the contract becomes reliant on dependencies, then where performance delays occur in one element of the contract, it may have a direct knock-on effect to other elements of service delivery. Where this occurs, the contract may be frozen and therefore delayed, requiring further changes to the contracts time-schedules and specifications.

Furthermore, as with Case Study C, the contract represents a continuation of a large public sector service contract. As a result, a considerable amount of structural change appears to have materialised under the construct, which would have benefitted the contracting parties, had such change been warranted prior to implementation. In addition to this, the analysis reveals important contextual information relating to the fragmentation of the precursory contract, which was divided into smaller components prior to re-competition. Such separation of a previously unified service contract can be considered to be a risky strategy, capable of causing unnecessary challenges to the ensuing operability of that contract.

CHAPTER 11

TRIANGULATION & DISCUSSION

11.1. Introduction

The results of each case study analysis have previously been presented in the findings chapters of this thesis (Chapters 8-10). This chapter aims to first draw together the key findings developed from the in-depth analysis of each case area of the commissioning services matrix. The key findings derived during the independent analysis of each case area will then undergo triangulation in order to reveal any commonalities that exist across these three case areas. Following the implementation of a robust set of triangulation techniques, the derivative key themes will undergo further discussion and justification through consideration of extant practice and theory in Section 11.3.

11.2. Triangulating the Findings

At this stage, the triangulation phase of this research will not extract information from each of the four case studies, but will derive its key findings from the three commissioning services case areas. The reason for this sampling choice is that the Science and Technology Service case area comprises of data collected from two independent case studies, whereas the Health and Social Service and Computer and Related Service areas each consist of single case studies. To align these data sets, so that each case area consisted of a single representative data set, Chapter 8 (Part C) triangulated both Case Study A and Case Study B's independent findings in order to enable the case areas to be easily cross-examined at this later stage in the research process. Having extracted three complete sets of data for the three commissioning services case areas, the final step is to triangulate the findings extracted from each case area in order to identify any commonalities that may exist within the broader service commissioning realm. Where thematic similarities are found to exist between the case areas, these themes will indicate cross-case patterns of risk (or overarching risk themes), since these represent themes that have emerged consistently, despite the contextual differences of the case areas. By identifying pattern commonalities between three representative service commissioning data sets, the research may then proceed with an in-depth discussion and theoretical framing (i.e. consideration of the findings relative to existing academic theory, government policy and guidance) of these findings in order to answer the research questions which both underlie and motivate this research thesis.

11.2.1. Phase 1: The Typology Position of the Case Areas

To initiate the triangulation of the three case areas, a typology position matrix can be constructed as a way of providing a visual comparison of the contextual differences between each case area (Figure 54). The purpose of this phase of the triangulation is to recognise the differences, as well as the similarities between each commissioning service area examined in terms of value, complexity, risk and duration of the contracts examined.

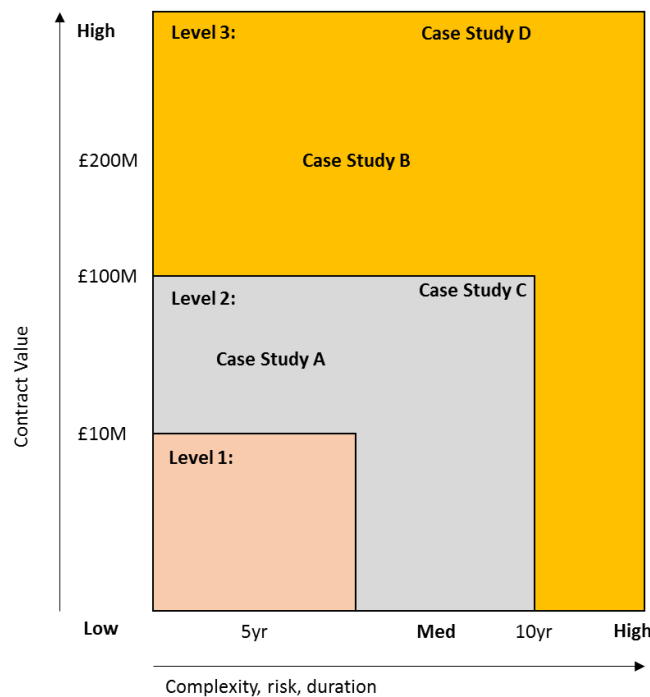


Figure 54: A typology position matrix containing all four case studies (adapted from the MOD's baseline contract management standards.)

By observing the typology matrix, it can be deduced that the duration of the contracts vary from a term stipulating a maximum of 5 years, to a maximum 10 year term (inclusive of an option for extension). Likewise, the case studies vary in value from a contract value of circa. £50M (as in Case Study A) to a maximum value exceeding £300M (Case Study D) over the full duration of the terms. By plotting each of the four case studies onto a typology position matrix, a fuller picture of the breadth of commissioning service areas examined can be identified. Whilst this provides a visual aid for understanding the contextual features associated with each case study/case area, the typology position matrix depicted in Figure 54 may merely be used as a tool for comparing the high-level characteristics of each case area.

For example (in this case), it can be deduced from the data set that the maximum contract duration is 10 years, with a value significantly greater than £300M, and that this differs from the other case studies. The notion that each case study represents a contract (or project) that differs in value or duration is intentional, since if there was no variety in the data sample, it would not be reflective of the breadth of service areas commissioned for in the defence sector. Such variability therefore evidences how the contracts examined may be representative of contracts commissioning for high value services, which are long in term or for any other possible combination of components.

At this point it is worth noting that this chapter intends to present the triangulation of the three case study areas (see Section 11.2. for the rationale supporting this choice). Therefore, though the plotting of each case study onto a typology matrix provides some benefit, it is not entirely reflective of the case study areas (rather it plots the independent case studies). However, what it does depict is likelihood that case studies within a case area will vary in their core attributes. To provide an example, Case Study A and Case Study B both reflect Science and Technology Service contracts. Whilst the two case studies are bounded by their service type, they vary considerably in their contractual facets. It must therefore be highlighted at this point that the case areas will comprise of contracts that vary in size (in terms of value and duration). In addition to this, it must be noted that complexity (a variable located on the horizontal axis) has not yet been discussed. The reason for this was highlighted in Chapter 7 (Section 7.3.1) where it was proposed that plotting the case studies by their level of complexity would pose a challenge, since the complexity of a project represents a subjective measure, making it a challenging variable to plot. For this reason, plotting an accurate typology matrix to illustrate the distinctions between each service commissioning case area poses a challenge. Instead, it is thought that the refined case area matrix developed in Chapter 7, Section 7.3 (reproduced in Figure 55) should instead be referred to when illustrating the differences between the case areas to avoid confining them to a generalised (and inaccurate) set of assumptions.

	Support Services	Common Enabling Services
Non-Specialised Services		Computer & Related Services (CRS)
Specialised Services	Health & Social Services (HSS)	Science & Technology Services (STS)

Figure 55: A matrix depicting the three service commissioning case areas examined.

The within-case findings presented in the earlier chapters reveal a number of emergent risks to have infiltrated the contracts. With this in mind, it becomes apparent that contracts of any size (in terms of value, complexity and duration) may be susceptible to risk. A service area is comprised of numerous contracts, which vary in size. If these contracts become susceptible to their own independent risks encountered in their day-to-day operation, the service area will be affected by these risks. Considering this on an even larger scale, where the service areas are affected by risk, then the entire commissioning service function, comprised of each service area will also be influenced by the risks encasing its subcomponents. To gain an enhanced understanding of the nature and type of risk in this instance, the case areas must undergo triangulation in order to reveal the commonalities (in terms of patterns of risk) that may exist between the service areas. This will be conducted in the following subsections through the implementation of a cross-case forced pairing comparison, followed by the juxtaposition of the case components.

11.2.2. Phase 2: A Tri-Comparison of the Case Areas

As previously highlighted, the case studies will from this point be analysed as case areas, for which there are three. Since three case areas denote a relatively small sample size (yet these samples are comprised of significant supportive data) a tri-comparison of the key findings extracted in Chapters 8-10 will be undertaken. By undertaking a tri-comparison of the key themes derived previously from the three case areas, and tabularising these themes, Table JJ can be constructed. The tabularised themes represent the high level risks that have emerged from the analysis of each case study, within each case area. By cross-referencing the themes presented in the table, a number of strong commonalities can be observed and identified in the themes relating to: (1) changes to corporate landscape, (2) management of the project set-up (incorporating the front-end and mobilisation of the projects), and, (3) relational dependencies/collaboration.

STS:	HSS:	CRS:
Sub-optimal collaboration.	A shortened contract mobilisation phase.	Unrealistic foresight in front-end loading.
Resilience to corporate landscape.	Accuracy of throughput estimations.	Sub-optimal resilience to contract change.
The existence of a mobilisation phase.	Resilience to internal corporate change.	A significant reliance on dependencies.

Table JJ: A tabularised comparison of the three case areas.

This forced grouping of the three case areas represents a simplistic approach to comparing the results. To further develop the research using cross-case triangulation, the research must proceed with a juxtaposition of the case areas. By adopting a juxtaposition strategy, the case areas will be analysed to highlight the similarities and differences between the case areas, breaking any simplistic frames. The detail surrounding these patterns will then be discussed in depth in Section 11.3.

11.2.3. Phase 3: Juxtaposition of the Case Area Findings

The previous subsection to this chapter discussed the comparisons made between the case area findings. The table presented in this section illustrated how these findings bear close similarities in terms of their prevailing themes, yet still maintain subtle differences in the context underpinning these themes. In order to manage the triangulation of the data, the findings may be consolidated into thematic groupings, which will aid the discussion in the following section of this chapter. Prior to this however, these thematic groupings will first undergo a juxtaposition into their three components, as illustrated in Figure 56. Presenting the components to each case in this way provides another tool for ensuring the triangulation lends towards a well-considered understanding of the phenomena (by observing the data through a new lens).

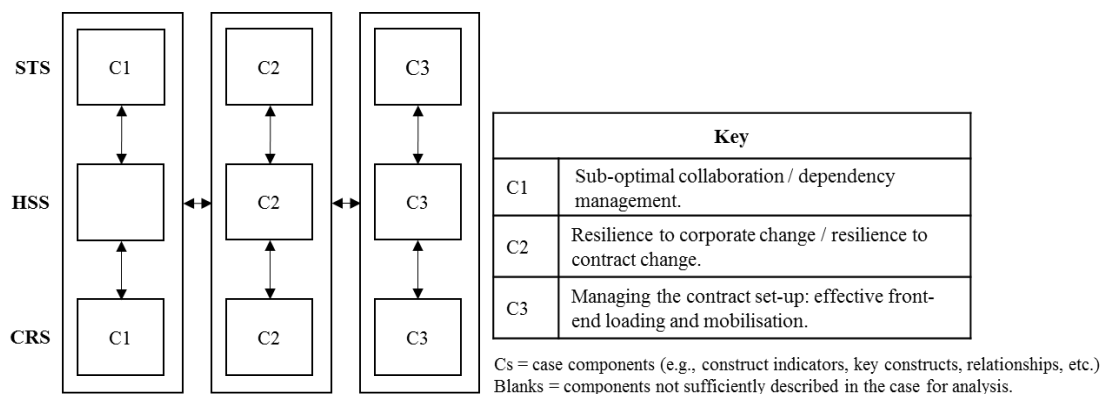


Figure 56: Juxtaposition of the three core themes derived from the within-case analysis of the three case areas.

Figure 56 reveals (and further confirms) the extent to which the three commissioning service areas exhibit thematic similarities in their findings, and signals which of the themes are more or less significant, based on their frequency of appearance. In this case, it can be deduced that the most commonly occurring themes are Components 2 and 3, which appear as prominent

themes in all three of the case areas. Component 1 on the other hand, appears in two of the three service commissioning case areas. Despite the lower frequency in its appearance, Component 1 still remains a significant theme within the research findings, however it must be recognised that its significance must be reflected when compared to the other two thematic components.

11.3. Theoretical Framing and Discussion of the Triangulated Findings

The following section aims to provide an in-depth discussion of the three core components derived in Section 11.2. Accordingly, each section will present as one of the three core findings in order to build knowledge of that component independently, prompting an exploration of its underlying themes and providing some explanation for the patterns identified, backed by robust theoretical concepts and existing guidance from practitioner reports and formal documentation (such as government policy and white papers, official reports, and so on). The first component relates to the collaboration and dependency management of the case areas, a theme that emerged within two of the three case areas. Though its thematic prominence is less recurrent than the other two core findings, it reflects a theme that has reappeared consistently within the written and spoken evidence and must therefore be granted some attention.

11.3.1. Component 1: Contractual Collaboration

The first theme emerging from the triangulation of the case areas suggests that the collaborative forms of contracting in the defence service commissioning sphere are not operating as intended. This section therefore begins with a problem that has been identified as a prominent and recurrent theme during the research analysis process. Acknowledging the problem, the following section will provide an in-depth discussion of the theme through the application of a combination of primary evidence, together with existing theory and practice to better understand the problem. Specifically, the common definition of the term ‘collaboration’ will be presented in order to highlight the common meaning of the term. By applying the definition to the existing context, it is envisaged that the current affordances and/or shortfalls in collaborative contracting within the defence sectors service commissioning practice may not only be revealed, but framed by existing conceptualisations. This section will therefore aim to explore the purpose of collaboration in contracting, whether the constructs adopted in current practice achieve their intended purpose, and, whether the adoption of the contracting methods employed pose any risk to the commissioned project and wider defence area.

11.3.1.1. Defining Collaboration

Collaboration was a theme that emerged during the analysis of a number of the case study contracts examined, prevailing as a particularly dominant pattern in the STS and CRS case areas. The Cambridge English Dictionary defines the term ‘collaboration’ as: “the situation of two or more people working together to create or achieve the same thing” (Cambridge English Dictionary [online], 2018). Considering this definition, collaboration (if achieved) is assumed to be an advantageous process which aligns the views of the individuals (or actors) involved, enabling a common goal to be reached. Examining the definition further, it appears to comprise of two interrelated facets. The first part of the definition: “the situation of two or more people working together” relates to the development of sustainable relationships between the key actors involved. The second component: “to create or achieve the same thing” relates to the alignment of measurable aims or goals between those actors. Whilst the definition may be separated to achieve a greater understanding of the term, it must be noted that the definition must contain both components for it to fulfil its usage. Expanding on this, what must be made explicit is that a common aim between separate individuals, teams or organisation cannot be achieved without the support of strongly aligned relationships. Alternatively, the act of people working together is only practical where those actors have been incentivised or motivated to deliver a common aim. Viewing the components of the definition in this way demonstrates how the two must be recognised and considered in equal measure.

11.3.1.2. Enforcing Collaboration: The Framework Agreement

Before we discuss whether the public sector (with particular focus on the defence department) satisfy the full definition of collaboration when procuring for its common enabling services, the research must first confine the discussion to focus solely on a particular type of contracting mechanism, namely ‘Framework Agreements’. The rationale supporting this focus is grounded on two lines of logic: firstly, the finding was deduced from the examination of three Framework Agreements, and secondly, Framework Agreements are considered to have been adopted by a high proportion of public sector bodies for facilitating collaboration between the public and private sectors (NAO recorded the figure as being ninety-three percent in 2008/9, [NAO, 2010; p. 5]). For definitional clarity, frameworks represent agreements which enable buyers and suppliers to establish a set of terms that govern the contracts that may be awarded during the life of the overarching agreement. Whilst Framework Agreements are not specifically set up for the sole purpose of facilitating collaboration between the primary parties (i.e. the Contracting Authority and the Contractor), collaboration is recognised as being a fundamental bi-product that stems from the inter-party relationship that is created at the time

the agreement is made, since it has the capacity to determine the delivery outcomes of the framework and/or contract.

In the practice of contract law, the term ‘collaboration’ is often administered by legal or commercial practitioners seeking to adopt relational methods of contracting or umbrella agreements. Chapter 3 presents a top level literary review of relational contractual mechanisms, such as the non-binding partnering agreement (without consideration) which intends to facilitate communication, mutual agreements and joint vision between the parties under agreement. The chapter then expands further towards more contemporary contracting mechanisms, like that of umbrella or framework agreements, which promote deepened relationships with suppliers through the possible facilitation of recurrent transactions, amongst other benefits (Mouzas & Furmston, 2008; Mouzas & Blois, 2013). As a contracting mechanism, Framework Agreements represent a relatively new component within the MOD’s commercial toolkit, and wider, in the public sector’s practical application.

Our examination of the Framework Agreements within this research piece posit that the contractual agreements constructed to facilitate collaborative procurements (in the sense of its general definition) are sub-optimal. According to the literature examined in Chapter 3, section 3.4, Framework Agreements intend to provide a platform for coordination and building stronger interfaces between the contracting parties, alongside other benefits (Mouzas & Furmston, 2008; Mouzas & Blois, 2013). Whilst collaboration is considered in academic literature to be a core objective of these forms of contracting arrangements, the findings to this study suggest that the Framework Agreements examined failed to align with the relational expectations and embedded perceptions of the key actors tasked with managing the construct (and any of its call-off contracts). In this way, what became apparent was the written Framework Agreement’s inaptitude to reflect its collaborative intentions. Evidence of this was found during the dissection of the Framework Agreements, which indicated that high frequencies of risk were being transferred from the Contracting Authority towards the Contractor, as opposed to a balanced, risk-sharing structure. If collaborative mechanisms are enforced to encourage parties to work together to achieve a common aim, then it is proposed that the legally-enforced arrangement should reflect the procurement’s prescribed collaborative intentions. Instead, the Framework Agreements examined during the case study analysis appeared to be close replicas of standard defence contracts, which represent simple (or one-off) purchasing decisions whereby the establishment of long-term relationships between the Contracting Authority and Contractor are not advantageous. Developing this notion further, the MOD publish guidance on Framework Agreements through a commercial

policy statement, which advises its commercial personnel to adopt standard contract templates with the inclusion of General Condition: DEFCON 630 to incorporate the standard clauses applicable to Framework Agreements, along with the suitable payment mechanisms. From the outset, the Framework Agreements composed by the MOD largely reflect standardised contracts, which when considered for their structural features, reveal one-directional risk transfers (often in favour of the Contracting Authority), and therefore contradict the collaborative intentions of a Framework Agreement.

Having taken into account the structural considerations of the collaborative Framework Agreement, it is not surprising that the Framework Agreements used by the MOD do not fully evoke collaborative behaviours to develop between the contracting parties, given that its structure primarily consists of standardised contracting provisions (based on standard contract templates). What this implies is that the first component of the definition of ‘collaboration’ is not satisfied (since typically, a standard contract is not constructed to facilitate long-term working relationships). The second aspect of the definition, which focuses on the aims and achievements of the collaboration (such as value for money) are provisions that are typically standard in contracting, and influenced by overarching public policy. In order to further validate this claim, the following sub-section will present a discussion surrounding the extent to which the defence realm (and wider public sector) is able to translate the fundamental meaning of the term ‘collaboration’ into a practical application for achieving effective collaboration in contracting.

11.3.1.3. Does collaborative procurement in the public sector satisfy the definition of ‘collaboration’?

To reaffirm the assertions made during the analysis of the case studies, a selection of practical guides and formal reports relating to collaborative procurements can be evaluated, in order to develop a richer outlook on the effectiveness of Framework Agreements in the public sector. The definition of collaboration will once again be considered, to establish whether the public sector currently encompasses a full understanding of the term, or whether there is a requirement to further refine the contracting methods applied.

The National Audit Office’s review of collaborative procurement across the public sector (NAO, 2010) reveals that ninety-three percent of public sector bodies adopted Framework Agreements in 2008-9, defining it as a construct which “covers the procurement of a particular type of good or service from pre-approved supplier(s) over a fixed period of time” (NAO, 2010; p. 5). The report released by the NAO positions the Framework Agreement as a

construct that aims to achieve better value for money in the pan-government procurement of common goods and services by avoiding the duplication of procurement activity and therefore reducing administration costs to the public sector. Whilst the report imparts useful information relating to the current state of pan-government collaborative procurements, it focuses predominantly on the overarching aims achieved by enforcing collaborative Framework Agreements. In the case of the NAO report, the ‘aims and achievements’ of collaborative contracting methods appears to overshadow the relational component of the definition, however, it still acknowledges the benefits obtainable if government bodies worked together. Specifically, the report highlights the public body’s current unfamiliarity of existing collaborative arrangements managed elsewhere in government, implying that pan-government collaboration from a relational stance is somewhat overpowered by the desire to generate measurable achievements. It is clear that the NAO report examines the use of collaborative working arrangements in a pan-governmental setting, rather than the buyer-seller collaboration that a Framework Agreement may also enforce. Looking more closely at the defence department, the MOD publishes its own commercial policy statements to provide guidance to its users on essential commercial tools. Like the NAO report already discussed, the commercial policy statement written for providing guidance on Framework Agreements provides a similar approach which focuses on achieving top-level government aims, with little regard for the relational components that facilitate this form of contractual collaboration. Whilst a distinction between two forms of contractual interface; in enabling contracts (or single supplier) and multi-supplier frameworks is made, it too disregards the importance of developing robust working relationships for supporting the functionality of the framework arrangements.

The purpose of this section is not to provide an in-depth literature review covering all practical guidance published on the implementation of Framework Agreements in the public sector. What it does provide, is a snapshot of influential guidance taken from governing sources in order to better understand whether the existing applications of collaborative contracting methods in the defence sector align with the common definition of the term. In short, the answer is ‘no’, since government commissioners tend to focus on collaborative procurement from the outcome sense of the meaning (which are often set to satisfy the high-level public policy initiatives, such as: improving ‘value for money’ for the taxpayer), with little focus on the importance of the underlying relationships that support the predetermined goals. Having developed the logical line surrounding the shortfalls associated with collaboration, a fundamental question needs to be addressed surrounding how the evident shortfalls in

collaboration (when adopting collaborative procurement constructs) causes unwanted risk to infiltrate a contractual arrangement.

11.3.1.4. Contract Risk in Collaborative Contractual Arrangements

Considering again, the research findings, all (four) case studies examined within these case areas were comprised of a Framework Agreement, a relatively new contractual mechanism to the defence commissioner. Although the contracts all differ in the type of Framework Agreement adopted (Case Study A and B were developed by the commercial division of an executive agency to the MOD, whilst Case Study D was developed by another government department for pan-governmental use to achieve economies of scale and enhance VFM), to some extent, all cases shared the common aim of generating and facilitating a collaborative environment between the public sector and private sector (the contracting parties), and/or, across government departments. Put more succinctly, in the cases examined, the overarching commonality underpinning all Framework Agreements was their collaborative purpose.

In the case of the aforementioned case areas, the term 'collaboration' gained negative comments from case study participants in terms of the performance examined, and in particular, two of the case areas highlighted issues with the way that the key actors worked together when delivering the contractual agreements. In order for the collaboration of individuals to reach a common aim, the relationships developed between the key actors must be robust. To develop strong working relationships, each actor must establish regular communication (transferring appropriate information) with their counterparts and develop trust through the provision of open and transparent communication. The findings chapters to this thesis reveal a number of examples where the interfaces between the buyer and supplier, and/or, between the internal divisional staff in the commissioning organisation (i.e. the commercial and technical teams) has suffered from irregular communication or incomplete information sharing. Whilst theoretical justification is thoroughly detailed in the literature surrounding relational contracting theory, the concept is expanded upon and considered under the contemporary Framework Agreement literature. In particular, through examination of the theoretical perspectives underpinning incomplete and relational contracts, Mouzas and Blois (2013) recognise that Framework Agreements have the capacity to reduce the information asymmetry that confines contemporary contractual arrangements. Likewise, the guidance offered by official sources appears to disregard the relational aspect of the term 'collaboration'. Considering at this point, the contract theory literature (covered in Chapter 4), further theoretical framing may be applied to the research through consideration of contractual economic concepts that relate to information asymmetry. Where informational asymmetry

occurs in a principle-agent relationship (i.e. a buyer-supplier relationship) then it is presumed that the agent obtaining greater information, ascertains informational advantage which can prompt the agent to act in their own self-interest. Self-interested behaviours are not considered to fulfil the 'working together' sense of collaboration, and result in misaligned expectations, lost trust, further hidden information and other related damage to contractual relations.

What must be accounted for at this point is that the collaboration of people in the context of this research consists of a Contracting Authority and a Contractor, each comprising of teams of individual actors who all have an invested interest in achieving a predefined goal or outcome (i.e. the delivery of a service), and therefore all contribute to the relational dynamic associated with the contract. Following this logic, where a construct such as a Framework Agreement is chosen, but omits sufficient provisions for the full-bodied facilitation of collaboration, then the long-term relationship between the parties is likely to suffer. What this may trigger is challenged communication lines, together with the retention of essential information that would otherwise assist the contracting parties with achieving the contracts overarching aims. If this occurs, then the maximum level of collaboration for that project will never be obtainable. The reason for this is that the withholding of information may lead to unforeseen complications in other aspects of the contract that are closely interlinked, and as already seen in the findings, can provoke other performance, finance or contract related risks to arise. Systemic patterns of risk therefore have the capacity to impinge on the contract, originating in the unfulfilled definition of 'collaboration' which in turn causes the supporting relationships to the contractual arrangements to suffer. At this point, the risk is independently categorised as a representation risk, however, evidence from the findings chapters further demonstrate how a representation risk may migrate throughout a contract (particularly in cases where management information is withheld), and as a result, have the propensity to stimulate an interrelated pattern of risk to materialise and threaten other aspects of a contracts terms and conditions.

11.3.1.5. Summary

Although this section draws a specific focus onto the structure and intentions of the Framework Agreement, as a collaborative procurement mechanism, the underlying concept is one that can be transferred to a range of contractual procedures. Specifically, where a contract is required to enforce particular traits during its conception (in this case a collaborative arrangement), then the structural contract underpinning it must align with the preconceived concept. Instead, the defence department adopts a standard contract template, containing merely an additional DEFCON and adapted pricing mechanism to distinguish the collaborative

arrangement from a standard, one-off contract. Within the findings it becomes evident that structuring relational constructs in this way poses a threat to the effectiveness of the contract, particularly in terms of its ability to withstand unsolicited risks. The finding therefore provides evidence of the challenges currently faced by the MOD (and other government departments adopting similar methods), highlighting the unfulfilled weaknesses of the Framework Agreement in current commercial practice.

11.3.2. Component 2: Resilience to Change

The second theme to have resulted from the analysis and triangulation of the research data concerns a contract's resilience to change. The theme emerged in all case areas examined, demonstrating its prominence across the service commissioning sample. Despite the reoccurrence of the general sense of the theme, the sub-themes of change relate to a range of internal and external drivers. This component will therefore begin by discussing the definition of 'change', identifying the drivers of change in a public sector environment. Then, taking the view of government contracts, this section will provide insight into the existing ways that government manage change, proactively and reactively, by observing the primary data gained in this research, together with the evidence base comprising of secondary data (i.e. official government reports and supporting guidance). Finally the riskiness of change to a contract will be framed through a discussion which covers the efficacy of existing service commissioning contracts in the defence sector and further, how systemic risk can be stimulated by change, if change is mismanaged.

11.3.2.1. Defining 'Change' in the Service Commissioning Context

The term 'change' is one that incorporates wide associations and connotations, making it contextually bound. In its most generic form, it means 'to make something different' and thereby ultimately has the capacity to alter the conditions it encompasses. To ensure that the meaning attached to 'change' is consistent within this discussion, the different contexts within which change may occur must be made explicit. In this case, the research is focused towards understanding the contractual arrangement that underpin a service commissioning project, and therefore, the impact that change may have on the formal contract. Within the case study areas examined, change emerged as a recurrent theme that took on a range of forms, capable of being categorised as being internal or external in nature. The Office of Government Commerce (OGC), identify the drivers of both internal and external change to a contract, categorising the internal drivers of change as those that relate to evolving business requirements, the organisational restructuring of either party and/or significant revisions to the corporate strategy/business objectives of either party. Treated independently from internal change, the

OGC identify 'external change' as being caused by developments in technology, economic trends (affecting the value for money of the relationship), and, changes in legislation or legal interpretation (Office of Government Commerce, 2002; p. 46). From the scenarios identified, the area of interest is the contractual arrangement, or specifically, how change (whether stemming from internal or external change) impacts a contract that underpins a service commissioning project.

In the research conducted, a similar perspective is taken to the Office of Government Commerce, that is, the emerging change highlighted during the detailed analysis of four case study contracts from the service commissioning sphere of defence contracting revealed consistent patterns of change that require attention. The first change related component relates to internal change to the corporate landscape, or using the GCO phraseology, organisational restructuring of the Contracting Authority (for further details please refer to Chapter 8 and/or the supplementary Dstl STS findings report). Specifically, the case studies impacted by the organisational restructuring specified divisional changes as well as personnel changes within the divisions or projects. Other changes related to evolving business requirements, and in some cases, undertones of technological change, demonstrating how a range of both internal and external change drivers may be detected in the defence sectors contractual sphere. At this point it is clear that change may influence contractual arrangements in a range of forms, however, the extent to which the public sector acknowledge change in its contract management procedures has not yet been discussed. Where the adverse effects resulting from change are acknowledged and translated into best practice, it is assumed that the effectiveness and resilience of the contract towards change will be reduced, and with it, risk and uncertainty better controlled. Little acknowledgement within the public sector on the other hand would imply the need for better awareness of the potential impacts of change to a contract. The following section will begin with a discussion of the existing guidance provided by public sector reports and influential papers on the topic of contract change in order to decipher a likely contributor to the thematic pattern.

11.3.2.2. Responding to Change in the Public Sector Environment

Increasingly change is a component that is gaining attention within the public sectors contract management sphere. As already highlighted in the previous section, the drivers of change can be wide ranging, stemming from numerous influences, either internally or externally. Acknowledging a NAO report on commercial and contract management insights, change to a contract is described as amounting from three influences: change at a government level, organisational level and/or contract level (NAO, 2016; p.6). Furthering this, Chapter 2 to this

thesis presents a literary review on the topic of public management. Within the chapter, themes of change are presented, specifically, in terms of the changes made to government structures and overarching public management approaches. This raised an important contextual discussion of NPM, a largescale restructuring of the public sector which focused on shifting away from bureaucratic approaches towards a business-orientated professional management structure, like that enforced by the private sector. The shift towards NPM stimulated change at a government level, which permeated within each government department's revised organisational structures and best practices. What can be retrieved from the literature discussed in Chapter 2 is the recognition of a prominent driver of change (i.e. the restructuring of management approaches in government), together with a rationale supporting the change, such as the increased efficiency, value for money, financial control, and so forth. A shortcoming of the literature is found in its limited discussion of the true effects that such change has brought to the UK's public sector departments, or even, a specific operational branch within that department (such as commercial teams, or commissioners). This research gives partial fulfilment to this shortfall by providing coverage of how change to a top-level government structure has (over time) influenced changes within the defence department's methods for managing its contracts.

Part of the response to NPM and related change and restructuring is evidenced in the official reports and guidance released by government departments and external auditors to the public sector. Increasingly 'change' has found its place within formal public sector guidance, acknowledged in its multiple forms and drivers. An early example is found in a report written by The Office of Government Commerce (2002) which discusses the aforementioned drivers of change to a public sector environment, recognising the aptitude for both internal and external change of all forms to affect the management and enforceability of a contract. In a government context, where the surrounding environment is constantly evolving, change can be difficult to reflect in a contract, and therefore, uncertainty is somewhat expected at the time of the contract's signing. The underlying causes of change in government relates to the unpredictability of customer behaviours, the changing requirements and refinement of public policy, and, the implementation of new contractual processes or systems (NAO, 2016[a]). In these cases, where a contract is poorly constructed, it is proven to be inflexible and results in costly changes and/or misalignment in what was intended to be delivered by the contract and what materialises. Having acknowledged the prominence of change in government environments, the NAO emphasise the importance of the upfront incorporation of flexibility in public sector contracts as a method for better managing uncertainty (NAO, 2016[a]). The incorporation of flexibility in contracting is not a new concept, whilst it is a topic gaining

awareness in the public sector, it is one that has been discussed in the scholarly field of contract theory, coined as the complete/incomplete contract debate. The literature surrounding contract theory is covered in Chapter 4 of this thesis, however the applicability of the underlying theory will be discussed in the succeeding Section 11.3.2.4.

Upfront anticipation of change poses some challenges to the contract writer, and therefore change must also be managed for the duration of the contract. Accounting for this aspect, the National Audit Office (NAO) published a 'good practice guide to contracting' which allocates an entire section (or report area) towards what must be considered when managing a contract undergoing change. In particular the NAO guidance highlights that the contract manager must ensure that "processes are in place that clearly lay out the governance of contractual change – who needs to approve what and how it will happen – with a focus on effective and prompt change implementation" (NAO, 2016[a]). The guidance identifies change as a constant, and therefore accepts its inevitability in contracting. Therefore, rather than seeking to achieve the impossible by attempting to eliminate change, the public sector guidance seeks to develop a set of processes that prompt contractual resilience to change through implementation of efficient and effective change procedures in contracting. Another report written by NAO on the insights gained from a case study examination of existing commercial and contract management practice, advocates the requirement for the Contracting Authority to be an intelligent client, specifically stating in their specification that to be 'intelligent', the client must be: "...transparent through the procurement about requirements, including any uncertainties and likely changes" (NAO, 2016[b]; p. 34).

Specific guidance relating to the defence department is provided by the MOD's online Acquisition System Guidance and distinguishes two forms of change from another. The first relates to 'change control' which is defined by MOD commercial practitioners as "the effective management of alterations to a project which affect the currently approved baseline plan and or schedule" (MOD ASG, 2018). The second form of change is that of 'management of change', that is: "the introduction into service of new capability, new ways of working or other business change" (MOD ASG, 2018). Observing the two definitions applied by defence practitioners, a clear distinction has been made between internal and external change. In addition to this, change may also be categorised in terms of its context – whether it originates on a government, organisational or contractual level.

The official publications examined give a clear indication that change in the contractual management sphere is being acknowledged by government departments. However, whilst the

reports give guidance and suggest processes that may be followed by commercial managers and team members, the structure of the contract in terms of the terms and conditions that may be incorporated to offset risk resulting from change is not made explicit. Section 11.3.2.4. will present a discussion, framed by a combination of contract theory and the consolidated case area findings, to propose rational solutions for achieving a flexible contractual arrangement that remains resilient when encountering contractual change (either internally or externally). Prior to this however, the research requires one further consideration to be made, that is, the behaviour of risk in the light of contract change. By identifying the behaviours of risk in this context, it is envisaged that the solutions proposed for mitigating contract risk (presented in Section 11.3.2.4.) will be better grounded through consideration of existing literature and practitioner reports.

11.3.2.3. The Onset of Risk in Changeable Contracting Environments

In Chapter 5 of the literature survey, the term ‘systemic risk’ was discussed in terms of its cross-disciplinary application and was further acknowledged as being a term that gained little recognition within the project management practice. Instead the shortfalls identified within the chapter imply that current perceptions of risk, both in academia and in project management, are limited since each risk to a project is often managed independently (through tools such as risk registers), with minimal regard for the interrelated dynamics that prevail within risk. Taking a real example to illustrate the nature of systemic risk, the ‘contract change’ theme derived from the research analysis may be applied.

As highlighted in a previous section, change can result from the planned enforcement of new ideas, processes or structures to an environment, making it somewhat predetermined in nature (take for example, the implementation of a new public policy). Alternatively, change may also result from an entirely unpredictable event, such as a natural disaster, where repercussions can cause adverse effects to materialise within its dependant facets. Despite this distinction, both share a common feature that gives both driver of change an innate propensity to stimulate unexpected change in its closely-related facets, as a secondary repercussion. Therefore in this case, change represents an uncertain and potentially risky variable in the contract management field, and closely resembles the interconnected nature of systemic risk patterns. In the context of a contractual arrangement, where change is enforced (at government level, organisational level or even contract level itself), it has the propensity to affect other areas of a contract. If the change incurred prompts a negative risk to intervene with the contract, then this may in turn stimulate, risks to pass on into other aspects of the contract. A prime example of this systemic pattern of change was revealed in the STS case area, where changes to organisational

structures within the public organisation provoked a range of budgetary related risk and challenges to the relationships underpinning the contractual arrangements. Acknowledging a contract level change, the CRS case area revealed frequent changes to the contract itself, resulting from changes in the service requirement and technical enhancements. What stemmed from the findings in this particular case area was the impact placed on the contracts performance, in terms of the Contractor's ability to deliver the contract milestones on time, further affecting the relational dependencies between the contractual parties (more information on this is found in Chapter 10 and within the Computer & Related Services Case Study: Findings Report [the reference for which is detailed in Chapter 8, Section 8.1.]).

11.3.2.4. Change in Contractual Arrangements

Having established the prominence of change as a thematic finding, emerging from the analysis of three service commissioning case study areas from within the UK's defence sector, government contracting's susceptibility to change has been made apparent. To ensure a contract is robust enough to withstand the uncertainty that accompanies change, it requires flexibility. The construction of a flexible contract involves the careful balance of its structural components (such as, the terms and conditions, and, supporting mechanisms) so that the essential provisions are not restrictive, nor are they too loose. Supporting the proponents of an incomplete contracting approach (see Chapter 4 of the literature survey), it is thought that contractual incompleteness provides a suitable framework towards the development of a contractual arrangement that is resilient enough to withstand the negative effects of change.

Observing the contractual documentation attributed to each case area, it is evident that each contract already incorporates certain features that protect the contractual arrangement (or project) from the onset of change. In particular, by way of satisfying standard practice within the MOD, the contracts incorporate conditions that cover contract change procedures, force majeure, as well as carefully constructed pricing and performance mechanisms which allow for fluctuations in ex ante and ex post measures. In contrast, if the contract exhibited contractual completeness, that is, the contract was reinforced by entirely comprehensive conditions, then the contract is susceptible to frequent amendment, where unanticipated change materialises. By designing contracts that allow for change (e.g. through contracting for a minimal solution), upon initial examination, the defence contracts appear robust enough to withstand change as the contract progresses through-life. Reinforcing this capability, the case study contracts have all encountered contractual change, either in response to external or internal drivers of change. Despite the MOD's incorporation of contractual provisions, used to deter the unwanted risks that relate to change, the commissioning service contracts

examined continue to fall victim to change related challenges. Whilst it is agreed that change is constant and largely inevitable, greater attention should be given to recognising the uncertainties relating to change upfront, as opposed to the current ad hoc approach for managing change.

11.3.2.5. Summary

The discussion of the second findings component is positioned around the concept of change, specifically the management of changes within a contract, and, the control in contractual arrangements. Giving acknowledgement to the wide ranging drivers of change that may influence a contract, the existing government documentation and guidance recognises the importance of managing change within its commercial functions. However, despite the flexibility of provisions built into the defence commissioning contracts, change still causes unanticipated weakness to impinge on the contract, perhaps as a repercussion of an insufficient consideration of the potential changes that are archetypal of the MOD or of the service market made up-front. The section therefore concludes that whilst the incomplete structure employed in government contracts is favourable in the current public sector environment, greater resilience to change may be achieved through the recognition of the numerous forms of change and how these may have far-reaching impacts on a contract. To achieve this, it is advised that public sector practitioners give careful consideration to the identification, development and implementation of change categorisation, specifically focusing on the forms of internal and external change drivers aforementioned in this discussion section.

11.3.3. Component 3: Managing the Project Set-up

The final component to have emerged from the triangulation of the three case areas concerns the initial design phase of the project (i.e. the early set-up), a process which dictates the structural choices made when drafting the formal contract. Subject to approval, the design choices made in the project's initial set-up phase are therefore embedded within the finalised project plan, which in turn, are reflected and clearly stipulated in the terms and conditions incorporated into the formal contract by the contract writer. The formal contract is therefore structured in a way that reflects the foresight of the project team in the initial conception of the service requirement to be commissioned. Hypothetically then, where the plans prompting the implementation of a project are poorly set (for example, based on insufficient analysis, or other limiting factors), then the contract underpinning those choices may not reflect the true intentions of the project, should they change. The previous section covered the effects of change and uncertainty on a contract, and the importance of building resilience into a contractual arrangement as a way of mitigating the negative effects of change. Resilience is

needed where change characterised as unpredictable, yet change to a contract may also arise where the set-up phase of a project is not managed appropriately.

This section therefore aims to present a discussion surrounding the importance of the set-up phase of a project, with particular attention being attributed to the front-end and mobilisation sub-components of the phase. The management of the project set-up will therefore be presented through first addressing the need for the definitional clarification of two terms which constitute the entire set-up phase, since these represent terms that are given little acknowledgement in the project management realm. Following this, the discussion will proceed through a presentation of evidence which supports the claim that more needs to be done to ensure that the project set-up phase is undertaken sufficiently. What must be highlighted at this stage is that the final component of the findings is not one which originates in the contract itself, rather it originates in the early set-up of the project, yet has the capacity to manipulate the contractual arrangement in a systemic manner.

11.3.3.1. The Project Set-up Phase

The design and construction of the various elements that govern a formal contract is an essential procedure, which dictates how a project is likely to progress upon the formal commencement of a legally enforceable contract. The decisions made during the set-up (project scope, infrastructural/resource requirements, estimated values, and so on) are fundamental to the success of the undertaking, and must therefore be carefully managed, through adoption of appropriate tools and processes. Currently, the phases which make up the set-up of a new project are under-researched in academia, with limited coverage from a small number of academics. Where literature does exist, it focuses predominantly on the implementation of Early Resource Planning (ERP) tools. Within the ERP literature, the tool adopted for initial project set-up phase is often referred to as a project charter, which formalises and incorporates into writing “the development of the business case for the ERP, package selection, identification of the project manager and budget and schedule approval” (Shanks, 2000, p.290). Prior to the formal confirmation of the contents of a project charter, the key stakeholders affiliated with the project will undergo a period of negotiation and alignment of expectations, known as the “chartering” phase. The phase itself however is managed by the project manager, who must communicate effectively with the PMO and other stakeholders in order to develop a coherent summary of the project’s focus. Where implementation of this phase is misunderstood, or poorly managed, the early planning of the project will likely suffer, which may result in issues emerging later on during the commencement of the project. In line with this, Brown (2005) highlights the importance of the chartering phase of a project,

describing how it provides an opportunity for documenting the relationships which connect the project to the organisational strategy. Though this may be the case, Brown (2005) continues to point out that project charters are given little recognition in terms of their ability to constitute a deliverable. Beyond this, and in practice, acknowledgement of the importance of the project planning phase appears to suffer similar shortcomings, particularly when compared to the seemingly well-established project implementation phases. In order to provide a complete discussion of the importance of the project set-up (in terms of its planning and design), two crucial sub-components of the project set-up phase will first be presented in this section, since these will provide definitional clarification to the discussion of this third research finding.

The first sub-component of the project set-up phase is referred to as the ‘front-end’ of a project (Figure 57), which refers to the period of time where the requirement for a project is first constructed, up until the point where an organisation is tasked with delivering the project. Seeking to fill the evident gap in the ‘front-end’ literature, scholars like Williams and Samset (2010) recognise that in practice, the term closely resembles the term “quality at entry”, as used by the World Bank. Considering both terms, the front-end represents a crucial period in a project’s life cycle which can determine the success or failure of the project (Edkins et al., 2013). The front-end of a project therefore drives the scope of a project from the beginning and must be carefully constructed to ensure that the project is able to reach its intended outcome. Following this logic, Morris (2011) describes the link between a project’s failure (in terms of reaching its intended outcomes) and mismanagement of the front-end: “data shows that most of the factors which seriously affect ... project outcome, for good or ill, will have been built-in to the front-end definitional decisions” (Morris, 2011; p. 6). Careful management of the front-end is therefore essential to ensure that the early project implementation operates efficiently and is protected from unwanted challenges. If the front-end management is insufficient, then the performance of the commissioned work may be threatened by the onset of unwanted risk during its early life.



Figure 57: A simplified project life-cycle depicting the sub-components to the project set-up phase.

Immediately beyond the projects front-end is the second sub-component of the project set-up: the project ‘mobilisation’, which concerns the bedding-in of the essential infrastructure required for the specified tasks to be undertaken. The literature surrounding a project’s mobilisation is extremely limited, with only occasional references made to the phase in the construction project literature. Bennett (2007) acknowledges the importance of the mobilisation phase, and defines it as the “activities that take place between the award of the construction contract and the beginning of the construction work in the field” (Bennett, 2007; p.120). Project mobilisation therefore begins between the selection of the successful bidder tasked with the work and runs up to the point of project’s formal commencement (or start date). Whilst the initial specifications used in the mobilisation phase are designed during the front-end of the project, these are developed further in the mobilisation phase in order to ready the project for formal commencement. According to Bennett (2007), the mobilisation phase therefore sets the stage for the commencement of the project work, which comprises of: obtaining the appropriate insurance cover, the preparation of detailed project schedules, organisation of the infrastructures required to undertake the work, conversion of the cost estimate into a project budget, acquisition of materials and staffing resources, and so on. Likewise, Bloomfield et al. (2018) identify the diversity of activities that embody the mobilisation phase, yet further recognise the influence that the project mobilisation can have on the continued success of the project: “an effective mobilisation would be one that allocates sufficient resources (e.g. appropriate materials, labour, and time allowances) to the project, so that all essential infrastructure is completed at the time of contract commencement” (Bloomfield et al., 2018; p. 17). Whilst Bennett (2007) recognises the mobilisation phase as being its own phase within the project life cycle, the focus of the discussion surrounds the components that make up the mobilisation of a construction project, as opposed to the influence that mobilisation has on the later phases of a project’s life cycle. Bloomfield et al. (2018) provide early recognition of the significance of the mobilisation phase and further identify its prominence in terms of the effects that it has had on the success of live, public sector contracts. With this in mind, like the front-end, the mobilisation of a project is considered as being a critical phase in the project life cycle, with the capacity negatively influence the later phases of a project, if it is not carefully managed.

11.3.3.2. Official Project Management Guidance

It is evident that the front-end of a project has gained little acknowledgement in academia, yet this trend is further reflected in the project managers guidance provided by practitioners and

influential organisations. Specifically, the Project Management Body of Knowledge (PMBOK Guide) (Project Management Institute, 2004) provides marginal coverage of the front-end in its publications, and in doing so, disregards its importance in the management of projects. In the defence specific environment, guidance offered by the public sector department regarding the front-end of a project follows suit, though reference was made to the front-end in the influential (yet now dated) Review of Acquisition for the SoS for Defence (the Bernard Gray Report, 2009). In the report, Gray calls for greater attention to be allocated towards “increasing the proportion of spend at the front-end before “locking down” major expenditure post Main Gate” (Gray, 2009; p.167), a component that will enable the project to extract better value for money, whilst ensuring that it delivers robust requirements. Forty years prior to the release of Gray’s 2009 report, a report published by the UK Ministry of Technology (known as the “Downey” report) advocated that 15 per cent of the total cost and 25 per cent of the project’s time should be dedicated towards the initial project definition (or ‘front-end’) phase (Ministry of Technology, 1969). Whilst the associated guidance regarding the front-end appears in two influential (yet archaic) public sector reports, there appears to be little evidence of the front-end terminology or concept being adopted within any defence department publication, issued to its personnel. Likewise, the second component of the set-up phase – the project’s mobilisation also exhibits limited attention among professional bodies and public sector organisations. In both cases, the two terms appear on occasion in literature, yet have not been widely acknowledged or advocated by an influential project management body. Partly fuelled by the apparent gap in the academic and professional literature, the following section will further discuss the importance of the sub-components underpinning the project set-up, by justifying these based on the evidence attained during the analysis of the case studies. One further contribution will be made through the discussion of the close association (or interrelatedness) found between the set-up phase of a project and the formal contract.

11.3.3.3. Effective Management of the Project Set-up: Case Evidence

Since the guidance and literature is limited on the topic of the design and preparation stages of project management, we will discuss the prominence of the theme through a reference to the findings, which will provide evidence to the issues caused by ineffective design and/or implementation of the project set-up phase. It will relate to both the front-end and the mobilisation components, both of which have emerged to differing degrees within the findings. Beginning with the front-end, the design of a project is considered to be crucial to its success, having a significant influence on the final outcome of the project. Despite this, very little is done to ensure that these early decisions are supported by robust analysis. Evidencing this statement through reference to the case study findings to this research, a particularly

relatable example becomes apparent within the HSS case area. The case area revealed a key finding which concerned an issue with the estimation of throughput assigned to the project, as reflected (as estimates) in the supporting legal documentation. The estimation of throughput is a value that is pre-determined and agreed during the front-end design of the project, since it determines the volume of work that is likely to infiltrate through the contract and the potential value of the project, over its duration. Therefore, if the analysis conducted to determine the throughput values is not based on full or accurate data, or sufficient time is not apportioned to the validation and rerunning of the figures, then the project has an increased likelihood of commencing under false pretence. Chapter 5's discussion supports this statement, revealing that often, challenges to a project (such as overruns on cost) are due to the subjective beliefs and accuracy of knowledge used in the initial assessment of the project's front-end, and later, in the planning phases of the project. Whilst wrongly estimated throughput was revealed as being a significant issue to the performance of the HSS case study examined, the front-end design also encapsulates various other fundamental choices. Taking another example, the CRS case study revealed issues with the resource choices that would have been made during the front-end design. Specifically, the staffing decisions were later criticised as being unsuitable for the work outputs required in the planning phase of the project (i.e. generic project management practitioners were placed in roles which required specialised technical expertise). Considering these two prominent examples, it becomes apparent that shortfalls in the management of the front-end, particularly when making critical design choices regarding the projects inputs, can often cause the frequent problems to arise within the project, over time.

The design element of a project's set-up precedes the mobilisation stage, which, as already determined, entails the planning and preparation of the essential infrastructure that will facilitate the project. Mobilisation is a term that is not widely adopted in the project management sphere, yet like the front-end, it represents a theme that reappeared throughout the case areas, particularly in the STS and HSS case areas. In both cases, the mobilisation phase was described by participants as incurring shortened timeframes, placing pressure on the organisations to prepare the essential infrastructure (which may be completely new, or developments to old infrastructure, if the project is a continuation). Time related mobilisation issues appear to be closely interconnected with the front-end, since in the case studies examined, a shortened mobilisation phase resulted from delays caused earlier. In particular, insufficient time was allocated to the front-end in the STS case studies to allow for delays in approvals processes (which took longer than usual, due to changes in the internal approvals process). Realistically therefore, greater time and attention needs to be allocated to both set-up elements in order to accentuate their importance among project managers.

The case areas examined provide evidence of the current disregard attributed to both the front-end and the mobilisation components of the project set-up. Without allocation of sufficient time and analysis methods to the set-up phase of a project, the successive performance of the project may be threatened, causing further issues to be reflected in the contractual arrangement. The set-up of the project may therefore be considered as a delicate phase in the contract life-cycle, where unresolved or undetected risks may penetrate later stages of the project, systemically. In Chapter 5, a definition of systemic risk was presented, following the consideration of its (limited) use in multi-disciplinary studies. The definition developed from the discussion focused on the cascading failure of a system's components, caused by the complex interconnection of that system's parts. Extending on this, where the set-up of a project is poorly managed, then, as already established, negative impacts are more likely to impinge on the project as it progresses through the project life-cycle. In the case of the HSS case area, errors produced in the front-end design phase of the project cascaded detectable issues into the operation phase of the project whereby inaccurate throughput forecasts caused the Key Performance Indicators and milestones to be skewed, to the extent that performance targets were inaccessible to the delivering organisation. Furthermore, financial implications relating to payment and profit margins fell short of expectations, causing relational challenges to materialise between the two organisations. Though succinct, what this example intends to demonstrate is the ability for errors made in the front-end to stimulate closely interrelated risks to emerge, in a manner that has the capacity to cascade throughout the project, and similarly, the contract that puts the projects intentions into legally enforced writing.

11.3.3.4. Summary

The final thematic component to have arisen from the research is a topic that is limited in its development and exposure within the project management realm. For this reason, it presents a gap in literature which would benefit from further research. The justification for further research into the topic of the front-end and mobilisation of a project is evidenced by the research findings, which support the notion that a poorly managed set-up phase of a project has a direct effect on the emergence of risk in other aspects of the project/contract. Having discussed the effects that appear to stem from the project set-up phase, it becomes apparent that the finding supports the definitional claims and discussion points covered in Chapter 5 of this thesis, illustrating how a risk may grow from an independent, uncertain state (such as an uncertain figure, submitted from inaccurate analysis), towards a chain of systemic risks.

11.4. Answering the Research Questions

Having discussed the three core findings to have emerged from the analysis of the data, the final element of the discussion aims to revisit the research questions, which were last refined in Chapter 7. The purpose of revisiting these essential questions enables the research to regain sight of its ultimate aims, providing answers that are now underpinned by validated findings. Once it has been proven that the research questions have been answered, the section will also provide further confirmation of the extant gaps in the literature, together with reaffirming the contributions made to knowledge. The following subsections will therefore be presented sequentially, beginning with the first research question, and ending with an informed answer to research question four.

11.4.1. Research Question 1

In Chapter 7, the first research question presented a conceptual and partly definitional line of enquiry into: “what is systemic risk?” Underpinned by Chapter 5’s discussion of the extant literature surrounding ‘systemic risk’, it was determined that the term required further acknowledgement within the academic sphere. The undertaking of research into the defence sectors service commissioning contracts provides an opportunity to develop the meaning surrounding systemic risk, through the measurement of risk in the contractual system, concentrating specifically on the existence of any dynamic risk patterns and interconnectivity of those risks. With this in mind, the early definition developed in Chapter 5’s review of literature may be tested against the findings, to refine and further validate the meaning attributed to the term, within the context of this research. In the previous section (Section 11.3.3) the definition of systemic risk was tested against the case area findings, in the context of the project set-up.

Throughout the research, themes of risk systemicity have emerged on numerous occasions, displayed through the chain reactions that have become evident throughout the research findings. In this instance however, a prominent characteristic of systemic risk relates to the cascading nature of risk, which is stimulated through the interrelatedness of a system’s components, on a system-wide scale. Specifically, such interrelatedness may refer to closely associated characteristics within the categorised risks (i.e. failed contract performance affects and stimulates risk in the financial aspects of the contract, like payment), which is formally written into the contract through inter-clause citations. The definition of systemic risk must therefore acknowledge three important characteristics of systemic risk, that is, (1) the interrelatedness of the system’s components, (2) the ability of risk to ‘cascade’ through the system’s interrelated components, and following this, (3) the capacity for risk to infiltrate an

entire system. By considering these three aspects, on the whole, the definition appears to agree with the wide range of definitions presented in wider literature. The reason for this is that it explores the wide ranging academic applications of the term ‘systemic risk’ and reaches a general consensus through combining the common traits of the definitions submitted in academia. Beyond this, the definition was then reapplied within the field research as a way of testing the definition of systemic risk, in a defence contracting context. What resulted was confirmation of the definitions suitability, and further enhancement of the three supporting facets of the definition.

11.4.2. Research Question 2

The second research question derived in Chapter 7 demonstrates a natural progression from RQ1: “How are the extant commissioning contractual arrangements constructed to deal with systemic risk?” The question evoked the data choices made when undertaking the research, since a primary examination of real defence commissioning service contracts would be required to satisfy the question fully. Having examined a range of case areas, consisting of a range of service contracts, a rational conclusion may be reached. Specifically, the risk migration mapping tool that has emerged from the research provides partial clarification to this question, since the mapping technique illustrates two of the facets of systemic risk, that is, that the contracts all exhibit interrelated components (or interlinked clauses) and the contracting parties assigned to the contracts all behave in a way that transfers risk, demonstrating a pattern that resembles the cascading dynamic associated with systemic risk. The extent to which the contractual arrangements are able to manage systemic risk is therefore not entirely accounted for by the formal contract, since upon construction of the contractual arrangements, the risks are considered independently, therefore disregarding the interrelatedness of risk. This becomes evident in the findings whereby the dynamics of risk are able to cascade freely between components within the contract itself, and beyond in the external influencers to the system (such as the project management, or wider defence environment).

Extending beyond the answering of RQ2, the methodological contribution to the topic must also be acknowledged. Specifically, during the methodological conception and data analysis stages of the research, a novel tool was developed to enable the research to extract a particular type of information from the written contract. The tool (labelled as a ‘risk migration mapping tool’) represents a new approach towards understanding the influence that a contracts written structure may have on the project, through observation of the dynamic patterns and behaviours that have been written into the underlying structural components of a contract. In particular,

unlike existing literature, the tool provides a method for measuring systemic risk, most notably in terms of: (i) the transfer of intraparty risk obligations, and, (ii) the interrelatedness (and migration) of risks within the contract. Whilst the tool is embryonic in nature, it represents a prototype that is capable of further development through further testing in future research. Furthermore, the risk migration mapping tool provides an instrument that can aid further enquiry in the areas of academic literature that require further investigation, particularly in the awareness of the characteristics of systemic risk, as well as other overlooked aspects of project management (such as the front-end and mobilisation of a project).

11.4.3. Research Question 3

The third area questions “How do the extant commissioning contractual arrangements play out and how do current contracting methods exacerbate or mitigate the threat of systemic risk?” The research observed live contracts so that a distinction could be made between the static, pre-written contract (prior to any implementation of change control procedures). During the conducting of the research analysis, the playing-out of the contracts were considered. The first aspect to acknowledge is that each case study contract experienced the onset of risk at some point, as it commenced through the predetermined timeframes. Furthering this, it can be ascertained that each contract experienced challenges, prompted by the materialising of risk. The risks which replicated systemic risks however, can be acknowledged as those which triggered issues to surface in other categories of risk, demonstrating the interrelated and cascading behaviour of systemic risk. Although the effects of systemic risk emerge to varying degrees, each case area exhibited patterns of risk that behaved systemically. At present, the contractual arrangements adopted by the defence department are seemingly standardised in nature, with little regard for the systemic patterns of risk (rather they are mostly treated as independent). Where the contracts are most robust however is where the interconnected components of a contract are explicitly connected to stimulate contractual robustness (made explicit by writing these into the contract). For example, where one milestone related clause explicitly cites a financial incentive clause. In this case where failure to achieve performance milestones arise, the risk that originated in the performance condition is transferred the cited financial incentive/penalty clause, which eliminates the risk associated with the Contracting Authority paying out for unsatisfactory service outputs. In this case, contractual clauses which eliminate risk in this way are able to mitigate the full effect of systemic risk from cascading further.

Aside from this, the cases where the contractual robustness is challenged appears where a contract’s structure is not carefully balanced, causing an overloading of risk in certain

categorisations of risk (the findings chapters revealed this pattern as being prominent within the representation risk category, for more information, please refer to the findings Chapters 8-10). In this instance, the contracts ability to balance risk is considered to be of importance, since too much risk in one area of a contract may compromise the contract, to the extent that it will start to weaken other aspects of the contract (e.g. the over-enforcement of stringent performance milestones may alter, or overpower the relational objectives of the contractual arrangement). By answering the third research question, new knowledge relating to the role and influence that a written contract can have on the playing-out of a project has been presented, a topic that until now had little acknowledgement in scholarly writing. In doing so, the answer to RQ3 therefore provides new contributions that demonstrate the interrelated nature of a project's contractual design and the effect it can have on the final outcomes of a project.

11.4.4. Research Question 4

The final research question aims to offer a recommendation towards establishing “What type of contractual arrangement/partnering methods would better control these systemic risks?” Already the case studies examined imply that both standard contracting methods and partnering methods are currently enforced in the defence service commissioning realm. The research does not intend to offer a solution to this question through advocating a ‘one-size-fits-all’ contractual arrangement, since the most suitable approach towards contracting for service commissioning resides in the context of that service. Whilst the research amalgamates the risk observations from each case area, the contracts that underwent examination all represent documents that have some degree of customisation (i.e. none were entirely identical). The reason for this relates to the diverse range of contextual attributes adorned by each service area, which classifies them as being heterogeneous in nature. Instead, what is advocated in this research is the adoption of a technique to the MOD's contractual drafting process which acknowledges the characteristics central to systemic risk. Though the technique remains in its infancy, the review (or ‘screening’) of a contract through the adoption of a risk migration mapping technique could act as an ‘early warning approach’ to ensure that the MOD's contracts are structured in a way that makes them resilient enough to withstand the effects of systemic risk. The implementation of the risk migration mapping technique represents an important output from the research, and will therefore be discussed in terms of its future exploitation in Chapter 12.

So far, this section of the Chapter (11.4) has reiterated the central issues that underpinned the motivation for this research thesis, together with a discussion of the ways that contracts can

be analysed to detect these issues. Aside from this, what must be recognised is whether the thesis represents a full exploration of the topic, or whether further research is required. Upon reflection, it can be discerned that the predominant aim of the research was to detect the impact of systemic risk in defence contracting, supported through the provision of case study evidence. Whilst this has been represented in the findings, only partial consideration has been attributed to the exploration of what can be done to limit the impact of systemic risk. Whilst some conceptual thought has been devoted to this question, it is an area that requires further research, beyond the scope of a three year PhD. The reason for this is that, having identified and detected the characteristics of systemic risk in contracting, in order to provide a solution that may be enforceable in practice, further testing is required to fully justify and support any claims.

CHAPTER 12

CONCLUSION & REFLECTION

12.1. Introduction

The research conducted within this thesis integrates a number of theoretical concepts associated with risk, contract law and public management, and applies these to a real concept, that is, the defence service commissioning context in order to extract meaningful contributions that may be used to further inform academic and professional practices. The outcomes of this research can be reflected upon through recognition of the new contributions made both to the academic field, and, in practice (as discussed in Section 12.3). Whilst the contributions will be presented, this chapter will also give recognition to the limitations and areas that would benefit from further development beyond the scope of a three year PhD. Prior to this however, the research will be reflected upon and reviewed in terms of the processes undertaken, empirical validity, and, the personal development of the researcher. In doing so, this section aims to reinforce the purpose of the study by displaying its ultimate outcomes whilst recognising any scope for further research to be conducted in the future.

12.2. Research Reflections

Undertaking a reflective exercise, following the conduction of research is an important cognitive process for the researcher, particularly in terms of their own personal development. Whilst this is certain, the reflective process offers the reader with insight into how the research could be developed, if it were to be replicated. This section therefore highlights important considerations that have been made, post-research through the discussion of the research validity, a review of the research process, and, personal development through the lens of the researcher.

12.2.1. Research Validity

In order for research to be considered robust, it must satisfy certain pillars of data validation. Research studies typically comprise of a generic format, which guides the research through its logical line. Whilst the approach taken by the research may vary depending on the philosophical assumptions of the researcher, a study will consider extant literature, methodological and data related processes, and so on. Measuring the validity of each component to a study therefore varies depending on what is being observed. To assess the

extent to which the research provides valid contributions, this study will be assessed based upon different categories of validity, to ensure it satisfies research quality. For the purpose of this discussion, the validity of research will be assessed first for its descriptive validity, that is, the prevention of distortion of the researcher's accounts (i.e. to ensure the researcher is not making up phenomena that does not exist in the data). In this case, the descriptive validity of the research relates to the completeness of the data collected and the refinement of the data into an accurate account of the research setting. In this case, the completeness of the data relates to the choices made in the research design, in terms of the collection process followed (i.e. the sampling choices made) and the analysis methods employed. To ensure that these deterred from any questions of validity, the research process was carefully recorded, reinforced by a data 'audit trail' of notes, analysis documents (containing tabularised information), emails and meeting minutes.

The second data validity consideration relates to the research's interpretive validity, which concerns the ability of the researcher to accurately interpret the meanings ascribed to actions accurately. The interpretation of data bears close associations with the descriptive validity, in that both are vulnerable to the researcher's biases, which are often linked to past experiences. In this case therefore, it is important that the research reflects the intended meaning of the information being observed, and that misinterpretation of the data is quashed. The research design incorporates a significant reliance on interpretation. A crucial aspect relates to the interpretation of the meaning underpinning the written contract, since this represents interpretation of a document, where clarification questions must be noted and communicated to someone with knowledge of the document's contents. In the case of interviews, clarifications on interpretation may be made during the interview, mostly eliminating the issue of misinterpretation. Whilst this is the case, misinterpretations may still be made when collecting and analysing the data, particularly if potential differences in meaning are not acknowledged. To combat this, the full set of findings derived from each case study were securely released and circulated amongst the key participants in the form of a written report, to ensure that the intended meaning attributed to the data, thereby preserving the interpretative validity of the data.

Finally, in order to ensure all aspects of validity are considered in this thesis, the theoretical validity of the research should also be considered. When referring to the theoretical validity, the researcher must account for the validity of the reasoning that is attributed towards explaining the data under investigation. In particular, the theoretical validity relates to the accuracy and robustness of the definitions and concepts attached to the research. In addition

to this, it concerns the degree to which the causal links that have been created throughout the research are justified by the evidence base.

The theoretical validity of this research piece becomes most prominent when considering the categorisation of risk, since these coding categories required clear definitions in order to code the data consistently across all data sets. Firstly, the categories were drawn from literature, and expanded upon during the coding process where the definitions of the categories required expansion in order to encompass all components of the data. Secondly, to control for this expansion of the category definitions during coding, NVivo was used to determine and monitor the developments made by recording the frequency of the new sub-components that emerged under each broad RPFC risk category.

Theoretical validity also fed into the final discussion of the research findings, whereby the emergent themes were discussed and framed through cross-examination and consideration of existing theory. In doing so, any shared conclusions or disparities found between the research findings and extant academic literature could be highlighted and scrutinised for its theoretical validity. In this case, the research has been conducted in a way that apportions a suitable proportion of attention towards generating valid research outcomes. It therefore accounts for the descriptive, interpretive and theoretical validity that underpins the research design, providing evidence of the accuracy and efficacy of the ultimate research contributions.

12.2.2. Review of the Research Process

This section aims to reflect on the research methodology, identifying where the research process led to successful outcomes which align with the research aims, and also, where the research process could have benefited from improvements to the process to aid better quality in the research outcomes. Beginning with the strengths, ultimately the research methodology and associated methods aligned well with one another, enabling a rich combination of data to be incorporated into the research. By adopting a range of method techniques, the research captures the pre-defined intentions of a project through examination of the formal written contract. Whilst the analysis of the static documentation may offer an insight into the structural choices made in the contracts, on its own it provides no gauge as to whether the contract is effective in mitigating risk, or will assist the project in delivering successful outcomes. For this reason, a varying comparator was integrated within the research plan to determine the project's deviation from its pre-defined intentions (as stipulated in the contract). By capturing how the project was turning out in actuality, the research was able to determine any

discrepancies in the intended and actual outcomes of the contract, highlighting where issues or underlying risks arose.

Although the research design was successful in providing this level of comparison, the research process may also have been improved in other aspects. Specifically, the initial collection of real case study data posed a challenge since the collection of defence data was restricted by security protocols, which made the permissions for access particularly time consuming. As a result, initial access to the case study material placed a delay on the research process, somewhat shortening the research timeframes and limiting the number of case study samples that may be analysed within the three year term. Despite the delays, lessons have been drawn from this, and going forward it is proposed that both a set of case studies (including back-ups) and required security clearances should be put in place prior to the commencement of the research, in order to allow the study to transition smoothly. Furthering this, the research methodology consists of a range of methods which are time consuming in their application. Each component, whether the dissection and coded analysis of the contract, the construction of the risk migration mapping tool or the transcribing and coding analysis of the interviews, all represent thorough analysis techniques that are reliant on the accuracy and precision of the researcher, and could not be rushed to permit a larger sample size.

Aside from the underlying security related delays which emerged during the data collection phase of the research plan, few issues occurred throughout the three year research period. On the whole, the process was practical in terms of its implementation and undertaking, with only some delay which may have otherwise altered the sample size, which would have some effect on the data validity (though it is felt that the depth of the case study analysis certainly accounts for the refined breadth). Whilst given the context, some justification may be given to the research limitations, beyond the contextual boundaries set by the PhD, it is felt that the findings from the research would have benefitted from development in a number of areas. The first relates to the research design in terms of sample size, which would have benefitted from a larger case study representation in order to extract a greater level of depth to the findings. Excluding the time restraints associated with the PhD study, the generalisability of the research findings would be improved if a greater number of sectors within the defence service realm were accessed, for example, hotel/accommodation and restaurant services, legal services, and so on. In addition to this, limitations surrounding the generalisability of the research must be discussed. Furthermore, the research could be extended to incorporate other service agreements from across a cross-section of government departments and agencies. In other words, at present the research relates to commissioning service contracts within the specialist

sphere of defence and is therefore not necessarily suitable as a one-size-fits-all method for application to other public sector bodies, and beyond, confining the outreach of the research solely to the defence department.

A second limitation associated with the research sample selection is that currently all case study data sources reflect framework agreement service contracts, as opposed to a range of contract types. Future research therefore would benefit from incorporating a cross-examination of different contract types to both develop further understanding of systemic risk across a range of contracting approaches, and to further test and pilot the visual mapping tool developed within the research. Adding to this, the usability of the visual mapping tool could be enhanced through continued testing and development, trialling the tool under new contextual environments, such as other government departments, using different contract types and even against international comparators. It is thought that in doing so, the tool may be further tweaked to achieve greater academic and practical rigour.

The sampling debate is clearly one that could be discussed and developed in a range of directions, giving new scope for further research to be conducted. In addition to this, the research may also be expanded upon in terms of overarching research approach taken. Most notably, a study of this nature could arguably be undertaken as a piece of action research, involving the investigators full involvement in the day-to-day activities of both the case studies and the surrounding environment. Conducted in this way, the examination of the case studies would benefit from adaptation in their temporal structure, which currently observes the live project, as opposed to seeing the project through to completion. It is therefore envisaged that the research has room to progress in a range of ways, enabling the phenomenon being examined to be considered from a range of different perspectives, which would ultimately prompt new advances and contributions to be made in the field of project management and beyond.

12.2.3. Personal Development

My personal development as a researcher is an area which requires some reflection, however some indication of this personal development may become evident when proceeding through this sequentially ordered thesis, whereby the later discussion chapters reflect advances in my capability as an early career researcher. From the outset, the call for research from Dstl was broad in scope, which required me to adopt an inter-disciplinary approach to the research by ambitiously covering five broad (yet to some degree, interconnected) areas of literature. Having been awarded a scholarship with the University of Hull to undertake the PhD research,

having only recently completed my first degree in Business Economics, the step-up to independent, postgraduate research was initially very intensive as I set off to broaden my understanding of the theoretical underpinnings of all literature considered to be fundamental to the research. Here it was realised that the research required further refinement, in order to avoid overstressing the research, which would have inevitably affected the quality of the research outputs. It was at this point, that it was decided that an investigation into a specific branch of the defence department would be advantageous and the research proceeded with an investigation into the commissioning service realm, due to its current prominence in defence procurement and absence in academic research. The refinement process is an important process, which has taught me how to prioritise and implement a focused research plan, capable of building and contributing new or confirmed knowledge to both academics and practitioners. Specifically, as an early researcher, the refinement process has induced the setting of clear research boundaries, protecting the scope of the research from any infeasible growth (or 'scope creep'). By remaining aware of the core focus of the research, the study able to progress with little disruption to time, or other shortfalls which may have otherwise affected the quality and/or validity of the research piece.

A proportion of my personal development relates to my decision to remain in education and continue researching as a postgraduate student. In this case, my background in fulltime education provided me with an advantage in terms of my familiarity with scholarship (having not taken any time out to pursue a career in industry), which enabled me to research a field of practice, such as project management, without any preconceived biases that I could have otherwise learnt as a practitioner. Alternatively of course, it could be argued that experience in practice provides a researcher with a richer foundation of knowledge. However, the way that the research was approached meant that regular stakeholder engagement was established, enabling practitioner stances to be explored and accounted for throughout the research process. From this, I have learnt an important distinction between conceptual understanding and experiential learning, and acknowledge the importance of recognising the strengths and weaknesses of both types of knowledge creation in research. To account for this aspect practically, and for the purpose of future research, it is critical that a researcher firstly recognises and improves on any knowledge gaps that they might have. To combat these weaknesses, such as in the knowledge associated with practitioner experience, the researcher should engage with and immerse themselves within a facilitative environment. In the case of this research study, I gathered information through regular interaction with defence practitioners, and combined this source by familiarising myself with the formal standards and guidance used by those practitioners, to develop a richer understanding.

12.3. Research Contributions

The following section will identify and explore both the academic and practitioner contributions made by undertaking this research study, discussing these in turn.

12.3.1. Academic Contributions

The contributions made to the academic sphere are best considered in terms of their empirical, theoretical and methodological contributions to research. The empirical findings emerging from the research firstly contribute new knowledge towards the identification of systemic risk in service commissioning contracts, most prominently in terms of the structural patterns that may be observed in the commissioned contracts. In addition to this, the empirical results further confirm the current shortcomings associated with the treatment of risk as an independent phenomena in project management, as indicated through the depiction of risk as a multifaceted dynamic in the risk migration diagrams, together with the interconnectedness of the risks emerging from the practitioner interviews. Ultimately, the research outcomes therefore correlate closely to the views of those who recognise the need to acknowledge the interconnected nature of risk.

The academic contribution is underpinned by the application of existing theory within the research, which facilitated the deriving of the research questions and categorisation of risks in Chapter 7, together with the theoretical framing of the findings in Chapter 11. In terms of the categorisation of risk, the definitions were developed from existing theory, in order to build the research from a common consensus. Having applied existing theory in this aspect of the research, the categorisation of risk can be extended when accounting for new categorisation themes that emerge during the analysis process. In this way, refinements towards developing the understanding of the forms that risk can take on, have been made. The knowledge building process has also prompted advances in a range of other areas, focused specifically on developments to areas where gaps in the literature have been made apparent in Chapters 2-5. In particular, the research provides new insights into the definition and characteristics of ‘systemic risk’, by taking a specific systems case (i.e. a commissioned service), and highlighting the critical connection made between a contracts structure and project outcomes, which are underpinned by the inherent interconnectivity of the contract’s clauses. Linked to this, the research informs the existing literature concerned with risk management in projects by identifying the interrelatedness of project risks, and thus, advises both research and practice to progress away from the treatment of risk as independent.

In particular, the outcomes of the research findings provide new contributions in terms of the balance of risks that would be deemed as preferential under a Framework Agreement. What was presented throughout the discussion of the findings was the requirement to recognise the importance of balanced risk structures within contracts, and their alignment with the intent and purpose of the contract type being adopted. Expanding upon this, the research was able to reach a preliminary consensus that posits that the design of a Framework Agreement must strike a balance in terms of the risk transfer patterns between the buyer and supplier entering into a framework contract. Without such a balance, then the ownership of risk is placed disproportionately on one party over the other, which will lead to the emergence of risk. The most notable effect of an imbalanced allocation of risk between the parties falls under the Representation risk category, where the absence of mutual responsibility limits the information shared between the parties. For this category to be best placed to mitigate risk, the research concluded that the structural design on the contract must reflect a balanced transfer of risk. Other categories, like Performance risk differ slightly in that the performance of the contract, and therefore the risk associated is less likely to require a fully balanced transfer of risk between the parties, since this would not incentivise the supplier to deliver the work, services or supplies as required by the buyer. Finance risk counteracts the essential imbalance of risk transfers that lie under the Performance risk category since the financial burden associated with a project is initiated and therefore lies with the Contracting Authority, who must ultimately pay a fee for the delivery of the works, services or supplies. Whilst some financial risk must be recognised by the Contractor as a precautionary measure (often written in the form of a penalty clause, or liquidated damages), the majority of the finance risk should remain in the Contracting Authority's remit based upon its obligation to enforce consideration. Finally, the optimal balance of the transfer of Contract risk would naturally protect the Contracting Authority from unforeseen or uncertain events that would inevitably cause the contract to ultimately spiral towards failure or require termination. Since the functionality of the project is commissioned for and owned by the Contracting Authority, the control over the existence of the contract lies within its remit, yet risk of unexpected events and early conclusion of the contract remains with the Contractor. A generalised view of contract risk would therefore indicate that greater risks reside with the Contractor, who has less ownership of the ultimate outcome of the contract. Together, these extensions and contributions to academic theory provide a different way of considering the drafting process of formal contracts, together with the management of risk in projectised environments.

Linked to this theoretical basis, is the methodological developments made within this research, which concern the newly developed risk migration mapping tool. The two forms of

contribution (theoretical and methodological) bear some cross-over, since the methodological development represents a completely novel approach, which has been derived through theoretical rationale, before being implemented and applied to the sample of case studies examined in this research. On the whole, the research contributions to academia both confirm aspects of existing knowledge, whilst building new or different ways of identifying and classifying risk in public sector service commissioning projects.

12.3.2. Practitioner Contributions

As set out in the introduction to this thesis, the research conducted over the last three years yields strong links with public sector practitioners, since the requirement for the undertaking research was initially requested by the Defence Science and Technology Laboratory (Dstl). The research itself has therefore involved public sector practitioners, both for administrative purposes (since this research represents commissioned research in itself) and when implementing the data collection phase, which involved interaction with key personnel from both the public and private sector during the interviews. In addition to this, the research has gained interest from a broad range of senior defence stakeholders seeking to learn from new research outputs and improve upon existing practices. From this, it is evident that the research conducted has the propensity to implicate existing practice from a local, defence-specific level of influence. However, in terms of applicability to the wider practitioner, the research provides a new way of thinking about and identifying risk in contracts (and projects), which may assist with the measurement and forecasting of risk at the outset, at the point in time where the contract that underpins a project is being drafted. Whilst this may be the case, the practicalities in terms of dissemination amongst those practitioners requires further acknowledgement. Accessing a wide cohort of practitioners at this stage would be challenging, and instead it is envisaged that continued engagement with existing defence practitioners would be a realistic starting point. In order to distribute the research out to defence practitioners, the research will first require further piloting and trials to ensure that the research may be practicably applied to the defence environment. Doing so will require the piloted application of the developed research methods from the initial conception point of a project, right through to the life cycle to trial their functionality in a practical setting.

12.4. Future Research

The undertaking of this research has returned some potential avenues for further exploration of themes and concepts that remain under-investigated. The most prominent of these is the extension to the current research, which has provided a way of identifying and measuring the

dynamic and interrelated nature of risk in a project. Identification of risk in this way is novel, through the adoption of the risk migration mapping tool that was introduced in Chapter 7 and implemented throughout the data analysis phase. However, beyond this, there still remains scope to further propose or develop an optimal contracting solution that fully accounts for, and mitigates the systemic risk behaviours uncovered within this thesis.

Specific developments to the research methods have become identifiable throughout the research process, and new avenues for exploration must therefore be accounted for. In particular, the categorisation of risks and resultant findings suggest that there is a strong interconnectivity that exists between the risk clusters under a Framework Agreement, a pattern that was accounted for during the construction of the research design in Chapter 7, Section 7.9.2. Furthermore, Representation risk appears to be a risk category that is of significance within the research conducted, which as previously discussed, relates to the nature of Framework Agreements as collaborative contracting mechanisms, designed to reduce information asymmetry. The two sub-categories (information and relational risk) both emerged as important themes, yet a significant finding (See Component 1, Chapter 11) related to the relational aspect of the overarching Representation risk category. Whilst the main priority of the research was to develop a robust method for undertaking risk categorisation so that a greater understanding of systemic risk may be unearthed, further research could be done to develop the construct of relational risk in terms of its links to the other types of risks in these types of contracts, since this represents a finding of prominence. To do so, it is recommended that an extended analysis should be undertaken which identifies not only the formal citations made between the contractual clauses, but derives a taxonomy that depicts the interlinkages between the different forms of risk identified across a sample of Framework Agreement contracts.

From a top level perspective, it is anticipated that such an extension will require further investigation of public sector commissioning service projects. A logical first step would be to develop an action research plan that facilitates new developments to the tools, processes, and people, and which operates on an actual project, whilst it is being applied. To achieve this, the project will be closely monitored and tested in order to observe whether the new developments influence the project's short-term outputs and long-term outcomes positively or negatively. In terms of new developments to the tool, it is envisaged that beyond initial piloting, the tool may be employed in practice as an indicator of ex ante risk, applied during the design phase of a contract's drafting procedure. The process may also be developed by following the project from its early conception, guiding it through the drafting of the contract (using the migration

mapping tool) to determine the optimal procedure to be followed. Finally, the choice of people employed to undertake the work, including their suitability to work on certain project phases, and their optimal staffing timelines would be an aspect to consider in the undertaking of further research.

In addition to this, it must also be highlighted that the thesis covers only a sample of contracts from across three service commissioning areas in the defence sector. To enhance the generalisability of the research so that it may be applied further afield, it is recommended that future research should be conducted to account for other public sector departments within the UK. Extending upon this, a later study which accounts for and provides a comparator across borders, may also assist with the building of knowledge in this area of research.

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APPENDICES

Appendix A: The aleatoric and epistemic separation of uncertainty.

Epistemic Uncertainty

Scholars who advocate the epistemic uncertainty distinction view uncertainty to be a result of a lack of knowledge about a proposition or event. Epistemic uncertainty can therefore be directly associated with the person interpreting the subject (Helton, 1994; Ma & Aloysius, 2016). In this way, epistemic uncertainty is considered to be reducible where greater knowledge of the subject can be obtained. In contrast, aleatory uncertainty is documented as being irreducible in nature, due to its variability and random properties. Such interpretations of epistemic uncertainty come from the strands of logical and inductive interpretation, with each school under the mutual agreement that an epistemic view should be adopted in situations where uncertainty has no direct relation to physical randomness, separating it from opposing scholarly interpretation (such as: Venn, 1888; von Mises, 1928 Reichenbach, 1949). Within the epistemic bracket of literature, the aleatory definition is generally disregarded and substituted with the notion that probability is a branch of logic (Keynes, 1921) and therefore interpreted as a “degree of rational belief in a proposition warranted by some body of evidence” (Oakes, 1986; p. 104). In his contribution to the theory, Keynes (1921) put forward that probabilities relate to pairs of propositions, rather than a single proposition. The theory therefore enforces two features: the first premise represents a proposition that is unknown to be true or false, and the second is a statement that gives evidence for the first. From this, it can be inferred that a belief is always justified by evidence and therefore our belief in a statement or proposition (i.e. probability) is reliant upon existing knowledge (categorising uncertainty as epistemic).

Following this logic, many scholars have concluded that uncertainty is axiomatic and should not be separated into types (Winkler, 1996). Those who take this view of uncertainty believe that all uncertainties can only be epistemic in nature. Indeed, even where uncertainty is measured using stochastic or probability modelling (attributed to aleatory uncertainty), such tools merely represent a *subjective* measure of uncertainty that is dependent on the presence of background knowledge (Winkler, 1996; Lindley, 2006; Aven, 2012). Furthering this, subjectivity on the probability of a proposition or event, as defined by Morgan *et al.* (1992; p. 49) is “the degree of belief that a person has that it will occur, given all the relevant information currently known to that person”. The subjective view of probability therefore argues that there

are numerous ways in which information can be processed to obtain a probability distribution, which do not necessarily admit to categorical codification (Suppes, 1994). Savage (1962) maintained that *all* uncertainties are subjective, that is, they occupy the mind of the individual, not the external material world. Following this principle, Savage (1962) coined the “sure-thing principle” which, rather than adopting *a priori* or stochastic models, toyed with the idea of probability in the case where an individual makes a decision, whilst holding no preference for either outcome of the event. Under this speculation, Savage held that most individuals do not hold clear intuitions about probability, by implying that it is only necessary for the assessor to make a choice between bets, thus avoiding any explicit mention of probability (Morgan *et al.*, 1992).

In line with the subjective theory of probability, Suppes (1994; p. 17) gives the example of how two meteorologists, having been presented with the same weather map and the same history of observations of basic meteorological variables, will most likely differ in the numerical probability they assign to tomorrow’s forecast of rain, due to each meteorologist holding their own subjective perceptions of the situation. In this example, expert judgement underlies the expected outcomes of the situation: if prior experience of a situation is good, then the chances of an accurate judgement are heightened, supported by subjective perceptions on that particular probability of happening. Makridakis *et al.* (2018) demonstrate the connection between subjectivity and uncertain outcomes through consideration of medical diagnosis, concluding that the predictive tests undertaken by medical practitioners are not always sensitive enough to guarantee an accurate diagnosis. Wright *et al.* (2009) challenge the notion of eliciting accurate probability forecasts when based on subjective perception by identifying the connection between low “learnability” and invalid probability judgements. In this way, Wright *et al.* (2009) find that a lack of feedback from past outcomes inevitably forces expert judgements to be made that are not a true representation of the judges’ true feelings of subjective probability (Wright *et al.*, 2009; p. 216). Thus, in line with Wright *et al.* (2009), without prior experience of valid probability judgements, subjective perceptions may be deemed invalid, authorising the application of other *objective* methods of prediction.

Aleatoric Uncertainty

The previous section provides a discussion of just one component of uncertainty (epistemic), however when discussing real life applications, two forms of uncertainty must be acknowledged. Aside from an epistemic understanding, uncertainty may also be deemed to be aleatory in nature, subjecting it to random variability, and to which probabilities can be

objectively related (Williams, 2017). Taking an archetypical example, aleatoric uncertainty is often demonstrated figuratively through a coin toss experiment. In this case, the data generated under this test is considered to hold stochastic or random traits, that is, the associated uncertainty cannot be reduced through the gathering of additional information. As a result, the application of any probability model would only be able to determine the probability of two possible outcomes (e.g. heads or tails), without obtaining a sure solution. Extending beyond this simplistic example, numerous modelling techniques have been developed in order to quantify aleatoric uncertainty. The following section expands upon the definition of aleatoric uncertainty by providing a discussion of the central debates surrounding probability modelling.

Appendix B: Definitions and use of the term ‘systemic risk’ from the financial, medical and project management spheres.

A Financial Definition Systemic Risk

Already it has been implied that the definition of systemic risk is clouded, with differed meanings across different fields and applications. Within a paper positioned towards investigating banking regulation, Kaufman and Scott (2003) categorise these into three brackets; the first concept discusses the term to be a form of systemic shock, occurring at a macro-level and thereby causing large adverse effects on an entire economy or system. In this case, the “systemic” element of the phrase “refers to an event having effects on the entire banking, financial, or economic system, rather than just one or a few institutions” (Bartholomew & Whalen 1995, p.4). The second proposes two, closely linked micro-level definitions of systemic risk, where more intimate connections among institutions or markets are required: “That is, systemic risk is the risk of a chain reaction of falling interconnected dominos” (Kaufman, 1995; p. 47). In the case of the second definition, systemic risk is understood as being related to the *interconnectivity* of risks, and therefore links correlation with causation. In their paper, Kaufman and Scott (2003) contribute a more general definition of the term “systemic risk” by combining the two understandings of the term. In their definition, systemic risk in the financial context is referred to as “the risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by co-movements (correlation) among most or all the parts” (Kaufman & Scott, 2003; p. 371). What can be deduced from these financial definitions is that, in this context, the term “systemic risk” has been, and continues to be used to describe the risk arising from a system as a whole, or even, the risk to the system as a whole.

A Medical Application of Systemic Risk

Perhaps the closest comparator to the financial usage of the term “systemic risk” is one stemming from the medical field. Whilst the exact phrase does not appear regularly, the term “systemic” commonly describes a type of disease that is widespread throughout the body, and assumed to have a presence in a number of localised parts or organs, or the entire body. Dorland (2011; p. 489) defines a systemic disease as “one that affects a number of organs and tissues, or affects the body as a whole”. If breakdowns were merely individual parts of the body, then the term systemic would be redundant and assumed to be a “localised” form of disease. In this way, the meaning of the term posed in the medical field bears some similarity

with that of the financial definition produced by Kaufman and Scott (2003) where both identify a difference between a localised breakdown and its systemic equivalent. What differs between these two applications is the transmitting component, that is, the catalyst to the event being observed. In medicine, the transfer of this risk (i.e. the disease) is spread by the bloodstream, which carries the disease across the entire system, infiltrating multiple organs. Of course, in the case of financial systems, there is no sole tangible transmitting component, rather it consists of the flow of transactions, which imitate this ‘bloodstream’ effect.

In both cases, the *outcomes* of the systemic event is varied. In some definitions from the financial side, the term systemic is married with the term ‘risk’ or even ‘failure’, demonstrating the differing degrees of the outcomes. In a similar way, medical practitioners recognise that systemic disease can be diagnosed as a manageable, or treatable condition. It may, however, develop as an untreatable condition, inevitably causing a complete malfunction/failure of the body i.e. death. What both these cases ultimately replicate is the timing at which the ‘systemic risk’ is recognised. In other words, the financial system almost assume that systemic risk is something that is recognised in hindsight, rather than picked up early. Likewise, for an entire failure to be made possible in the medical realm, the disease would most likely be recognised at an advanced stage of the disease, lowering the likelihood of recovery.

“Risk Systemicity”: A Project Management Definition

When uncovering the meaning attributed to the term “systemic”, advocates from the financial and medical fields appear to stress the importance of differentiating between a *localised* and a *widespread* event. Whilst in both cases, a localised event does not seem to constitute a *systemic* event, when applying the term to a *systemic risk*, there appears to be an inconsistency, based upon the aforementioned “interconnectivity” of risks, as identified in the financial literature. Interconnectivity appears as a significant theme in project management, a field which adds a further contribution to the definition of systemic risk. Project management (PM) scholars, Ackermann *et al.* (2014) steer towards a definition of risk systemicity by stressing the importance of interrelatedness: “risks can be seen as a network of interrelated possible events, which may be referred to as ‘risk systemicity’” (p. 293). In this discussion, and many others in the realm of PM, systemic risk is considered to be causally related. A focus on the interrelatedness of risks therefore implies that systemic risks may not be considered as independent of one another (or localised), instead, what becomes a focal point is the system in which the risk resides. Similarities between the financial understanding of the term and the project management understanding are evident, yet the definition posed by Ackermann *et al.*

(2014) amongst others implies that systemic risk need not be restricted to only ‘widespread’ phenomena. Instead, PM scholars appear to consistently challenge this when incorporating the notion of complexity. In other words, *systemic* risks may also capture individual risks, provided that they contain this factor of interrelatedness, which by default, denote complex causal ramifications.

Having touched on the two key forms that systemic risk definitions take in both the finance and medical domain, what must be highlighted is that the term “systemic” appears in other specialist fields in different forms. Project management (PM) and systems thinking literature differ in their labelling of the phenomenon and instead prefer to adopt the phrase “risk systemicity” when discussing how a *whole* risk might be greater than the sum of its parts (Williams *et al.*, 1997). Prior to the financial markets usage of the term, the idea of systemics developed as a component, produced from the established ideas of systems thinking. A common feature exhibited by the management science literature exhibits “risk systemicity” as a definition comprised of a range of key facets or characteristics. For this reason, there appears to be a lack of formal definition of the term within the PM field, yet insights can be gained from a number of sources (Williams *et al.*, 1997). Given the range of definition, the concept of systemic risk (whether referred to in this exact phraseology or in alternate forms) displays a regularly occurring range of elements, all of which, when thought of as generic, can be applied in a trans-disciplinary manner. This acts as a foundation for thinking about systemic risk, a foundation that can be built on when considering the contextual impacts of ‘the system at risk.

Appendix C: A tabularised sample of coded contract conditions, extracted from each of the four Case Studies.

Clause/Sub-Clause	Risk Code	Reason	R	P	F	C	Migration Direction		Linked Clause
PERIOD OF CONTRACT									
2.1.	Performance Risk (P) & Contract Risk (C)	Focus is on time. Time is a risk associated with performance of the contract i.e. will it be delivered on time? And is also a component of contract risk i.e. will the Contractor fulfil the agreement or will this be breached?	0	1	0	1	C.A.	to	C
ORDER OF PRECEDENT									
3.1.	Representation Risk (R) [Relational]	There is an implied coordination between parties in the event of conflict.	1	0	0	0	NEUTRAL.		
3.2.	Contract Risk (C)	Focus on the weighting of the contract. Everything outside of the contract holds no weight against the contract.	0	0	0	1	C.A.	to	C

3.3.	Contract Risk (C)	The general theme here is the risk against appeal against the facts, whether in terms of the trigger of protection clauses in the contractual structure (these are ordered according to 3.1.) or in terms of protection against past agreements/warranties etc.	0	0	0	1	NEUTRAL.		
4. WARRANTIES & REPRESENTATIONS									
4.1.1.	Representation Risk (R) [Information]	Focus on Contractors promise that it is in a position to perform its obligations. Information risk is exerted on the Contractor's 'authorised representative' (i.e. refers to SC Clearance).	1	0	0	0	C.A.	to	C
4.1.2.	Representation Risk (R) [Information]	Promise that no fraud has been committed by the Contractor.	1	0	0	0	C.A.	to	C
4.1.3.	Representation Risk (R) [Information]	Highlights misrepresentation and aims to ensure that all claims made by the Contractor in the tender process, still remain accurate.	1	0	0	0	C.A.	to	C
4.1.4.	Representation Risk (R) [Information]	Promise that there are no underlying implications (litigation, arbitration etc.) that may affect the performance of the contract.	1	0	0	0	C.A.	to	C
4.1.5.	Representation Risk (R) [Information]	Contractor not subject to other contractual obligations which may have a knock-on effect on ability to perform.	1	0	0	0	C.A.	to	C

4.1.6.	Representation Risk (R) [Information]	Contractor has taken no steps to wind-up their business activities.	1	0	0	0	C.A.	to	C
4.1.7.	Representation Risk (R) [Information]	Contractor owns valid IP licenses, necessary for the performance of the contract.	1	0	0	0	C.A.	to	C
4.1.8.	Representation Risk (R) [Information]	Contractor promises that it obtains/is able to obtain List X status.	1	0	0	0	C.A.	to	C
4.1.9.	Representation Risk (R) [Information]	Accounts are correctly represented.	1	0	0	0	C.A.	to	C
4.1.10.	Representation Risk (R) [Information]	Contractor abides by securities and tax law.	1	0	0	0	C.A.	to	C
4.1.11.	Representation Risk (R) [Information]	Contractor hasn't done anything that will affect its financial position/ability to undertake business.	1	0	0	0	C.A.	to	C
5. DELIVERABLES									
5.1.	Finance Risk (F)	Highlights the obligation of the Contractor to supply the deliverables. Protects C.A. from costs associated from failure.	0	0	1	0	C.A.	to	C
5.1.1.	Performance Risk (P)	Lists all deliverables expected based on the SOR. To fulfil, the Contractor is under the expectation to perform. The prime risk associated is therefore performance risk.	0	1	0	0	C.A.	to	C

5.1.2.	Representation Risk (R) [Information]	Directs to Annex 1 which links deliverables with IPR Conditions.	1	0	0	0	C.A.	to	C
5.1.3.	Representation Risk (R)	Covers new discovery of deliverables requiring IPR considerations to be agreed. Consideration of the unknown and the need for reactive cooperation is the theme here.	1	0	0	0	C.A.	to	C
5.2.	Performance Risk (P)	Lists all deliverables expected based on the SOR (Item 2). To fulfil, the Contractor is under the expectation to perform. The prime risk associated is therefore performance risk.	0	1	0	0	C.A.	to	C
5.3. (QUALITY ASSURANCES)	Performance Risk (P)	Quality assurance requirements: compliance of deliverables.	0	1	0	0	C.A.	to	C
5.3.1.	Performance Risk (P)	Mention of quality.	0	1	0	0	C.A.	to	C
5.3.2.	Performance Risk (P)	Contractor must deliver with care and skill.	0	1	0	0	C.A.	to	C
5.3.3.	Performance Risk (P)	Personnel must reflect skill and experience, ensuring the performance is not affected.	0	1	0	0	C.A.	to	C
5.3.4.	Performance Risk (P)	Hold valid licenses to comply with legislation (on quality).	0	1	0	0	C.A.	to	C

5.3.5.	Performance Risk (P) & Contract Risk (C)	Material defects protected against (quality). Includes a warranty (12 month from service or 18 from delivery). Authority can execute remedies for breach of contract if the deliverables aren't met.	0	1	0	1	C.A.	to	C
6. PRICE									
6.1.	Finance Risk (F)	Direction to the pricing rates for Item 2 of the SOR.	0	0	1	0	-	-	-
6.2.	Finance Risk (F)	Remuneration against Item 1 of the SOR.	0	0	1	0	C	to	C.A.
6.3.	Finance Risk (F)	Management fee options.	0	0	1	0	NEUTRAL.		
6.4.	Finance Risk (F) & Representation Risk (R)	Pricing of tasks. Explicit mention where written agreement of the Authority is needed.	1	0	1	0	C.A.	to	C
6.4.1.	Finance Risk (F)	Tasking Price. Pricing mechanisms highlighted as being Firm or Ascertained (under competition).	0	0	1	0	C.A.	to	C
6.4.2.	Finance Risk (F)	Tasking Price. Pricing mechanisms highlighted as being Firm or Ascertained (under agreed sub-contractor).	0	0	1	0	C.A.	to	C
6.4.3.	Finance Risk (F)	Direction given to Contractor RE structuring the breakdown of costs & linking to a condition on payment. Cost breakdown = cost authentication = finance compliance for payment.	0	0	1	0	C.A.	to	C

6.5.	Finance Risk (F)	Authority underwrites/commits to assuring task volume throughput.	0	0	1	0	C	to	C.A.
6.5.1.	Finance Risk (F)	Financial burden of 6.5 pegged to SDSR, allowing changes to be made to Authorities commitment.	0	0	1	0	C.A.	to	C
6.6.	Finance Risk (F)	PRICE FIXING. Refers to Shared Working Environments (an Option), as being subject to pricing agreed by the Authority.	0	0	1	0	C.A.	to	C
6.7	Finance Risk (F)	PRICE MECHANISM. Option only implemented as an alternative, and agreed by both Parties. Price fixing should be implemented where practical.	0	0	1	0	NEUTRAL.		
6.8.	Finance Risk (F)	Contractor's obligation to provide financial reports annually, a tool for the Authority's financial risk mitigation.	0	0	1	0	C.A.	to	C
6.9.	Finance Risk (F)	Contractor's procedure for requesting financial settlement.	0	0	1	0	C.A.	to	C
6.10.	Finance Risk (F)	Contractor's requirement to maintain records of production costs/plans.	0	0	1	0	C.A.	to	C
6.11.	Finance Risk (F)	Auth. can visit manufacturing site and examine cost reports.	0	0	1	0	C.A.	to	C

6.12.	Finance Risk (F)	Auth. reports/process checking in relation to other contracts that follow similar processes.	0	0	1	0	C.A.	to	C
7. PAYMENT									
7.1.	Finance Risk (F)	Contractor can apply a management fee if the contract is not undertaken by the Prime. No management fee is granted if the work is subcontracted out by a third party (C.A. protects itself from additional costs).	0	0	1	0	NEUTRAL.		
7.2.	Finance Risk (F) & Performance Risk (P)	Financial penalty on Contractor for failing to reach agreed KPI scores. Mitigates risk of payment for an ill performing contract.	0	1	1	0	C.A.	to	C
7.3.	Finance Risk (F) & Performance Risk (P)	If poor KPI scores are due to Authority's actions, financial retention is void.	0	1	1	0	C	to	C.A.
7.4.	Finance Risk (F)	Protection of excessive profit/losses.	0	0	1	0	C.A.	to	C
7.5.	Finance Risk (F)	Milestone payments to sub-contractors based on performance of deliverables, subject to firm price agreed. INCENTIVE.	0	0	1	0	C.A.	to	C
7.6.	Finance Risk (F)	Records of management fees to be maintained by the Contractor and submitted quarterly.	0	0	1	0	C.A.	to	C
7.7.	Finance Risk (F)	Procedure for Contractor invoicing.	0	0	1	0	C.A.	to	C

7.8.	Finance Risk (F) & Contract Risk (C)	Obligation of Authority to pay within 30 days of receipt of invoices.	0	0	1	1	C.A.	to	C
7.9.	Finance Risk (F)	Financial risk by way of interest owed by the Authority if invoice payment is late. Contractor's security, Authority's obligation.	0	0	1	0	C	to	C.A.
7.10.	Finance Risk (F) & Performance Risk (P)	Procedure for Item 2 payments, subject to performance of each task or milestone and speed of completion/spend.	0	1	1	0	C.A.	to	C
7.11.	Finance Risk (F) & Performance Risk (P)	PAYMENT FOR PERFORMANCE. Payment only made when PM from Authority is satisfied with work done by the Contractor.	0	1	1	0	C.A.	to	C
7.12.	Finance Risk (F)	Payment where Authority terminates.	0	0	1	0	C	to	C.A.
8. PRICING ON ACERTAINED COSTS									
8.1.	Finance Risk (F)	Pricing mechanism, controlled by the Authority for firm price man day rates.	0	0	1	0	C.A.	to	C
8.2.	Finance Risk (F)	PRICE RESTRICTIONS. Price cannot exceed maximum amount, stated on the tasking form.	0	0	1	0	C.A.	to	C

8.3.	Finance Risk (F)	If contract assumed to not be finished at maximum tasking price, Contractor must notify/explain to the Authority. C.A. stop Contractor from taking advantage of high profit margins, at a cost to their own finances.	0	0	1	0	C.A.	to	C
8.4.	Finance Risk (F)	Authority's procedure for keeping a check on task pricing. (Regular view on invoices) to control likelihood of cost overruns.	0	0	1	0	C.A.	to	C
8.5.	Representation Risk (R)	Procedure for financial reports. Intrusive financial monitoring (open book). It therefore represents the interest of given party.	1	0	0	0	C.A.	to	C
9. SUB-CONTRACTING									
9.1.	Performance Risk (P) & Contract Risk (C)	C.A's control over the amount of involvement the Contractor has in sub-contracting, to control for lack of performance on the main contract, and to stop the prime from retaining all work.	0	1	0	1	C.A.	to	C
9.2.	Representation Risk (R) [Information]	Protection of the Authority from loss of capability/intellectual property/material property. This warrants another contract. (Highly emphasised in DEFCONS.)	1	0	0	0	C.A.	to	C

9.3.	Representation Risk (R)	Contractor to provide sub-contracting agreements to Authority for monitoring. Theme of representation of the sub-Contractor & protection of information.	1	0	0	0	C.A.	to	C
9.4.	Representation Risk (R) & Contract Risk (C)	Sub-Contractors are subject to Terms & Conditions of the contract. It is the Contractor's responsibility to flow down the conditions. The Auth. is protecting itself from sub-contracting risk and shifting responsibility of monitoring to the Contractor.	1	0	0	1	C.A.	to	C
10. COMMERCIAL EXPLOITATION LEVY									
10.1.	Finance Risk (F)	If the Contractor wants to evoke commercial exploitation then payment is required. The Contractor takes on a financial burden to benefit.	1	0	0	0	C.A.	to	C
11. ADVERTISING & PUBLICITY									
11.1.	Representation Risk (R) [Information]	Protecting Authority against risks associated with supply of information to the press.	1	0	0	0	C.A.	to	C
12. AUTHORITIES REMEDIES FOR BREACH OF CONTRACT									
12.1.	Contract Risk (C)	Authority have right to execute remedies for breach if deliverables aren't met.	0	0	0	1	C.A.	to	C

12.1.1.	Performance Risk (P)	Breach condition applied by C.A. where deliverables aren't met by Contractor on agreed timescales.	0	1	0	0	C.A.	to	C
12.1.2.	Performance Risk (P)	Breach condition applied where deliverables do not comply with SOR's.	0	1	0	0	C.A.	to	C
12.1.3.	Performance Risk (P)	Breach condition applied where a material breach of the Contractors obligations is found.	0	1	0	0	C.A.	to	C
12.1.4.	Performance Risk (P)	Identifies the different remedies to a breach of contract on material grounds .	0	1	0	0	C.A.	to	C
12.1.5	Contract Risk (C)	Rejection can be up to 30 days after the deliverable, risk migrated away from C.A. and left at Contractors expense/cost.	0	0	0	1	C.A.	to	C
12.1.6.	Contract Risk (C)	C.A. can direct the Contractor to cease/complete the supply of a service.	0	0	0	1	C.A.	to	C
12.1.7.	Finance Risk (F)	Contractor given the opportunity at their expense to remedy the failure.	0	0	1	0	NEUTRAL.		
12.1.8.	Finance Risk (F)	Contractor liable in a situation of breach to the C.A.'s claim on damages.	0	0	1	0	C.A.	to	C

12.2.	Contract Risk (C)	Protecting changes to contract. Where remedy has been applied, the new articles are automatically subject to the same conditions as before. C.A. protect contract/themselves in light of change.	0	0	0	1	C.A.	to	C
12.3.	Representation Risk (R) [Relational]	Fair judgement and consideration. How the Authority behave when executing remedies. If the C.A. don't comply, they are at risk.	1	0	0	0	C	to	C.A.
12.4.	Contract Risk (C)	Acknowledgement that C.A.'s rights and remedies are in addition to those implied by common law. C.A. has ultimate protection.	0	0	0	1	C.A.	to	C
13. PROGRESS MEETINGS AND REPORTS									
13.1.	Performance Risk (P)	Reports required by Contractor to deliver in accordance with the SORs.	0	1	0	0	C.A.	to	C
13.1.1.	Performance Risk (P)	Procedures for reports, enable authority to monitor performance of contractor.	0	1	0	0	C.A.	to	C
13.1.2.	Performance Risk (P)	Progress reports based on performance of the Contractor. Compliance and procedure for this.	0	1	0	0	C.A.	to	C
13.1.3.	Performance Risk (P)	Final report instructions. Shows if performance is acceptable and if obligations are being fulfilled.	0	1	0	0	C.A.	to	C

13.1.4.	Performance Risk (P)	Record of meeting minutes required by C.A. to be submitted by the Contractor at no cost to the C.A. This also provides a legal representation of cooperation from both sides.	0	1	0	0	C.A.	to	C
13.1.5.	Representation Risk (R)	Obligation of an authorised individual to sign contracts on behalf of the Contractor.	1	0	0	0	C.A.	to	C
13.2. Marking of Deliverables	Performance Risk (P)	Sets out the types of technical information under the marking scheme. Highlights the requirement of the Contractor to take ownership of IPR when marking.	0	1	0	0	C.A.	to	C
14. GOVERNMENT FURNISHED ASSETS									
14.1.	Performance Risk (P)	Authority taking risk on by offering GFA to contractor BUT enables contractor's performance.	0	1	0	0	C	to	C.A.
14.2.	Representation Risk (R) [Information]	GFA under loan terms, meaning ownership remains under the Authority.	1	0	0	0	C.A.	to	C
14.3.	Representation Risk (R) [Information]	Conditions for return of GFA to Authority.	1	0	0	0	C.A.	to	C.A.
14.4.	Contract Risk (C)	Protection of the Authority against any inaccuracy of the information provided.	1	0	0	0	C.A.	to	C
15. CONTRACTORS LIABILITY									

15.1.	Finance Risk (F) & Contract Risk (C)	Contractor's liability, for any indirect and consequential losses, is excluded. Financial Risk is on the C.A.	0	0	1	1	C	to	C.A.
15.2.	Finance Risk (F) & Contract Risk (C)	Boundaries of liability – Contractor given unlimited and expected to flow down to sub-contractors. Severe migration of risk towards Contractor, but financial caps mentioned.	0	0	1	1	C.A.	to	C
15.3.	Finance Risk (F) & Contract Risk (C)	Both parties liable for death/personal injury as a result of negligence. Some attempt of contractor to shift come risk back from 17.2.	0	0	1	1	NEUTRAL.		
16. INSURANCES									
16.1.1. OBLIGATION TO MAINTAIN INSURANCES	Contract Risk (C)	Contractor must maintain valid insurances. Lowers chance of contract breach.	0	0	0	1	C.A.	to	C
16.1.2.	Representation Risk (R)	Representation of the insurers – must be deemed adequate by the Authority.	1	0	0	0	C.A.	to	C
16.1.3.	Contract Risk (C)	Contractors insurance provides indemnity to principle clause to protect C.A. from claims on death or personal injury.	0	0	0	1	C.A.	to	C
16.2. GENERAL OBLIGATIONS	Contract Risk (C)	Protection of C.A. against Contractor renegeing on the contract through appropriate risk management and insurance.	0	0	0	1	C.A.	to	C

16.3.1 FAILURE TO INSURE	Contract Risk (C)	Contractor must not permit any incident that entitles the insurer to refuse payment of a claim. The contractor takes full liability for ignorant behaviour.	0	0	0	1	C.A.	to	C
16.4.1. EVIDENCE OF INSURANCE	Contract Risk (C)	Obligation of contractor to provide proof of insurance. Limits the contract risk of non-insurance.	0	0	0	1	C.A.	to	C
16.5.1. AGGREGATE LIMIT OF INDEMNITY	Finance Risk (F)	If the insurance cover available falls below the minimum, insurance cover must be reinstated at all times by the Contractor. If it falls short, the Contractor should notify the C.A. the full details of the policy and the solution for maintaining the minimum limit of indemnity specified.	0	0	0	1	C.A.	to	C
16.6. CANCELLATION	Representation Risk (R)	Notification to the C.A. where insurances have been cancelled (18.6.1.) - unless it is to change insurers. C.A. demand information (18.6.2.)	1	0	0	0	C.A.	to	C
16.7.1. INSURANCE CLAIMS	Representation Risk (R) [Information]	The Contractor is to assist with supporting the Authority with information if any claims are made.	1	0	0	0	C.A.	to	C

16.7.2.	Representation Risk (R) [Information]	Obligation of contractor to notify the authority if claims over £250,000 are made, with full details.	1	0	0	0	C.A.	to	C
16.7.3.	Contract Risk (C) & Finance Risk (F)	Contractor's liability to pay insurance premiums, therefore absorbs finance risk.	0	0	1	1	C.A.	to	C
16.7.4.	Contract Risk (C) & Finance Risk (F)	Contractor liable for excess or deductible.	0	0	1	1	C.A.	to	C
17. USE OF THE AUTHORITY'S IT									
17.1.1.	Representation Risk (R)	Contractors cannot use Authority's IT, unless explicitly agreed.	1	0	0	0	C.A.	to	C
17.1.2.	Representation Risk (R)	Compliance with Authority procedures, if IT access granted. C.A. protection from reputation threats.	1	0	0	0	C.A.	to	C
17.1.3.	Representation Risk (R)	Use of IT for unlawful purposes/purposes which affect reputation.	1	0	0	0	C.A.	to	C
18. PUBLICATION (ACADEMIA)									
18.1.	Representation Risk (R) [Information]	Protection of the Authority's reputation and intellectual property as represented by the contractor in publication.	1	0	0	0	C	to	C.A.
19. CONTRACTORS PERSONNEL – RESEARCH WORKERS									

19.1.	Representation Risk (R)	Recognition of specified research workers by name. Enables C.A. monitoring, and approved selection of personnel to boost performance.	1	0	0	0	C.A.	to	C
19.2.	Representation Risk (R)	Procedure for employing a research worker. Authority able to monitor for security, performance, cost.	1	0	0	0	C.A.	to	C
19.3.	Representation Risk (R)	No changes in Research Workers, once approved (unless written request given to the Authority). Protection from losses (other than financial) arising by change in personnel.	1	0	0	0	C.A.	to	C
19.4.	Representation Risk (R)	Protection from loss of change in contract (loss in information/knowledge capability). The Contractor has an obligation to inform the C.A. (relational) if a change of research worker is necessary.	1	0	0	0	NEUTRAL.		
19.5.	Performance Risk (P)	Research workers must be qualified. C.A. has ultimate power of choices made.	0	1	0	0	C.A.	to	C
20. PURCHASE ORDERS UNDER FRAMEWORK									

20.1.1.	Performance Risk (P) & Representation Risk (R)	Detailed specifications written by Authority and handed to Contractor. Expectations of deliverables/performance.	1	1	0	0	C.A.	to	C
20.1.2.	Performance Risk (P), Finance Risk (F) & Representation Risk (R)	Response of Contractor to request of work, highlighting how work will be delivered and the firm/ascertained cost plan. Authority protection from any performance/financial failure.	1	1	1	0	C.A.	to	C
20.1.3.	Finance Risk (F) & Representation Risk (R)	Authority checking finance proposition made by Contractor.	1	0	1	0	C.A.	to	C
20.1.4.	Contract Risk (C)	Offer of contract made by C.A. and Contractor to commence call-off task.	0	0	0	1	C.A.	to	C
20.1.5.	Contract Risk (C)	Contractor's unqualified acceptance of Authorities offer.	0	0	0	1	C.A.	to	C
20.1.6.	Contract Risk (C)	Task amendments follow the procedure again. Authority protect from change, changes cost money (secondary risk).	0	0	0	1	C.A.	to	C
20.2.	Representation Risk (R)	Authority can review sub-Contractor choices. Ownership of control.	1	0	0	0	C.A.	to	C
20.3.	Contract Risk (C)	Authority have power over supplier selection if Contractor fails to do so.	1	0	0	1	C.A.	to	C
21. COOPERATION									

21.1.	Representation Risk (R)	Contractor's cooperation with third parties. On behalf of Authority – bears some representational risk on the Authority.	1	0	0	0	C.A.	to	C
21.2.	Representation Risk (R) [Information]	Recognition that the info. Provided to third parties may be sensitive, particularly commercially sensitive to the Contractor.	1	0	0	0	C.A.	to	C
21.3.	Representation Risk (R)	Authority may disclose information generated by cooperating parties, under contract, to other contractors.	1	0	0	0	C.A.	to	C
21.4.	Representation Risk (R) [Information]	Sharing of information between contractors in confidence, for the purpose of performance.	1	0	0	0	C.A.	to	C
21.5.	Representation Risk (R) [Information]	Information disclosed in machine readable format must be classified as commercially sensitive - information protection present - this is the responsibility of the Contractor.	1	0	0	0	C.A.	to	C
21.6.	Representation Risk (R) [Information]	Use of Non-Disclosure Agreements is Contractor is concerned about disclosing proprietary information. An extra precaution of the C.A.	1	0	0	0	C.A.	to	C
22. OPTIONS									

22.1.	Contract Risk (C)	C.A. has full power to exercise the options extension of contract for 24 months), bound by those defined in the SOR.	0	0	0	1	C.A.	to	C
22.2	Contract Risk (C)	C.A.'s obligation to provide notice to Contractor for extension. C.A. protect themselves from loss of contract extension if the contract is working well, yet can terminate if the contract is not going so well.	0	0	0	1	C	to	C.A.
22.3	Contract Risk (C)	No work can be carried out in the extension period if the C.A. have not formally agreed to execute as an option. If the Contractors do, then they become liable for any payment of work.	0	0	0	1	C.A.	to	C.A.
23. PRINCIPLE OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR									
23.1.	Performance Risk (P)	Contractor is liable for all work performed under the contract. Authority protection from non-performance and ultimately, contract failure.	0	1	0	0	C.A.	to	C

23.2.	Finance Risk (F)	Assigned employees must be paid in accordance with the pre-determined rates of the contract. C.A. protects itself from Finance risk by setting price ceiling and passing liability beyond that to the Contractor.	0	0	1	0	C.A.	to	C
23.3.	Contract Risk (C)	Contractor's responsibility for undertaking all tasks. Failure puts strain on relational and performance related expectations.	0	0	0	1	C.A.	to	C
23.4.	Contract Risk (C)	Where there is a conflict of provisions between this contract and another - C.A. has power and will provide direction.	0	0	0	1	C.A.	to	C
23.5. Personnel									
23.1.	Performance Risk (P)	Contractor must provide employee assurance of direct and sub-contracted employees to C.A.	0	1	0	0	C.A.	to	C
23.2.	Performance Risk (P)	Contracture ensures that employees are of the right grade/rate.	0	1	0	0	C.A.	to	C
23.3.	Performance Risk (P)	Human performance risk associated with level of skill of the personnel.	0	1	0	0	C.A.	to	C

23.4.	Representation Risk (R) [Information]	Contractor must flow down and ensure all personnel protect information in full commercial confidence. C.A. interest to protect information (risk placed on contractor to manage).	1	0	0	0	C.A.	to	C
23.5.	Representation Risk (R)	Contractor must flow-down to the personnel their obligation to perform (condition 25.3.) under the contract, before any information is passed on (information protection).	1	0	0	0	C.A.	to	C
23.6.	Performance Risk (P)	Contractor liable to maintain a sufficiently competent workforce/supply chain. C.A. use condition to protect performance relating to workforce quality.	0	1	0	0	C.A.	to	C
23.6. Security Clearance									
23.6.1.	Representation Risk (R)	Contractor to appoint a Security Liaison Officer to ensure appropriate security regulations are met.	1	0	0	0	C.A.	to	C
23.6.2.	Representation Risk (R) [Information]	Contractor must ensure that Security Clearance is required for all employees.	1	0	0	0	C.A.	to	C
23.7. Key Positions									

23.7.1.	Performance Risk (P)	Contractor must ensure that Key Positions are filled at all times during the contract. They must be adequately trained and qualified.	0	1	0	0	C.A.	to	C
23.7.2.	Performance Risk (P)	Human performance risk. Authority have right to refuse/remove a key position involved in the performance of the contract.	0	1	0	0	C.A.	to	C
23.7.3.	Representation Risk (R)	Written consent of the contract must be granted by the Authority when the Contractor employs a replacement to a Key Position.	1	0	0	0	C.A.	to	C
23.8. Reporting Obligations									
23.8.1.	Contract Risk (C)	Aggregate reporting obligations of the Contractor. Enables Authority to manage contract risk.	0	0	0	1	C.A.	to	C
23.9. Supply Chain									
23.9.1.	Representation Risk (R)	Contractor warrants that a process will be maintained throughout the contract regarding supply-chain management. C.A. protecting performance of the supply chain on the supply chain level.	1	0	0	0	C.A.	to	C

23.9.2.	Contract Risk (C)	Contractor may subcontract any tasking's but cannot transfer their contractor responsibilities when doing so. Contractor always retains their sole responsibility.	0	0	0	1	C.A.	to	C
23.9.3.	Representation [Relational] (R)	Responsibility of the Contractor for sub-contractors acts/omissions. C.A. neutralises this by accepting responsibility for their parties' own acts/omissions.	1	0	0	0	NEUTRAL.		
23.9.4	Representation [Information] (R)	Request for information sharing. The C.A. gains knowledge of the performance and intentions of the contractors/subcontractors and ensure that they collaborate to enhance the performance of the contract.	1	0	0	0	C.A.	to	C
24. Transfer of Undertaking (Protection of Employment) Known as TUPE									
24.1.	Representation Risk (R)	Communication between the parties if an allegation is made following Transfer Regulations (within 10 business days).	1	0	0	0	NEUTRAL.		
24.1.1.	Contract Risk (C)	The C.A. first resolves the claim/allegation made, to mitigate contract risk and restore reputation. If unable to do so, 26.1.2 comes into effect.	0	0	0	1	C	to	C.A.

24.1.2.	Representation Risk (R) & Contract Risk (C)	C.A. to notify the Contractor where employees claim is not settled (relational transfer of information) and the Contractor shall employ the Unexpected Employee as soon as possible.	1	0	0	1		C.A.	to	C
24.1.3.	Contract Risk (C) & Finance Risk (F)	Adjustment on contract price to reimburse the Contractor for liabilities incurred by the Contractor in dealing with the Unexpected Employee's claim (link to GC on contract amendment).	0	0	1	1		C	to	C.A.
24.2.	Representation Risk (R) [Relational]	Expectation of parties to cooperate when a Transferring Employee claim is made. (In writing within 20 business days). Migration of representation risk between parties, to ultimately mitigate other RPFC risks.	1	0	0	0		NEUTRAL.		
24.2.1.	Representation Risk (R)	“The Contractor or Sub-Contractor shall, as soon as reasonably practicable, offer and/or confirm continued employment to the Unexpected Subsequent Transferring Employee or take such other steps so as to effect a written withdrawal of the claim or allegation”.	1	0	0	0		C.A.	to	C
24.2.2.	Representation Risk (R)	If the allegation is not withdrawn or resolved the Contractor shall notify the Authority, the authority may then	1	0	0	0		C	to	C.A.

		proceed to employ the Unexpected Subsequent Transferring Employee.								
24.2.3.	Finance Risk (F)	Contractor made liable for all financial risk associated n dealing with or disposing of the Unexpected Subsequent Transferring Employee's claim or allegation.	0	0	1	0		C.A.	to	C
24.3.	Contract Risk (C)	Rights of Third parties to enforce terms and conditions of the contract on the Contractor (link to GC - DEFCON 537).	0	0	0	1		C.A.	to	C
24.4.	Contract Risk (C)	Rights of Third Parties – the new contractor and sub-contractors have right to terminate, rescind or vary the contract without consent (link to GC – DEFCON 537).	0	0	0	1		C.A.	to	C
24.5.	Contract Risk (C)	Linked to above.	0	0	0	1		C.A.	to	C
24.6.	Representation Risk (R)	Responsibility of the two parties to cooperate, and provide information where required.	1	0	0	0		NEUTRAL.		
25. TERMINATION										
25.1.	Contract Risk (C)	Authority’s right to termination given 1 months’ notice. Eliminates risk of contractor reengaging on the contract and mitigates the trigger of sub-risks.	0	0	0	1		C.A.	to	C

25.2.	Contract Risk (C)	Tasks can be terminated by Authority.	0	0	0	1	C.A.	to	C
25.3.	Performance Risk (P)	The Task doesn't meet the time-scale and the agreed requirements.	0	1	0	0	C.A.	to	C
25.4.	Finance Risk (F)	Where termination is due to time-scale failure, a payment reflective of the work to date may be made. Auth. protected from overpayment.	0	0	1	0	NEUTRAL.		
25.5.	Finance Risk (F)	Recoverable costs following termination, protects Authority from any unforeseen financial burden and provides contractor with some financial coverage, even in failure.	0	0	1	0	NEUTRAL.		
25.6.	Contract Risk (C)	Protection of complete loss of deliverables. A report to summarise work done to date by contractor so Authority avoids complete loss of outcomes.	0	0	0	1	C.A.	to	C
25.7.	Contract Risk (C) & Finance Risk (F)	Protection of any financial loss associated with termination of task.	0	0	1	1	C.A.	to	C
25.8.	Representation Risk (R) [Relational]	Relational.	1	0	0	0	C	to	C.A.
26. TERMINATION ON SUPPLIERS INSOLVENCY									
26.1.	Contract Risk (C)	Protection from failure of the contract due to the Contractors insolvency.	0	0	0	1	C.A.	to	C

26.2.	Representation Risk (R)	Contractor's obligation to notify Authority of insolvency or likelihood of insolvency.	1	0	0	0
27. INVESTIGATIONS						
27.0.	Representation Risk (R) [Relational]	Notification of investigations if they take place. C.A. protection against reputational risk (public criticism etc.)	1	0	0	0
28. COOPERATION BY PARTIES						
28.0.	Representation Risk (R)	Requirement for cooperation between parties.	1	0	0	0
29. KEY PERFORMANCE INDICATORS						
29.0.	Performance Risk (P)	Authority's measurement of performance of the contractor against the KPIs.	0	1	0	0

C.A.	to	C
C.A.	to	C
NEUTRAL.		
C.A.	to	C