PLAYING THE GAME:
THE STUDY OF KNOWLEDGE PROCESSES ACROSS ORGANISATIONAL BOUNDARIES IN THE VIDEOGAMES INDUSTRY

by

SARA TURNER, B.A. (Hons), M.A. (Dist.)

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Loughborough University
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Thesis Abstract

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This thesis studies knowledge processes which span organisational boundaries, examining how knowledge is formed and shared between two companies with divergent interests, facing the challenges of innovation processes. Cross-boundary work provides access to diverse sources of knowledge, specialties and approaches, and this enhances the innovative performance of firms. However, managing knowledge and spanning diverse boundaries has proven to be difficult. While the epistemic and social challenges have been identified to trigger conflicts and misunderstandings across boundaries, the complexity, inter-dependency and uncertainty of innovation processes have been found to multiply these challenges. Informed by the practice-based perspective, this thesis examines how the challenges of integrating knowledge in such a context are addressed and resolved.

Building upon this theoretical perspective, the thesis aims to enhance understandings of knowledge processes between the large bureaucratic organisations (publishers) and small/medium-sized companies (developers) in the videogames industry. Underpinned by a social constructionist and interpretivist methodology, a qualitative study of three publisher-developer relationships was conducted. With thirty six semi-structured interviews with senior directors, managers and team leaders, the thesis examined cross-boundary practices and the conflicts experienced in this process. In order to achieve this, the study focused on the role that boundary objects, trust development and power structures played in facilitating knowledge processes.

The thesis recognises the evolving and relational character of boundary objects, highlighting that a combination of static and dynamic boundary objects were effective in facilitating knowledge integration in the publisher-developer relationship. It also reveals that despite high levels of distrust between the parties involved, they managed to create and maintain a working relationship by resorting to opportunistic practices, such as knowledge hiding, deception and collusion. It is emphasised that understanding the power dynamics in the publisher-developer relationship is a pre-requisite to explaining

how knowledge is managed across organisational boundaries during the course of a project. Drawing upon a Foucauldian perspective, the thesis identifies the positive and enabling aspects of power dynamics in this relationship. It argues that when the parties have discrepancies, competition and high levels of distrust, power games positively influence cross-boundary practices, the use of boundary objects and knowledge processes, ultimately mobilising knowledge integration.

The thesis makes four significant contributions to the knowledge management and cross-boundary work literature. First, it identifies an evolving role for boundary objects, showing how they develop during the course of a project. Second, it finds a relational and politicised dimension for boundary objects, highlighting the role of brokers to manipulate and mobilise the use and effectiveness of these objects. Third, the thesis extends the existing literature by revealing that despite high levels of distrust, parties can create a working relationship. The research shows that this is achieved through resorting to opportunistic behaviour, such as knowledge hiding, deception and collusion. As a result, this thesis adds a complementary level to Carlile's Integrated Framework, explaining that when there are high levels of differences, dependencies and novelty in the cross-boundary work, knowledge hiding, deception and collusion are the driving force to facilitate knowledge integration and maintain a functional relationship. The fourth contribution of this thesis is recognising the positive and productive aspects of power dynamics that enable and mobilise boundary objects and knowledge processes, ultimately bringing positive outcomes and creating a functional relationship between two companies with divergent interests.

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Chapter One: Introduction

Businesses collaborate with other companies on a project or a business activity to draw upon various skills, expertise and resources. There might be several reasons for creating a partnership, but whatever the intended goal, this can offer the companies opportunities to further their resources, deal with the fast pace of change in today's business environment, compete and survive. The ability to work and communicate effectively across organisations, teams or groups is viewed as an important driver of innovative performance. However, achieving an effective collaboration, generating and sharing knowledge across such boundaries have proven to be problematic and complicated. The challenges of work across groups or organisations vary dependent upon factors such as the complexity of the knowledge being shared, or the level of uncertainty involved in the collaboration. In addition to this, differences, such as the lack of shared values, perspectives, knowledge and social ties have been identified as creating misunderstandings and misinterpretations between individuals, teams or groups working together.

Despite their differences and challenges, the companies should be able to generate and share knowledge across these boundaries in order to create an effective collaboration and reap the maximum benefit from their partnerships. In line with this objective, many studies have examined the work between individuals, teams and groups to understand how knowledge processes and collaboration can be facilitated. As a result, they have identified different methods and approaches that might impact such processes, resolving differences and creating a mutual understanding between collaborators. These methods and mechanisms include (1) developing and utilising boundary objects (2) optimising social relationships and interactions through negotiations and power relations and (3) developing interpersonal trust between collaborators.

Although a wide range of scholarly work has addressed the key factors facilitating knowledge integration and collaboration, there are still distinct areas that require further study. This thesis addresses these limitations and makes four significant contributions to the literature. The thesis contributes to boundary object literature by identifying different roles for them and explaining how these objects evolve during the course of a

project or collaboration. The thesis also reveals that power and politics are an unavoidable part of work across boundaries, and it contributes to the existing knowledge by describing how power relations mobilise knowledge processes. While the literature highlights that the development of trust is crucial in facilitating knowledge, this thesis reveals that despite high levels of distrust the collaborators could create a functional relationship. However this was achieved by utilising opportunistic behaviour, such as knowledge hiding, deception and collusion.

1.1. Research Problem

This research is focused centrally on the publisher-developer relationship in the videogames industry. Such collaboration is an intrinsic element in the development of videogames. My knowledge of this relationship in the first instance comes from my marriage to a senior actor within this sector, who brings heated discussions about the challenges of creating and developing videogames to my daily and social life. Through my research I wanted to make sense of this problem.

Developing videogames typically requires bringing together diverse bodies of distinctive knowledge and technology, as well as large sums of investment, management and business acumen. Publishers are usually large and bureaucratic organisations that fund, publish and distribute videogames that have been developed either internally or by an independent game developer. Developers are typically small and medium-sized companies that can offer highly creative and innovative ideas in a less formal and often unstructured business set-up; hence their attractiveness to the publishers. Due to lack of access to finance, knowledge of the international market and the cutting edge technology, developers are often highly dependent on these publishers. However, these developers are also an invaluable source of creativity and innovation for these publishers. Thus, the development of videogames involves complex inter-dependencies between publishers and developers. These inter-dependencies can be the main reasons why developers and publishers form a business partnership and that is why this relationship is considered the dominant business model in this sector.

While this relationship is a critical driver for industry performance and maintaining competitive advantage, it has been the focal point for debate and scrutiny in the past few

decades. The videogames industry is replete with anecdotes that recount the challenges of this relationship, describing it as intriguing and problematic. This relationship sometimes allows both parties to be actively involved in the development process, forming the game concepts, sharing knowledge and producing the game together. In other words, even if the developer is responsible for creating the game, the publisher also can be actively involved in the production, by offering expert knowledge in art, programming, audio visual engineering, design, etc. In addition to this, the publisher also brings to this joint venture large financial investments, technology, knowledge of international markets and knowledge of distribution channels. Although the two companies work together to create a product, within the industry they have been described as totally different in nature and skills, pursuing disparate objectives and sometimes acting as competitors. The collaboration between these two companies seems to benefit them both, providing them with multiple resources, including knowledge, skills and finance. However, managing the work between these two companies has proven to be problematic and cause conflict (Fahey, 2015; Heaton, 2012) and I embarked on this research to make sense of this empirical problem.

1.2. Research Aims and Objectives

This study aims to analyse the inter-organisational knowledge processes involving small and medium-sized entrepreneurial developers and large bureaucratic publishers. To do this I focus on the three key factors that have been identified in the existing literature influencing these processes: boundary objects, power relations and development of trust.

Since knowledge integration is an integral part of the publisher-developer relationship, I believe studying the knowledge processes and developing an understanding of how knowledge is formed and shared in this setting can contribute both to theory and practice, explaining cross-boundary work where there are high levels of differences, dependencies and novelty between the partners. My research addresses the following general questions:

RQ1: How do boundary objects influence knowledge processes across the publisher-developer organisational boundaries?

RQ2: How do power relations influence knowledge processes across the publisher-developer organisational boundaries?

RQ3: How does developing trust influence knowledge processes across the publisher-developer organisational boundaries?

1.3. Thesis Overview

The thesis will be structured as follows. Chapter two reviews the cross-boundary work literature and knowledge management literature. This review firstly presents the challenges of working across boundaries and discusses how these challenges intensify in complex innovation processes. Then, the review examines three key factors that seem to influence knowledge processes in cross-boundary work: boundary objects as coordinating mechanisms, power relations and trust. This chapter also identifies three areas in the literature that are still limited and require further research. The literature review culminates in the three research questions outlined above that form the basis of the research. Chapter three provides an overview of the videogames industry, introducing different actors, platforms, products and consumers. In the second section of chapter three, I focus on the videogame development process and how the publisher-developer collaboration is presented within the industry.

In chapter four, I first discuss the theoretical perspectives underpinning my methodology and then I elaborate on my research design and the techniques I used to generate my data. I then describe my data analysis approach, with a detailed account of how I managed, coded and interpreted my data. This is followed by a section that highlights my reflexive approach in the research process. I conclude this chapter with a short summary of how my methodological approach and methods helped me conduct a credible, plausible and transferable piece of research.

In chapters five, six and seven I present the empirical findings of my study, with each research question being addressed in a separate chapter. Chapter five presents the data on the role boundary objects play in facilitating the knowledge processes in the publisher-developer relationship. Chapter six looks at the tension between the developer

and publisher, explaining how power dynamics influence knowledge processes in this relationship. Chapter seven examines the role of trust in the relationship, making sense of the trust-knowledge dynamic in this setting. Chapter eight discusses the findings of the research in three distinct sections, each addressing one of my research questions. Chapter nine concludes the thesis with an overview of the whole research. This is followed by a review of the central theoretical and empirical contributions made, examining the limitations of the study and implications for practice, and finally, considering suggestions for future research.

Chapter Two: How to Manage Knowledge Across Boundaries

This chapter reviews the knowledge management literature in order to address the research objectives presented in the introduction and develop insights into how knowledge is integrated across organisational boundaries. First, the chapter focuses on cross-boundary work, providing a definition of this concept and considering the challenges that different groups face in attempting to create a working relationship and integrate knowledge. The next section of the chapter discusses the methods and strategies that are utilised to manage knowledge and collaboration between diverse groups. The review will focus on three key factors that have been highlighted in the literature: boundary objects; conflict resolution through negotiations and power relations; and development of trust. Each of these factors will be explained and the discussions pertaining to each will illuminate areas that are still unaddressed and require further research. In the final section of chapter three, the main research questions are outlined which aim to help address the limitations found in the literature.

2.1. Cross-Boundary Work and Its Significance

Cross-boundary work has become a noteworthy feature of modern organisations (Bechky, 2006; Clegg et al., 2002; Cohen & Levinthal, 1990; Nicolini et al., 2012). Thus an increasing number of theorists highlight how the ability to work and communicate effectively across organisational, disciplinary, functional, departmental or divisional boundaries is an important driver of innovative performance and a source of competitive advantage for firms (Bruns, 2013; Clegg et al., 2002; Tortoriello & Krackhart, 2010), business units (Hansen, 1999; Tsai, 2001), teams (Ancona & Caldwell, 1992; Bechky, 2006; Faraj & Sproull, 2000; Reagans & Zuckerman, 2001), and individuals (Burt, 2004; Perry-Smith, 2006). According to Kale and Singh (2009), "by the turn of this century many of the world's largest companies had over 20% of their assets, and over 30% of their annual research expenditures, tied up in such relationships" (p.45).

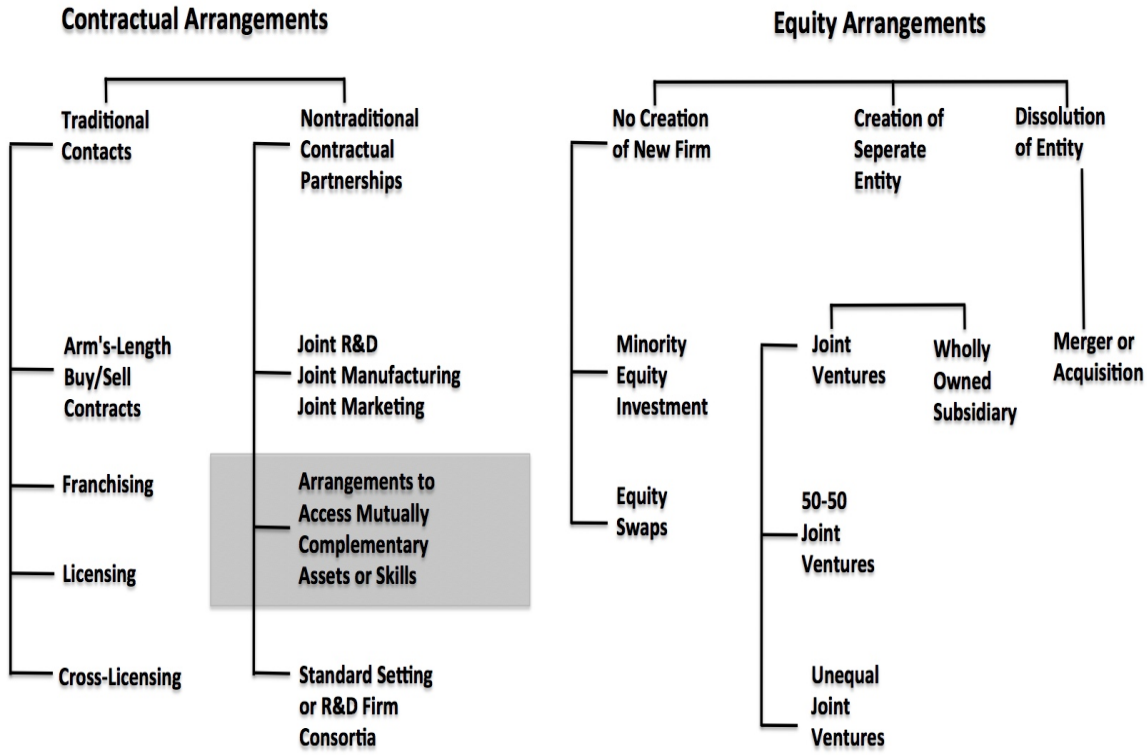
In the study of organisations, boundaries are the temporary and dynamic distinctions marking the difference between individuals/teams/groups (Bowker & Star, 1999; Carlile, 2002; Kerosuo, 2006; Mork et al., 2012; Zietsma & Lawrence, 2010). Scott

(2013) describes an organisational boundary as enclosing a community that is involved in "a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field" (p.56). Cross-boundary work refers to different individuals/teams/groups collaborating either within an organisation (Currie et al., 2008; McGivern & Dopson, 2010), or between organisations (Jonsson & Kalling, 2007; Newell et al., 2007).

Whether within or between organisations, work across boundaries always introduces new problems and tasks to the members involved, representing discontinuities in practice. These discontinuities are the interruptions in the shared routines of a community. In other words, working across boundaries potentially challenges established meanings and practices. Therefore, in order to create working relationships across such boundaries, individuals/teams/groups should continuously strive to resolve their differences and develop a common understanding.

The literature suggests a wide range of inter-organisational relationships can all be considered as cross-boundary work. In all of these inter-organisational relationships, different individuals, teams or groups who possess different knowledge, or might have different identities, come together and collaborate. Inter-organisational relationships have been examined under different names, such as strategic alliances, joint ventures, networks, etc., each of which has attracted a great amount of scholarly attention and research (Swan & Scarbrough, 2005). Figure 1 provides a helpful categorisation of inter-organisational relationships, presenting the distinctions between each of these labels.

Figure 1: Scope of Inter-Organisational Relationships (Source: Kale & Singh, 2009; p.47)



The focus of this research will be on the relationships shaded as grey in the figure: contractual arrangements to access mutually complementary assets or skills, hence excluding the literature on joint venture, R&D and buyer-seller relationships. It should be noted that this review will not examine the academic literature on these forms of collaboration, and will instead specifically focus on "cross-boundary work" and "knowledge management" literature, in order to develop a better understanding of how knowledge is integrated across organisational boundaries.

Cross-boundary collaboration has the potential to enhance a firm's innovative performance because people in these contexts are exposed to diverse sources of knowledge, specialties, and approaches (Allen et al., 1979; Bartol & Srivastava, 2002; Carlile, 2002; Powell et al., 1996; Tushman & Scanlan, 1981; Wang & Noe, 2010). This, as a result, increases their access to resources, as well as their ability to address complex tasks and resolve problems (Bruns, 2013; Perry-Smith & Shalley, 2003). However, despite their abundant benefits, spanning boundaries and managing knowledge processes in these settings has proven to be difficult (Argote, 1999; Bruns, 2013; Cronin & Weingart, 2007; Dougherty & Tolboom, 2008; Levina & Vaast, 2008;

Tortoriello & Krackhart, 2010; Van Der Vegt & Bunderson, 2005). The challenges of cross-boundary work and knowledge processes in these settings will be discussed in the next section.

2.1.1. The Challenges of Cross-Boundary Knowledge Processes

The literature offers several explanations for the challenges of cross-boundary knowledge integration. Table 1 provides a brief overview:

Table 1. Challenges of Knowledge Integration Across Boundaries	
Epistemic Challenges	Epistemic differences (values, perceptions, thought worlds)
	Fragmented knowledge across boundaries; Lack of common, shared knowledge
	The nature of knowledge (embeddedness; tacitness; stickiness)
Social Challenges	No/weak sense of shared identity
	No/weak social ties

As Table 1 suggests, epistemic challenges cause significant problems in cross-boundary knowledge processes. Diverse expert groups seem to have different perceptions (Boland & Tenkasi, 1995), values (Brown & Duguid, 2001) and thought worlds (Dougherty, 1992) or they might come from different backgrounds (Newell & Swan, 2000). These epistemological differences stem from people's specific cultural and language characteristics (Pauleen & Yoong, 2001; Peltokorpi, 2006) that seem to hamper interactions and knowledge processes between people from different communities (Bechky, 2003; Reagans & McEvily, 2003). Such epistemological differences have been detected between diverse occupational communities (Bechky, 2003), sub-units

working together in a single organisation (Hansen, 1999) and inter-organisational collaborations (Pauleen & Yoong, 2001), as well as multi-disciplinary teams working together (Newell & Swan, 2000). In all these instances, the differences in assumptions, values and world-views impede diverse groups developing a mutual understanding of each other and ultimately obstruct effective collaboration.

Groups working across organisational boundaries represent different knowledge communities; knowledge across these expert groups has been described as "fragmented" and "specialized" and they have been reported to have a limited amount of common, shared knowledge, which can create misunderstandings and misinterpretations (Cramton, 2001; Cronin & Weingart, 2007). One of the main challenges of managing cross-boundary collaboration is combining and integrating this fragmented knowledge (Blacker et al., 2000; Brown & Duguid, 1999; Hislop, 2013). Currie et al. (2008) highlight the problems of managing and integrating knowledge across boundaries in an innovative programme to improve patient safety in the NHS. In this study, they underline that the medical practitioners and the management had different understandings of the concept of risk and safety. The localised and fragmented knowledge between these experts, as well as a predominant "us and them" culture, were found to be the fundamental reasons that led to the failure of the programme.

The nature of knowledge itself also has been found to create obstacles to effective collaboration across boundaries (Barrett & Oborn, 2010; Carlile 2002, 2004). Nonaka et al. (2006) highlight the tacit dimension of knowledge as a challenge for effective collaboration, explaining that knowledge is "tied to the senses, movement skills, physical experiences, intuition, or implicit rules of thumb". Using a practice-based perspective (see further details on the next page), Carlile (2002, 2004) describes knowledge as being "localized" and developed around certain practices. In his study of cross-functional teams, he observes that communities develop commitment towards their knowledge and practices; as a result, they become reluctant to adapt and change to other communities. He describes this as "stickiness" of knowledge and its "embeddedness" in practice and human activity. Similarly, Hislop (2013) highlights that "all knowledge work, whether using it, sharing it, developing it or creating it, will involve an element of activity", as a result, knowledge cannot be easily "codified and separated from people" or practice (Hislop, 2013, p.34-5).

In addition to epistemic challenges, groups working across organisational boundaries face social challenges in order to manage knowledge. In these contexts, people who are not necessarily members of the same teams, groups or communities have to work together, where a lack of strong social relation (Hansen 1999) between these groups, or the existence of a weak sense of identity among them (Hislop, 2013) may result in conflicts that can impede effective knowledge integration. The next section elaborates on both practice-based and objectivist theories of knowledge that hold distinctive views on the nature of knowledge in organisations, and help us enhance our understanding of the challenges involved in integrating knowledge across organisational boundaries.

2.1.2. The Practice-Based and Objectivist Perspectives on Knowledge

Cross-boundary work has been addressed by two main perspectives: practice-based and objectivist. However, scholars have used various labels in order to explain or refer to these epistemologies in the literature. Table 2 on the next page provides a summary of the terms used to describe contrasting practice-based and objectivist perspectives.

The objectivist perspective characterises knowledge as an entity that can be possessed, developed and transferred to a different setting without a loss of meaning or a change to its nature (Osterlund & Carlile, 2005; Yanow, 2004). This epistemology focuses on explicit knowledge that can take different forms, such as documents, plans, diagrams, tools or other physical and tangible objects. Stemming from the positivistic perspective that sees the social world as something quantifiable and measurable, the objectivist perspective also views knowledge as an objective entity that has an independent existence from the people who possess it and can be studied scientifically and separately from the individuals. This conceptualisation of knowledge profoundly impacts how knowledge integration is perceived. Building on the assumptions explained above, knowledge sharing is represented as a sender and receiver practice, where the sender simply codifies and transfers explicit knowledge to a recipient (Easterby-Smith et al., 2008). Therefore, knowledge management becomes a communication and information-processing practice in which it is assumed that both tacit and explicit knowledge can be collected, codified and transferred through formal and structured systems and processes.

Author	Objectivist Perspective	Practice-based Perspective
Schultze & Stabell (2004)	Epistemology of dualism	Epistemology of duality
Werr & Stjernberg (2003)	Knowledge as theory	Knowledge as practice
Empson (2001)	Knowledge as an asset	Knowledge as a process
Cook & Brown (1999)	Epistemology of possession	Epistemology of practice
McAdam & McCreedy (2000)	Knowledge as truth	Knowledge as socially constructed
Scarbrough (1998)	'Content' theory of knowledge	'Relational' view of knowledge

Table 2. Competing Epistemologies (Source: Hislop, 2013, p.16)

In contrast to the objectivist perspective, the practice-based perspective highlights that knowledge is "an on-going social phenomenon, constituted and reconstituted in everyday practice" (Orlikowski, 2002, p.252). Authors studying knowledge from the practice perspective oppose the view of knowledge as an objective entity, instead they perceive knowledge as inseparable from practice and people (Corradi et al., 2010; Gherardi, 2006; Nicolini, 2011). To them, knowledge becomes synonymous with practice, which involves the activation and use of a variety of cognitive, physical and relational faculties such as perception, imagination, routine behaviour, social interaction, etc. This view emphasises that knowledge is dynamically constructed in the course of human interaction (Boland & Tenkasi, 1995; Østerlund & Carlile, 2005). Similarly, Blackler (1995, p.1032) confirms: "knowledge is multi-faceted and complex, being both situated and abstract, implicit and explicit, distributed and individual,

physical and mental, developing and static, verbal and encoded" (see Hislop, 2013, p.34).

Within the practice-based perspective, knowledge is not only socially constructed and embedded in human activity, but has also been described as culturally embedded, influenced by people's social and cultural values and assumptions (Weir & Hutchins, 2005). The last main feature attributed to knowledge from a practice-based perspective is its contestable dimension, which acknowledges that there might be different understandings and interpretations of knowledge (Yanow, 2004). This contradicts the objective aspect of knowledge that was the central plank of objectivist perspective. In other words, the practice-based perspective recognises that in cross-boundary work, conflicts and misunderstandings might arise; hence, providing some implications for the way knowledge processes should be managed in these contexts (Nicolini, 2007, 2011).

Knowledge sharing between communities is a significant theme in practice-based studies where practice and knowledge are intrinsically interrelated. Those adopting a practice-based perspective dispute the sender-receiver model of knowledge sharing that is put forward by objectivist theorists. Instead, the embeddedness, stickiness and tacit dimension of knowledge highlighted in the practice-based perspective suggests that knowledge sharing requires interpersonal interactions, mutual inferring and constructing of meaning, which are far from simple communication and information-processing practices. The tacitness and embeddedness of knowledge complicates the process of knowledge sharing when common experiences and processes are limited (Tucker et al., 2007; Okhuysen & Eisenhardt, 2002).

In the videogame development process, the knowledge that is produced is highly tacit. Knowledge is iteratively developed into a vision through the extensive interaction and mutual inferring of various disciplines/teams/individuals. Thus, the practice-based perspective on knowledge is particularly relevant to the innovative context of videogame development. I adopt this perspective to look at knowledge processes and explain how knowledge is integrated in this setting that incorporates various knowledge domains in the product development process.

2.1.3. Cross-Boundary Knowledge Integration During Innovation Processes

Innovation has been defined as "a temporally and episodically structured, highly iterative design and decision process involving the creation, diffusion, blending and implementation of new ideas and knowledge at different stages" (Van de Ven, 1999, p.23, see Scarbrough et al., 2015,). Empirical evidence confirms that organisations need to bring together a diverse collection of specialised knowledge to spur innovation and increase their competitive advantage (Bechky, 2003; Carlile, 2004; Lam, 1997; Dougherty, 1992; Hargadon, 2002; Slappendel, 1996; Wolfe, 1994). Due to the increasing complexity of innovation processes, organisations rarely, if ever, possess all the knowledge and expertise required for innovation. Therefore they need to draw upon multiple areas of expertise. Consequently, individuals/teams/groups with different knowledge domains have to interact and integrate together (Bruns, 2013; Cohen & Levinthal, 1990; Jones et al., 2001; Lam, 1997; Perkmann & Walsh, 2007; Powell, 1998; Tortoriello & Krackhart, 2010; Swan et al., 1999, 2007). However, coordinating and integrating the knowledge of heterogeneous groups is often challenging for companies (Barrett & Oborn, 2010; Bruns, 2013; Carlile, 2002, 2004; DeSanctis & Jackson, 1994; Faraj & Sproull, 2000; Kraut & Streeter, 1995; Leonardi, 2011; Scarbrough, et al. 2015; Tushman, 1977).

In the previous section I argued that a lack of common knowledge and practice, divergent perceptions, values and no/weak sense of shared identity between collaborators can create tensions in collaborating across boundaries. In addition, diverse groups have to deal with the challenges that innovation processes create, such as the challenges of continuously facing novel tasks and novel conditions. This section will concentrate on the challenges that organisations might experience in managing their innovation processes across boundaries. As shown in Table 3, the literature outlines three main features of complexity, inter-dependency and uncertainty for a highly innovative and creative setting that will be explained below (Bruns, 2013; Carlile & Rebentisch, 2003; Majchrzak et al., 2012; Mork et al., 2012; Newell et al., 2008; Tschang, 2007; Zackariasson, et al., 2006). However, it should be noted that the focus here is on the knowledge processes and the challenges innovating organisations face to integrate knowledge across diverse expert groups.

Table 3. Challenges of Cross-Boundary Knowledge Integration During Innovation Processes	
1.	Complexity
2.	Interdependency
2.	Uncertainty/Unpredictability

1. Complexity

Innovation processes are defined as complex because individuals/teams/groups have to constantly deal with new task demands and diverse knowledge domains, and at the same time attempt to create mutual understanding despite these differences and challenges (Carlile & Rebentisch, 2003; Dougherty & Tolboom, 2008; Majchrzak et al., 2012; Skilton & Dooley, 2010; Tschang & Szczypula, 2006). The complexity of innovation processes increases depending on the level and scope of the innovation (Brown & Duguid, 2001; Dougherty, 2001; Edmondson & Nembhard, 2009; Hackman, 2002; Majchrzak et al., 2012; Newell et al., 2008; Van Der Vegt & Bunderson, 2005; Spitz-Oener, 2006). Consequently the increasing level of innovation creates tensions and challenges between collaborators (Alvesson, 1993; Becker & Murphy, 1992; Bruns, 2013; Newell et al., 2008; Spitz-Oener, 2006). The complexity of innovation processes is in line with the earlier discussion in this chapter that outlined the differences between diverse expert groups creating difficulties for collaboration (Dougherty, 1992; Leonardi, 2011; Van de Ven, 1986). Carlile (2002, 2004) particularly highlights the differences between actors as impeding knowledge integration and collaboration. Due to the similarities between the definition of complexity in innovation processes and Carlile's description of differences and the problems they create, these two terms can be used interchangeably. Carlile's Integrated Framework (see Figure 2) and his arguments will be delineated in detail, further in this chapter on pages 45–47.

2. Interdependency

Cross-boundary work during innovation processes is challenging due to inter-related tasks and inter-dependencies between collaborators. Adopting a practice-based perspective, Hansen (1999) refers to the interdependence as impeding collaboration and explains that this inter-dependency becomes increasingly challenging when the partners

are exchanging or forming tacit knowledge. This is due to the embeddedness and stickiness of knowledge. Carlile (2002, 2004) confirms this discussion by showing that the dependency between collaborators is a barrier to innovation. He further underlines that the higher the level of dependence in cross-boundary collaborations, the more complicated the process of knowledge integration becomes. This is because actors have to continuously face interrelated and new task demands in an innovation process. The scholars argue that inter-dependencies force the collaborators to re-evaluate their assumptions and this leads to challenges and resistance (Dougherty & Tolboom, 2008, Majchrzak et al., 2012; Skilton & Dooley, 2010). Consequently, they need to utilise distinct problem-solving methods to diagnose and address the difficulties, while exchanging their knowledge with the other actors.

3. Uncertainty and Unpredictability

Innovation processes have historically been conceptualised as linear, consisting of a predetermined structure that is progressing from one stage to another. However scholars have increasingly disputed this and instead more recently have defined innovation as dynamic or iterative (Van de Ven, 1999). An iterative development process is an ongoing process in which problems are recurrently reassessed and refined (Adler, 2005; Kellogg et al., 2006). In such contexts established and known boundaries can be challenged and destabilised because innovation forces them to deal with diverse specialised knowledge, new tasks and new conditions (Mork et al., 2012). The existing knowledge of diverse expert groups may thus be continuously challenged. This is because during such processes they have to constantly reconsider their knowledge in order to resolve the emergent problems and create mutual understanding between different functions continuously (Dougherty, 2001; Majchrzak et al., 2012; Skilton & Dooley, 2010; Tsoukas, 2009). Predicting emergent problems becomes extremely difficult for the organisations that have to manage such complex and iterative projects, thus they have to deal with high levels of uncertainties (Tschang, 2007; Zackariasson, et al., 2006). Carlile (2002, 2004) recognises the challenges of uncertainty and unpredictability in cross-boundary work and refers to them as novelty. He explains that the actors have to face the challenges of dealing with new task demands that are not predicted and planned earlier in the production. Hence, this novelty introduces new and unexpected problems that the actors have to constantly resolve.

The question arising here is how organisations overcome the boundaries across diverse groups and simultaneously address the challenges of complexity, inter-dependency and uncertainty in an innovation process. The next section reviews the factors that have been found to be effective in managing knowledge and collaboration across boundaries. It presents the theories and empirical research carried out mainly in the knowledge management literature to understand how organisations can create a working relationship between diverse expert groups in face of the challenges of a novel setting.

2.2. Key Factors in Managing Knowledge Across Boundaries

Studies of cross-boundary knowledge processes show that organisations use special approaches and methods to combine and coordinate diverse bodies of specialist knowledge in order to create working relationships. This involves addressing the challenges and improving the mutual understanding between the people working together. Hislop (2013) suggests creating a high degree of common knowledge, overlapping values and shared sense of identity as the three main factors that facilitate knowledge processes within communities of practice. In order to achieve this, the literature explains that certain rules and methods have to be implemented. For instance, Faraj and Xiao (2006) propose coordination practices such as dialogue, negotiation and joint sense-making, along with protocols and community structures to promote knowledge sharing and to navigate interfaces between diversely specialised groups in a medical trauma centre. Negotiating and developing collaborative relationships has also been found to be important for innovation processes (Swan & Scarbrough, 2005; Ring & Van de Ven, 1994).

The empirical literature presents different methods and approaches to resolve differences and create a mutual understanding between diverse groups. Other mechanisms recognised in the literature that support cross-boundary work and facilitate knowledge integration are as follows: developing social relationships and interactions (Conway, 1995; Hislop, 2009); utilising brokers/translators (Wenger, 1998); implementing boundary objects (Star & Griesemer, 1989) and developing trust (Jonsson & Kalling, 2007; Newell & Swan, 2000). I will focus on three key factors that seem to be effective in managing knowledge and work across boundaries: boundary objects as

coordination mechanisms; negotiation and power relations; development of trust (Table 4).

Table 4. Key Success Factors in Managing Cross-Boundary Work
1. Use of Coordination Mechanisms: Conventional Forms/Standards; Boundary Objects
2. Extensive Dialogue & Power Relations
3. Development of Trust

Table 4. Adapted from Kale & Singh (2009)

2.2.1. Boundary Objects as Coordination Mechanisms

Coordination is regarded as a central practice in managing cross-boundary knowledge processes, being defined as a "collective set of inter-dependent tasks" (Okhuysen & Bechky, 2009) or "an ensemble of different types of practices that drive the process of cross-domain collaboration" (Bruns, 2013). A small stream of research suggests that conventional forms and structures, such as protocols, schedules, and routines, help coordinate between different expert groups and routinise innovation (Adler, 2005; Adler, 1999; Alvesson & Karreman, 2004; Cardinal, 2001; Clark & Fujimoto, 1991; Davila, 2000; Faraj & Xiao, 2006; Griffin & Hauser, 1992; Nixon, 1998; Wheelwright & Clark, 1992). For instance, Dyer and Singh (1998) recommend standardising and implementing structures and routines in order to enable diverse groups to share critical task-related information. Bruns (2013) in her study of scientific cross-domain collaborations also highlights that organisations use shared practices to coordinate innovation activities between relevant people.

However, Faraj and Xiao (2006) explain that coordination in novel settings involves "the integration of organisational work under conditions of task interdependence and uncertainty" (Faraj & Xiao, 2006, p.1156). Therefore, coordination in innovating organisations becomes an on-going process that not only manages the interdependence of diverse groups and recognises their contribution, but also addresses emergent and potentially unprecedented situations. In these contexts, traditional norms and standards have been found to be inadequate to address emergent action (Bruns, 2013; Burns &

Stalker, 1961; Hall, 2001; Merchant, 1998; Mintzberg, 1979; Okhuysen & Bechky, 2009). Instead a number of studies underline the role of boundary objects in coordinating work across boundaries; the significance of boundary objects, their role and impact on cross-boundary knowledge processes will be elaborated in the next section.

The Definition of Boundary Objects

One of the most common coordination mechanisms to facilitate cross-boundary knowledge processes is the use of boundary objects (Brown & Duguid, 1998; Carlile 2002, 2004; Carlile & Rebentisch, 2003; Kale & Singh, 2009; Levina, 2005; Sapsed & Salter, 2004; Star & Griesemer, 1989; Swan et al., 2007). In their widely cited publication in 1989, Star and Griesemer introduce the concept of "boundary objects" as objects that can translate divergent viewpoints between heterogeneous groups/people by creating a common point of reference through which disparate functions can resolve their differences, while maintaining their autonomy. In their study of the Museum of Vertebrate Zoology at the University of California, Star & Griesemer (1989) emphasise the importance of boundary objects in facilitating the management of a museum that incorporates the participation of distinctive and diverse groups, such as amateur collectors, professional scientists, sponsors, administrators and government officials. Each of these groups had different visions and specific interests, stemming from the social worlds they belonged to. However the manager of the museum used boundary objects to create a meeting point uniting people's disparate visions, to satisfy the interests of each actor and, at the same time, to pursue the scientific goals of the museum. These boundary objects will be presented in this section in four categories that will be discussed very briefly below. These original types of boundary objects will provide a basis for a better understanding and further development of the concept:

(1) Repositories refer to a "pile of objects which are indexed in a standardised fashion" (Star & Griesemer 1989, p.410). Repositories provide a shared point of reference for different disciplines to store information jointly in a systematic way, from which the data collected and organised can be retrieved by different groups when necessary. Repositories are just for the collection of data. By adding their data to a repository, each discipline can easily make their data accessible to the other disciplines, thus facilitating

the data transfer between all disciplines involved. Repositories are useful for the data that can be easily coded. The library of specimens in the case of the museum discussed above is an example of a repository. This library was an important repository of different specimens, which served the interests of all participants in the museum. This was because different experts could save data in the repository and also retrieve data from it without a need to negotiate their differences.

(2) Ideal type is a boundary object, "such as a diagram, atlas or other description which in fact does not accurately describe the details of any one locality or thing. It is abstracted from all domains, and may be fairly vague. However, it is adaptable to a local site precisely because it is fairly vague" (Star & Griesemer, 1989, p.410). This type of boundary object can be jointly used by different disciplines and because they do not present/explain the specific details of each group, they can be used or adapted for the specific needs of each discipline. A prototype or an assembly drawing that contains design sketches, design specifications or assembly processes in a manufacturing firm are examples of ideal types (Carlile, 2004; Schrage, 1999; Wheelwright & Clark, 1995). These boundary objects can both provide means of communications between groups by being flexible and adaptable for the use of one discipline, and still being comprehensible and adaptable for the use of the other disciplines. In the case of the museum discussed above by Star and Griesemer (1989), species exemplify the ideal type due to their applicability to both professional scientists' and amateur collectors' needs, containing theoretical and concrete data.

(3) Coincident boundaries refer to "the common objects which have the same boundaries but different internal contents" (Star & Griesemer, 1989, p.410), such as Gantt charts, process maps and workflow matrices. These objects create a meeting point between different disciplines and specialties. The same object has different internal contents in different disciplines, such as the map of California that created a shared point of reference between the professional scientists, amateur collectors, patrons, university administrators and government officials, while containing specific details that could be used by them all separately. Carlile (2002) uses the term "maps of boundaries" to explain this form of boundary object and believes that maps help negotiations about "resources, deliverables and deadlines".

(4) Standardised forms are "objects which can be transported over a long distance and convey unchanging information" (Star & Griesemer, 1989, p.411). This type of boundary object is used as a common format for problem solving across a number of groups/people that are distributed at different sites. These forms are crucial for categorising the differences between teams, thus facilitating collaboration between dispersed groups of people. Structured documents, such as forms and indexes, can be a good example of this type of boundary object. Carlile (2004) explains that different engineering teams, including, engine engineers, design engineers and manufacturing engineers in an automobile manufacturing firm used standard engineering forms in order to report their findings to each other. Star and Griesemer (1989) add that the application of standardised forms deletes the uncertainties and misunderstandings between different teams.

Further to Star and Griesemer's (1989) introduction of the concept of boundary objects, scholarly work defines boundary objects as either physical/concrete or conceptual/ abstract. **Physical/concrete objects** refer to “tangible definitions” (Bechky, 2003a, p.326), such as material forms and instruments (Scarbrough et al., 2015), technology (Gal et al., 2008), texts (Oswick & Robertson, 2009), project contracts (Koskinen & Mäkinen, 2009) and project management methodologies (Barrett & Oborn, 2010). **Conceptual/abstract objects** signify vocabulary-based, metaphoric entities or processes, including non-verbal expressions, figurative language, symbolism, visionary objects and narratives (Boland & Tenkasi, 1995; Briers & Chua, 2001; Huang & Huang, 2011; Koskinen, 2005; Nandhakumar et al., 2013; Schön, 1993; Swan et al., 2007; Tsoukas, 2009). These objects seem to be used in conversational interactions to facilitate knowledge sharing both within and between organisations (Bechky, 2003a,b; Briers & Chua, 2001; Leonard-Barton, 1995; Star & Griesemer, 1989). Following Star & Griesmer's (1989) introduction of boundary objects, scholars have used various definitions to refer to this concept. Below there is a selection of these (see Table 5).

The definitions presented in Table 5 highlight two key dimensions of boundary objects that are important for our discussions and help us distinguish between different types of boundary objects, as some boundary objects might reflect one dimension more strongly than the other:

(1) Interpretive flexibility refers to the ability of boundary objects to be adapted to fit different functions. Star and Griesemer (1989) highlight this dimension of boundary objects by stating that boundary objects are "both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (p.393). In other words, these objects are "loosely structured" and flexible, such as project roadmaps (project plans), reflecting joint targets and deadlines while at the same time presenting more specific details of each function. Drawings can also represent this interpretive flexibility because they are loosely structured, developed and used by different teams to develop a better understanding of each other's knowledge, concerns and interests. This fluidity of boundary objects means that they can be subject to numerous interpretations, depending on the knowledge domain that is being used to make sense of it (Star & Griesemer, 1989; Swan et al., 2007; Nicolini et al., 2012; Barrett & Oborn, 2010). The interpretive flexibility of boundary objects seems to provide an opportunity for negotiation and interaction between groups (Carlile, 2004). However, some boundary objects might have limited interpretive flexibility, such as static and fixed objects that are only useful for facilitating explicit and codifiable knowledge between the partners that are aware of their differences and dependencies. I elaborate on the role and definition of static and fixed boundary objects later in this chapter.

Star & Griesemer (1989)	Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual site use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable – a means of translation.
Karsten et al. (2001)	Boundary objects (Star & Griesemer, 1989; Star, 1993) are physical objects such as design drawings, maps, contracts, learning materials, etc. that are used to facilitate cooperation while allowing diversity in interpretation.

Bechky (2003)	Boundary objects are flexible epistemic artefacts that "inhabit several intersecting social worlds and satisfy the information requirements of each of them...., creating the common ground that leads to shared understandings" (Star & Griesemer, 1989, p.393).
Sapsed & Salter (2004)	Boundary objects may provide informational support but denote no intrinsic meaning. They are, in this sense, empty vessels to be filled with whatever is the preferred local beverage. Boundary objects facilitate the reading of alternative meanings by different groups (Henderson, 1991).
Swan et al. (2007)	Boundary objects "can be both concrete objects and abstract concepts (Star & Griesemer, 1989), but their common and defining characteristic is that they contain some "interpretative flexibility" (Bijker et al., 1987) that allows them to be used to provide a common frame of reference for communication across different domains of knowledge and practice.
Dodgson et al. (2007)	Boundary objects mediate interactions between different communities of practice by providing a common basis for conversations about solutions to problems.
Koskinen & Mäkinen (2009)	Boundary objects are flexible in adapting to local needs and constraints of several communities of practice sharing them. These objects are robust enough to maintain a common identity across different stakeholders and they can be abstract or concrete.
Barrett & Oborn (2010)	Boundary objects are mediating artefacts that have interpretive flexibility and can be an important means of achieving collaboration, promoting the sharing of knowledge between diverse groups (Sapsed & Salter, 2004).
McGivern & Dopson (2010)	Objects can be conceptualised as "things" or "processes". Technical objects tend to be fixed, concrete and transparent, whereas epistemic objects are fluid, abstract and indeterminate, with an "unfolding ontology".

Winter & Butler (2011)	By identifying "lowest common denominators", critical points of agreement, or shared surface referents, boundary objects provide a sufficient platform for cooperative action – but they do so without requiring the individuals involved to abandon the distinctive perspectives, positions and practices of their "base" social world.
Nicolini et al. (2012)	Boundary objects are defined by their capacity to serve as bridges between intersecting social and cultural worlds. Anchored in, and thus meaningful across, these worlds, they create the conditions for collaboration while, by way of their interpretive flexibility, not requiring "deep sharing".
Franco (2013)	A boundary object is a shareable and tangible artefact around which group members can interact about a problem situation of concern, and may include objects such as repositories and standardised forms (Star & Griesemer, 1989); sketches and drawings (Henderson, 1991); prototypes (Bechky, 2003b; Carlile, 2002; Pawlowski & Robey, 2004); strategy tools (Jarzabkowski, Spee & Smets, 2013; Kaplan, 2011).

Table 5. Selected Definitions of Boundary Objects

(2) Allowing groups to maintain their identity is the second key dimension that can be found in all definitions of boundary object. On the contrary to their interpretive flexibility, boundary objects also have a "fixed and strongly structured" nature. This dimension of boundary objects helps different disciplines retain their individual identity without needing to change their practices. Standardised forms, contracts or protocols contain this dimension of boundary objects, because while they can clearly reflect the community's needs and requirements, at the same time they can contain those of the other communities. These standardised and structured boundary objects are used to bring together different individuals/groups and reduce ambiguities and uncertainties. As a result, they create mutual understanding and help resolve the differences across boundaries.

These two key dimensions of boundary objects form the basis of the distinction between static and dynamic boundary objects that will be presented later in this chapter. Prior to further elaboration on this static versus dynamic distinction, in the following section I

explain different roles that boundary objects can play in facilitating knowledge integration. Outlining these roles also provides examples of what these boundary objects are in practice and how they influence cross-boundary work.

Different Roles of Boundary Objects in Facilitating Knowledge Integration

Scholars have identified different roles that boundary objects play in mobilising cross-boundary work. These scholars have suggested that boundary objects can manage knowledge across boundaries by creating a focal point, facilitating or translating between diverse knowledge domains.

The most common characteristic of boundary objects shared in almost all literature is their ability to create focal points for interaction between different people. By utilising boundary objects, people who belong to different worlds can develop a sense of shared identity. Thompson (2005) proposes that the genres of popular music, such as rock 'n' roll, punk and hip hop can be regarded as boundary objects with a powerful focal point bringing together people from different backgrounds; "these genres have strong styles of dress, music, speech, and mannerisms that form all-important symbols, allowing strongly committed members to both identify their own allegiances and differentiate themselves from others" (p.152).

The role of boundary objects as a focal point has also been emphasised in the communities of practice literature. The concept of "communities of practice" emerged from the work of Lave and Wenger (1991) who describe them as informal work-based organisations in which "groups of inter-dependent participants provide the work context within which members construct both shared identities and the social context that helps those identities to be shared" (Brown & Duguid, 2001, p.202). Wenger (1998) emphasises the role of boundary objects in communities of practice as "artefacts, documents, terms, concepts, and other forms of reification" through which communities can be linked (p.107).

In their study of virtual communities of practice in the USA, UK and Japan, Kimble and Hildreth (2005) showed how a planning document, which was initially designed for use

within the UK, became a boundary object used between the communities in the UK and the USA. This document acted as a focal point for collaborative work. The planning document was firstly devised to be the focus of the meetings in the UK office only. However, it was realised that during discussion around the document, innovative ideas were developed and these new ideas elicited more participation in the community. The planning document was also found to stimulate participation and innovation, when it was used for creating links within and between the offices in the UK, the USA and Japan.

The empirical literature also emphasises that boundary objects can bridge knowledge boundaries, thus facilitating knowledge processes and collaboration between functions (Barrett & Oborn, 2010; McGivern & Dopson, 2010; Sapsed & Salter, 2004; Tiwana & Mclean, 2005). In Sapsed and Salter's (2004) research, program management tools, such as integrated timelines, online status reporting devices and modular roadmaps were effective boundary objects that facilitated collaboration between the different sites of a computing corporation spanning the USA, Europe and Japan. A large-scale data integration program was devised to improve the accuracy and accessibility of product information across several functions including production, services, sales and IT in a large corporation. In a semiconductor manufacturing company, Bechky (2003b) found that machines were more effective boundary objects than engineering drawings. This was because these machines were tangible objects that exposed the differences between the engineers and machine operators, instigating discussions and negotiations between these diverse parties. Consequently, they were more useful than the drawings. Here Bechky (2003b) highlights that boundary objects facilitate knowledge integration by "invok[ing] the key differences in work contexts between [different] groups" (Bechky 2003b, p.326). Majchrzak et al. (2012) also suggest that boundary objects help different teams "understand each other's deep knowledge and differences"; hence facilitating their knowledge integration.

In addition to being depicted as focal points and facilitators, boundary objects have also been considered as coordinators, helping create common knowledge across boundaries (Brown & Duguid, 1998; Bechky, 2003a; Carlile, 2004; Henderson, 1991; Star, 1989; Koskinen, 2005; Star & Griesemer, 1989; Swan et al., 2007; Wenger, 2000). Boundary objects work as tools that can reflect the knowledge and concerns of the collaborating

teams to one another and improve mutual understanding between the two. A contract can be a good example that represents this role of boundary objects because contracts can become a tool or a "coordinating mechanism" through which different partners can develop a common understanding of each other's interests and viewpoints (Koskinen, 2005, p.327). Processes, routines and procedures have also been recognised as boundary objects that have coordinating roles and allow parties to manage their work across boundaries (Wenger, 2000).

Swan and colleagues (2007) emphasise the impact of individual agency on boundary objects, conceptualising boundary objects as social constructs that require certain individuals (brokers) to reinforce their effectiveness. Brokers are the skilled individuals who have an understanding of each function's interests and bridge the functions through mutual representations and negotiations. Wenger (1998, p.109) defined brokers as being involved in "the processes of translation, coordination, and alignment between perspectives" (p.109). The role of brokers in mediating and integrating knowledge across boundaries has been highlighted in the literature (Bechky, 2003a; Carlile, 2004; Levina & Vaast, 2005; Wenger, 1998). Brokers are reported to span boundaries through manipulation of meanings, boundary objects and social relationships (Kramer & Wells, 2005; Sverrisson, 2001; Swan et al., 2007). In other words, brokers use boundary objects in order to facilitate cross-boundary work. Brokers have also been called boundary spanners or translators in the literature, due to their ability to introduce aspects of one practice to another. There is a wide range of research examining brokers as boundary spanners. However, the main focus of this research is the role of boundary objects in facilitating knowledge integration, thus I describe brokers only as mediators for the effectiveness of boundary objects.

Boundary objects have proven to be effective in creating a common knowledge between different functions and facilitating problem solving and negotiation. However, as Carlile's (2004) Table 1 delineates, not all boundary objects are considered effective, and depending on the context of the collaboration and the type of boundary being spanned, different forms of boundary objects are required to facilitate knowledge integration (I will elaborate on Carlile's Table 1 and his discussions of the challenges and solutions on pages 42–48). Huang and Huang (2011) argue that different types of boundary objects lead to different levels of performance. Similarly, Sapsed and Salter

(2004) found that project management tools were not effective boundary objects in a "high-pressure project-based business" where face-to-face interactions did not exist. They described boundary objects as "high-maintenance items with a limited shelf life [that] have no independent potency for alignment, hence their ineffectiveness" (p.1531). Implementing boundary objects often seems to be a procedure because they need to be continuously changed over time. During this procedure, boundary objects should be revised and adapted to fit in new situations or contexts, otherwise they soon become out-dated and useless. For instance, in Sapsed and Salter's (2004) empirical study, a lack of face-to-face meetings, as well as a lack of "interpretive flexibility" within the program management tool were found to be major factors in the failure of the boundary objects to facilitate the collaboration across diverse groups and teams. Carlile's Integrated Framework (discussed more fully later) provides a useful explanation for why some boundary objects at some levels are not effective for managing knowledge and collaborations.

Static Vs. Dynamic Boundary Objects

Boundary objects have been recognised as essential tools for facilitating knowledge generation and coordination between groups (Bechky, 2003; Carlile, 2002; Henderson, 1999, Ancona et al., 2001). The literature presents a wide range of definitions that sometimes overlap and even clash. In what follows I summarise the existing definitions and describe them in two categories: (1) Fixed/static boundary objects; (2) Dynamic/loosely-structured boundary objects (Ewenstein & Whyte, 2009; Star & Greismer, 1989). Please see Table 6 on the next page.

Different Types of Boundary Objects		Definition	Examples
Fixed/static Boundary Objects	Repositories	A pile of objects indexed in a standardised fashion that provides a shared point of reference	Database, libraries
	Standardised Forms	Structured documents, used as a common format for problem solving across different functions	Forms, contracts, protocols
Dynamic/loosely-structured Boundary Objects	Ideal Type	Objects jointly used by different disciplines that can be used or adapted for specific needs, but do not present the specific details of each group	Diagram, prototypes and assembly drawings
	Coincident Boundaries	The common objects used by different boundaries that also contain different internal contents used for specific needs	Gantt charts, process maps and workflow matrices

Table 6. Different Types of Boundary Objects

Fixed and **static boundary objects** are strongly structured objects that are difficult to change and adapt to specialised use in diverse disciplines (Cetina, 1997; Rheinberger, 1992). Forms, contracts and databases can be fixed and static when they are not updated and upgraded. According to Star and Griesemer (1989) these objects "convey unchanging information" (p.411). These are used for coordination between different boundaries and mainly explicit and codifiable knowledge can be stored and shared through these types of boundary objects (Koskinen & Mäkinen, 2009). Ewenstein and Whyte (2009) explain that these objects due to their fixed and concrete nature cannot reflect detailed and specialised knowledge of various disciplines or groups, therefore they are not suitable for sharing tacit knowledge. Barrett and Oborn (2010) highlight that these rigid objects "[can]not facilitate effective integration of tacit knowing in

diverse teams and may limit learning across groups" (Barrett & Oborn, 2010, p.1200; Levina & Vaast, 2006; Vaast & Levina, 2006). Therefore, even if the forms can be updated with explicit knowledge, they cannot reflect and integrate the tacit knowledge of various groups. Carlile (2004) adds that these fixed and stable objects, such as standardised forms or repositories, can be effective only when the level of differences and dependencies, and novelty in the relationship is low. He argues that when the level of differences, dependencies and novelty is low, the partners are aware of their differences and dependencies, and they share common knowledge and experiences. In these circumstances, knowledge is explicit and it can be easily coded and shared. So knowledge processes will be an information processing procedure, which can be achieved through strongly structured and concrete objects, such as standardised forms, protocols, etc.

On the other hand, **dynamic boundary objects** are fluid or loosely structured objects that can be adapted for use in specialised domains, reflecting the details that are comprehensible and useful for the local individual site, while simultaneously creating a common boundary for the interactions between different functions and disciplines. These boundary objects reflect the interpretive flexibility capacity that was discussed in the previous section. Some scholars have also used the term "epistemic objects" in order to refer to the dynamic boundary objects. Epistemic objects are defined as fluid, flexible and open-ended objects that are "characterized by lack and incompleteness" (Ewenstein & Whyte, 2009, p.9). For instance, visual representations such as design documents and plans that evolve and reflect knowledge development processes are epistemic or fluid boundary objects (Barrett & Oborn, 2010; Engestrom & Blackler, 2005; Knorr Cetina, 1999; McGivern & Dopson, 2010; Miettinen & Virkkunen, 2005; Nicolini et al., 2012; Rheinberger 1997; Scarbrough et al., 2015). Nicolini and his colleagues (2012) define boundary objects as “flexible, epistemic artefacts that because they can have different meanings in the various communities, professional groups, departments, etc., and yet their structure is common to all these groups so that they are recognizable to them and can serve as a means of translation” (p.614). Abstract objects, such as processes and meetings, are classified as dynamic and flexible boundary objects. I highlight that a physical object can also be defined as a dynamic boundary object as long as it is loosely structured and has the potential to be easily updated and adapted, such as a drawing or a design sketch (Ewenstein & Whyte, 2009).

In response to diverse attempts to define boundary objects, Star (2010) refined her arguments, emphasising their dynamic and multi-dimensional aspects. She highlights that boundary objects are not simply prefabricated and arbitrary things, but rather are "organic infrastructures" that derive from action and are subject to reflection and continuous tailoring (p.602). Organic infrastructures are defined as fluid and flexible objects that are "sunk into other structures, social arrangements and technologies". These organic infrastructures both mobilise the communities and are shaped by these communities. Consequently, they are relative to the knowledge of those particular communities (see Star, 2010, p.611). Similarly, Engestrom and Blackler (2005) confirm the "transitory" and relative nature of boundary objects by emphasising that boundary objects did not remain the same and highlighting different organisational actions that changed the state of these objects (p.322).

Scarbrough et al. (2015) provide a good illustration of the dynamic role of boundary objects in their study of innovation processes in the computer games sector. They observed that, while the objects were static in nature, the role of some of them changed as a result of their interactions with other shared objects, and "the relations between objects, and not the objects alone" facilitated the collaboration (p.197). For instance, they found that the role of "concept book" or concept document evolved over time, gradually developing into a reference point for other objects. This was a book-like document that reflected the changes in art documents, design documents, narratives and overall game objectives, thus enabling the work between different groups. Consequently, Scarbrough et al.'s (2015) study highlights that the relations between objects, such as different design documents and schedules – not the objects themselves – helped the team resolve their differences and create mutual understanding.

While highlighting the dynamic dimension of boundary objects and their embeddedness in social interactions, Barrett and Oborn (2010) found that the use of boundary objects could trigger interpersonal clashes and conflicts in cross-cultural software teams. In response to this, scholars suggest a combination of boundary objects, where the relations between them can facilitate coordination and collaboration (Leonardi et al., 2012; Nicolini et al., 2012; Orlikowski & Scott, 2008; Scarbrough et al. 2015). In a similar vein, Nicolini et al. (2012) highlight the dynamic and relational role of objects in

their study of a multidisciplinary scientific project, suggesting that "the specific role objects play in supporting collaborative efforts results from relations with other objects and other aspects of the activity and does not derive from some assumed essential characteristic of the object itself" (p.626). Thus, they identify that processes of collaboration have an impact on an object's effectiveness, changing their role constantly back and forth. For instance, they discuss how the container in which scientists grew cells had to be redesigned in order to accommodate the requirements of different disciplines. Confirming the embeddedness of boundary objects in social interactions, another stream of research addresses the ineffectiveness of boundary objects and explains that objects should be constantly updated, revised and negotiated through interactions and processes to resolve the tensions and develop mutual understanding across knowledge domains (Huang & Huang, 2011; Koskinen & Makinen, 2009; Levina & Vaast, 2005; Mork et al., 2012; Thompson, 2005).

The literature puts great emphasis on the dynamic (Barrett & Oborn, 2010; Ewenstein & Whyte, 2009; Star, 2010) and social dimensions of boundary objects (Mork et al., 2012; Nicolini, 2011; Orlikowski, 2007; Osterlund & Carlile, 2003). A small number of studies have examined the dynamic nature of boundary objects, but they mainly focus on their coordinating roles and the relationship between different boundary objects (Nicolini et al., 2012; Scarbrough et al., 2015). While highlighting the critical role of social processes and interactions in shaping boundary objects, Lainer-Vos (2013) suggests redirecting the focus from the nature and properties of boundary objects to understanding how social processes can influence boundary objects. However, he does not explain how this might work. I argue that the impact of social interactions, dynamics and organisational processes on boundary objects and their effectiveness in knowledge integration is still undeveloped (Lainer-Vos, 2013; Zeiss & Groenewegen, 2009). Likewise, there is a limited understanding of how these objects transition and evolve during the course of a project or collaboration (Nicolini et al., 2012). Understanding the social and dynamic aspect of boundary objects in an inter-organisational setting will provide both theoretical and empirical implications for managing knowledge across inter-organisational boundaries. In order to address these limitations of literature, I adopt a practice-based perspective that views knowledge as “an on-going social phenomenon” (Orlikowski, 2002), inseparable from practice and people (Corradi et al., 2010; Gherardi, 2006; Nicolini, 2011). Since the practice-based

perspective values the role of interpersonal interactions and social practices in integrating knowledge, I believe it is an appropriate perspective through which I can examine the impact of social dynamics and processes on boundary objects and how these processes influence the effectiveness of boundary objects in knowledge integration.

Carlile's Integrated Framework on Cross-Boundary Collaboration

This section describes Carlile's (2002, 2004) Integrated Framework for managing knowledge across boundaries, highlighting the role of boundary objects in different settings. Carlile (2004) argues that "boundary objects have proven effective in providing a concrete means of representing different functional interests and facilitating their negotiation and transformation in product development settings" (p.559). However, he emphasises that different collaborative contexts require different boundary objects to manage knowledge processes and cross-boundary collaboration. Carlile (2002, 2004) believes that knowledge can be both a source of and a barrier to innovation, because knowledge is embedded, localised and invested in practice (Bourdieu, 1977; Carlile, 2002, 2004; Hislop, 2009, 2013; Lave, 1988; Swan et al., 2002).

In order to explain why knowledge can sometimes be a barrier to innovation and why it can be difficult to manage, Carlile (2004) highlights three properties of knowledge: difference, dependency and novelty in his Table 1, where he discusses the challenges of working across boundaries and suggests some solutions. **Difference** refers to the different knowledge and specialties that reside in individuals and teams, collaborating in a project. **Dependency** is a situation when the input of each team influences both the work of the other teams, as well as the end product or service. Co-authors' collaboration in writing an article or the relationship between a design engineer and a manufacturing engineer are examples of such dependencies. **Novelty** is the third relational property of knowledge and it refers to the new circumstances that arise in an innovation or new product development process. Carlile (2004) explains novelty as "the most challenging aspect of the relational nature of knowledge at a boundary", in which "for each actor there is novelty to share with others and novelty to assess from others. A less-obvious source of novelty comes when an actor is unfamiliar with the common knowledge being

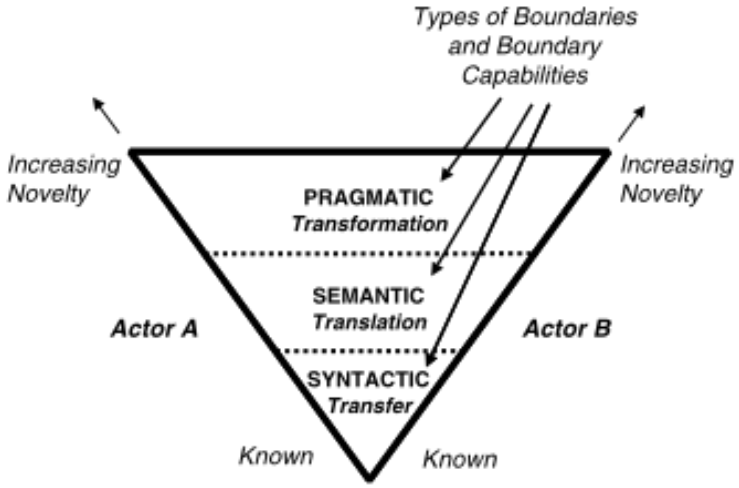
used to represent the differences and dependencies between domain-specific knowledge" (p.557). Carlile's three properties of knowledge and the challenges he refers to (Carlile 2004 - Table 1, p. 560) also can be associated with the three challenges of cross-boundary work in innovation processes, complexity, interdependence; uncertainty and unpredictability, which was explained in section 2.1.3. and in Table 3.

Carlile (2002, 2004) believes that the level of difference, dependency and novelty between individuals, teams and functions involved in collaboration creates different types of boundaries and challenges to collaboration. Thus, different sets of boundary objects are required to be utilised in order for these challenges to be resolved. The more different and disparate the collaborating functions and departments are, the more difficult collaboration is likely to be. Especially when two different individuals, groups and departments have different interests and objectives, the relationship and collaboration between them become politicised, thus, different boundaries appear and different boundary objects are required to facilitate the collaborations.

Three Levels of Boundaries

Carlile (2002; 2004) utilises the practice-based perspective of knowledge, and suggests that the embeddedness of knowledge in practice and human activity can result in some negative consequences for collaboration when there are high levels of differences, dependencies and novelty between partners. However, he considers these challenges as an unavoidable and natural outcome of collaboration between different and dependent functions - he elaborates on these challenges in his Table 1 (Carlile 2004, p. 560). Carlile develops a framework that integrates Shannon and Weaver's (1949) three levels of communication (syntactic, semantic, and pragmatic boundaries) with the relative properties of knowledge. This framework (Figure 2) shows the three levels of boundaries for knowledge creation across functions, and explains how knowledge should be managed depending on the level of differences, dependencies and novelty. This framework elucidates the functionality of boundary objects across diverse functions, underlining that different boundaries call for the use of different boundary objects to resolve the challenges and create a mutual understanding across different disciplines.

Figure 2. An Integrated Framework for Managing Knowledge Across Boundaries



The three different boundary types will be explained below, with a further discussion of the kind of boundary objects that are suitable for each level:

Syntactic boundary and shared syntax: A syntactic boundary is when the level of differences, dependencies and novelty is low. With a syntactic boundary the partners working together are considered as senders and receivers of information and the only challenges they face are information-processing and communication problems. Shannon and Weaver (1949) introduce this syntactic approach to boundaries and suggest that creating a shared and stable syntax that ensures information exchange and accurate communication resolves the challenges at this level (Lawrence & Lorsch, 1967, p.33). In fact, the more information, the better the communication results. Generally, in these circumstances the individuals/teams/functions involved in knowledge exchange are aware of their differences and dependencies. At this level, the main issue is simply knowledge transfer and since the differences and dependencies are known in advance, tools such as shared repositories help the actors to transfer knowledge across a boundary. However, sometimes due to the requirements for new specialised knowledge, the level of difference, dependency and novelty increases, thus creating new challenges that cannot be resolved by a syntactical approach.

Semantic boundary: A semantic boundary exists when partners have different interpretations of concepts and ideas or the dependencies and the differences between individuals/teams/functions are unclear. Work across a semantic boundary emphasises that people might have different interpretations of meanings and language. In order to create a working relationship between them, they need to develop "shared meanings" (Dougherty, 1992) or some systems to resolve the differences in meanings and interpretations. In these circumstances, even if a common language and syntax is used between functions, people have different interpretations of things, so they use contracts that clearly present different partners' viewpoints and interests, or they use processes and routines in order to create a common understanding across boundaries (Koskinen, 2005). This also suggests a potentially critical role for brokers to resolve the discrepancies and create a better understanding between parties. As was discussed earlier in this chapter, a broker is described as a facilitator who understands the differences and dependencies between the two actors and works as a mediator to help the flow of knowledge (Allen, 1971; Swan et al., 2007; Wenger, 1998). Because the broker is aware of actors' differences and dependencies, they have a crucial role to select the most effective boundary objects for a special context or adapt the boundary objects in order to create shared meanings and pursue the interests of both sides. The interpretive differences, therefore, make collaborations between individuals, groups and departments difficult. Due to these semantic differences, the individual and context-specific aspects of knowledge must be taken into consideration in the process of knowledge construction. Nonaka (1994) suggests that when there are semantic challenges between actors, they should develop "mutual understanding". At this level, individuals need to present their tacit knowledge as explicit, or learn their partners' tacit knowledge. However, it is highlighted that individuals are often even unaware of their own tacit knowledge, making the conversion of tacit to explicit knowledge more difficult. As Polanyi (1966) states: "We know more than we can tell" – referring to the fact that presenting or sharing tacit knowledge is problematic. In a semantic boundary, not only these challenges, but the semantic differences also need to be resolved. Carlile (2002; 2004) suggests knowledge translation and the use of tools, such as standardised forms or other shared methods to translate and learn about the differences and dependencies.

Pragmatic boundary, models and maps: A pragmatic boundary is when there are high

levels of differences, dependencies and novelty between actors in cross-boundary work. In such settings, a pragmatic/political approach facilitates divergent interests, conflicts, costs, dependencies, and the difficulties of knowledge creation/sharing across different groups (Carlile, 2002, 2004). The pragmatic approach stems from the philosophies of Peirce (1898), James (1907) and Bourdieu (1977) that describe knowledge as consequential and "at stake", emphasising that the consequences of the interactions between different and dependent parties need to be taken into consideration. This approach explains that people feel invested in the knowledge they accumulate; hence knowledge is "at stake". Therefore, people might be unwilling to change their gained skills and knowledge because of the commitment they have developed for their practice. People's resistance to change also seems to stem from the costs that people might face in changing their existing knowledge and practices and adapting to the new ways of doing things. Therefore, the challenges in a novel setting are not just having effective communications or developing shared meanings. In such circumstances, collaborators need to partake in "knowledge transformation" rather than "transfer" and "translation" in order to resolve conflicts and create a mutual understanding between diverse groups. This means that the actors involved in the cross-boundary work need to make their tacit knowledge explicit, be able to learn the knowledge created by the other functions and the most important and difficult of all, they should be willing to change and have the ability to transform their partners' knowledge (Carlile 1997).

Managing Knowledge in a Pragmatic Boundary

The pragmatic boundary is particularly relevant to this study because the difficulties and conflicts that collaborators experience in this boundary resonate with the challenges of managing knowledge across organisational boundaries where there are high levels of risks and uncertainties. Therefore, it is useful to understand what methods and strategies the scholars have proposed in order to deal with these challenges and manage knowledge integration in this setting. For this reason, I have allocated a separate section to explain and elaborate on processes that can be used to enable work across pragmatic boundaries.

Carlile (2002, 2004) recommends the process of transforming knowledge to help resolve the negative consequences and manage knowledge in a pragmatic boundary.

Brown and Duguid (2001) also suggest negotiation as a useful method for transforming knowledge and resolving the tensions across divergent and functions. The boundary objects that are effective in a pragmatic boundary are the ones that can be developed by all functions involved. Drawings, prototypes and visual representations of designs and plans are among these boundary objects, because they can be regularly updated, thus reflecting detailed knowledge of each function and their dependencies. Due to their interpretive flexibility, these examples also allow tacit knowledge to be exchanged and shared in these contexts. Carlile and Lucas (2003) call these effective tools "trade-off methodologies", and explain that these types of boundary objects represent the dependencies and differences of each party, and facilitate the transformation and negotiation between them. In Carlile's (2004) research, design engineers and manufacturing engineers jointly developed assembly drawings. These drawings helped them understand each other's context-specific concerns and develop prototypes that further facilitated their collaboration and knowledge sharing practices.

Carlile (2002, 2004) introduces the pragmatic boundary as a political context. He highlights that in this boundary the nature of interactions is highly political because of the divergent interests and the high levels of differences, dependencies and novelty in the relationship. By underlining the political dimension of the pragmatic boundary, Carlile (2002, 2004) explains that the actors' ability/power in negotiation and transformation of knowledge has a critical role in facilitating the collaboration and knowledge integration. When novelty in the relationship increases, the actors might face new challenges and tasks. Consequently all actors involved should develop adequate common knowledge to deal with new tasks and challenges. However, in this context a powerful actor might be able to reuse their knowledge in order to pursue their own interests. This means that the actor might be reluctant to change their knowledge or skills due to the commitment they have developed towards those skills. This can also be the case when learning new things or changing their skills and knowledge incur some costs. As a result, the powerful actor uses their resources or negotiation skills to show resistance to changes and stick to the knowledge and skills they have. In other words, they reuse their knowledge. This happens while this knowledge might not be suitable for the new challenges or the new tasks they have faced in their collaboration. Whether exercised consciously or not, power games and resorting to power resources to influence the relationship might constrain the collaboration and knowledge integration,

thus making it more difficult for the consequences to be resolved. That is why Carlile (2002, 2004) recommends that the actors in a pragmatic boundary should resolve their differences and create mutual understanding in order to integrate knowledge and collaborate effectively.

I argue that Carlile (2002, 2004) has explained cross-boundary work and the role of boundary objects in the context of intra-organisational collaboration, but two areas still remain under-developed. First, Carlile states that “boundary objects are no 'magic bullet' because their characteristics are hard to sustain as problems and people change” (p.452). This statement highlights that there is not a set of pre-defined and fixed boundary objects for all situations. This emphasis on the context stresses the significance of studying inter-organisational boundaries. This is because this context offers potential lack of shared knowledge and experience between partners and high levels of conflict resulting from it. It is expected that this context might present some new challenges, the understanding of which can offer insights into how knowledge is managed when the partners face high levels of risk, novelty and uncertainty.

The second area that is not fully illustrated by Carlile is the role of power structures in managing knowledge across boundaries. Carlile (2002, 2004) underlines that the role of power and politics should be recognised in shaping collaboration and knowledge processes across boundaries. But he does not clarify how these power structures influence knowledge processes and the effectiveness of boundary objects in inter-organisational settings. Further study is required to illuminate these limitations in Carlile's study.

2.2.2. Conflict Resolution Through Dialogue and Power Practices

A theoretical perspective on cross-boundary knowledge integration highlights the role of extensive dialogue, negotiating mutual interests and maintaining "mutual adaptation" in facilitating knowledge sharing (Mork et al., 2012). As discussed in section 2.1.2., the practice-based perspective conceptualises knowledge as a localised and socially constructed entity that cannot be "codified and separated from people" (Hislop, 2009, p.34). It also suggests that knowledge is fragmented and embedded in practice. Further, by using dialogue and negotiation, parties can identify, elaborate, and then confront

their differences (Boland & Tenkasi, 1995; Cook & Brown, 2000; Dougherty, 1992; Gherardi & Nicolini, 2002; Hargadon & Bechky, 2006; Nonaka, 1994; Tsoukas, 2009), as well as dependencies (Bechky, 2003b; Carlile, 2004). The practice-based perspective also proposes the processes of "perspective making" and "perspective taking" to encourage knowledge integration (Boland & Tenkasi, 1995). Hislop (2013) defines these processes as below:

> *Perspective making is the process through which a community develops, strengthens and sustains its knowledge and values. Perspective taking is the process through which people develop an understanding of the knowledge, values and "worldview" of others (p.45).*

In these dialogic processes, people externalise their knowledge and make themselves aware of each other's expertise and knowledge. Bolisani and Scarso (2000) refer to perspective making and perspective taking processes as a language game, while Gherardi (2000) calls it a "discursive practice" (p.221). A series of empirical studies supports the key role of negotiating and extensive dialogue in externalising and understanding knowledge. For instance, Boland and Tenkasi (1995) refer to "mutual perspective taking" and "dialogical processes" as the key to managing epistemic differences and integrating knowledge across communities (p.358). Argyris and Schön (1978) argue that knowledge can be integrated more effectively between diverse expert groups when they extensively share their expert knowledge (p.16). Hargadon and Bechky (2006) also find that the sharing of implicit assumptions and perspectives can help different groups combine and integrate their knowledge. Tsoukas (2009) suggests that people working across boundaries can identify their differences when they are aware of each other's knowledge and expertise, enabling them to resolve their problems. In his words, "each interlocutor potentially makes the other realize the limitations of their focal awareness and stimulates a search for an ever broader focal awareness" (p.944).

However, a recent body of research has found that dialogue and extensive negotiation might not be always effective in the process of knowledge integration, especially when the relationship between teams is temporary, such as inter-organisational collaborations (Cronin & Weingart, 2007; Faraj & Xiao, 2006; Kellogg et al., 2006). This is because

knowledge dialogue seems to expose differences and conflicts, thus potentially creating challenges and disagreements between the parties involved (Dammann & Kieser, 2010; Dougherty, 1992; Ewenstein & Whyte, 2009; Nembhard & Edmondson, 2006; Schmickl & Kieser, 2008; Van der Vegt & Bunderson, 2005). Edmondson and Nembhard (2009) underline that conflicts are the natural outcomes of boundary work across divergent groups, especially in novel settings, arguing: "The competing viewpoints that promote creative new ideas and sound decision making lead naturally to conflicts that waste precious time and erode team relationships" (p.124).

Further, diverse, expert groups have been found to be able to work together without developing a common knowledge (Donnellon et al., 1986). As Hansen (1999) explains, diverse parties found that engaging in deep conversations was time-consuming and they preferred to maintain a weak tie with the other groups and instead focus mainly on the project itself, rather than resolve their differences. In their study of specialised groups in a medical trauma centre, Faraj and Xiao (2006) suggest that dialogic coordination practices, such as joint sense-making and rapid sharing of general knowledge in response to novel events "are highly contested because of epistemic differences" between diverse groups (p.123).

The literature on cross-boundary collaborations mainly proposes that management's primary focus should be on overcoming the difficulties associated with differences in perspectives and different ways of knowing and practicing. Some scholars claim that negotiations and extensive dialogue are used to achieve this end (Bechky, 2003b; Boland & Tenkasi, 1995; Carlile, 2004; Cook & Brown, 2000; Dougherty, 1992; Gherardi & Nicolini, 2002; Hargadon & Bechky, 2006; Nonaka, 1994; Tsoukas, 2009), while others find these dialogic practices ineffective in creating a collaborative work environment between distinct disciplines (Cronin & Weingart, 2007; Dammann & Kieser, 2010; Dougherty, 1992; Faraj & Xiao, 2006; Kellogg et al., 2006; Ewenstein & Whyte, 2009; Nembhard & Edmondson, 2006; Schmickl & Kieser, 2008; Van der Vegt & Bunderson, 2005). Conflicts seem to be unavoidable when there are high levels of difference, dependencies and novelty between groups, thus highlighting the political nature of cross-boundary work. Therefore, in order to better understand how knowledge is managed across boundaries, it is essential to understand how these conflicts are addressed.

Conceptualising Power and Politics

The knowledge management literature highlights the relationship between power and knowledge processes, emphasising that research into knowledge processes must take account of different forms of power and its resources. This section firstly defines the concept of power and the political aspect of cross community work, and secondly examines the relationship between power and knowledge.

According to Schultze and Stabell (2004), conflicts are an inevitable aspect of social dynamics, whether in society or business organisations, and their existence encourages political behaviour among groups who have divergent and conflicting interests. The political aspect of cross community work, as recognised in the literature, is described as a social situation in which the interests, culture, values and assumptions of two distinct groups can be divergent and contradictory (Christensen et al., 2000; Kimble et al., 2010; Carlile, 2004). Hislop (2013) defines a political process as "a dynamic social situation where different actors (individuals or groups) who have competing or conflicting interests draw upon particular power resources, which are used as political tools aimed at achieving each group's objectives" (p.193). In other words, differences, interdependencies and unequal access to power are the central factors that all lead to conflict of interests and competing discourses. Pfeffer (1981) highlights that interdependence, scarcity, heterogeneous goals and heterogeneous beliefs lead to disagreements and conflicts in organisations.

Power is a multi-dimensional concept that is important for managers to understand (Clegg, 1989; Hardy, 1994; Haugaard, 2002). In order to develop a basic understanding of this concept, I explain the three dimensions of power, discussed by Lukes (1974), one of the most widely cited authors on power. I also describe the fourth dimension that has been added to Lukes' dimensions of power by Hardy (1994) and Clegg (1989) to take account of the work of Foucault. Table 7 on the next page provides an overview of dimensions of power that are presented below.

Lukes' (1974) **one-dimensional perspective on power** or **the behavioural perspective** is drawn from Dahl's (1957) recognition of the parties' conflicts of interests and his

focus on parties' behaviour in influencing decision-making. Dahl (1975) explains the situation in which power is exercised as when "A has power over B to the extent he can get B to do something that B would not otherwise do" (Dahl as cited in Lukes, 1974, p.11). Lukes (1974) adds that power can be used as a resource to defeat opposition, thus influencing decision-making (Dhillon, 2004; Gordon & Grant, 2005). This means that power is viewed as an entity that can be owned by one party and used to secure their interests. This one-dimensional perspective of power recognises conflict as an expected element in social interaction and also as an essential tool that enables one individual/group to affect others and shape social processes.

	Power	Conficts/ the practice of power	Focus
One-dimensional/ Behavioural view	Power is a resource or an entity	Power is overtly practiced by managers and conficts are embbeded in organisational interactions	Focus on Individual Behaviour
Two-dimensional/ Political view	Power is a resource or an entity	Conflicts and the practice of power can be covert	Through organisational practices and processes, management convinces employees that conflicts don't exist
Three-dimensional/ Radical structural view	Power is a resource or an entity	Conflicts and the practice of power can be covert. The dominant is in control; they control how issues are defined.	Through directed methods, management shapes and influences employees' conceptions and views (such as communication systems and media) thus suppressing their interests.
Fourth dimension/ Foucauldian/ Relational view	Power is not a resource, it's a network of relations	Power moves between all members of an organisation, which implies resistance from the weak. Conflicts are relative and nothing is absolute.	Discourses shape knowledge and issues. Discourse includes locally variable contexts, practices, institutions, techniques and so on.

Table 7. Four Dimensions of Power (Adapted from Linstead et al., 2009, p.282)

Lukes' **two-dimensional view of power** or **the political view** is derived from Bacharach and Baratz (1963). This perspective portrays organisations as comprising individuals or groups who pursue their own interests or goals; thus conflict is an indispensable part of their social interaction (Bailey, 1970; Burrell & Morgan, 1979). Similar to Lukes' one-dimensional view of power, the political view also considers power as a resource. However, it emphasises that the conflicts and the practice of power can also be covert in organisations because it assumes that one party is capable of

convincing the other that the conflicts do not exist, so that one party can pursue their own interests, without other individuals/teams/groups realising this exertion of power. This perspective of power focuses on unobservable mechanisms that can hide challenges as if they do not exist. This refers to practices such as deception and illegitimate activities that powerful actors can use to protect their own interests. Gordon and Grant (2005) explain that power is an entity that can be used to compel the other party to do things that they might not do if they had known about the conflicts. Bachrach and Baratz (1963) highlight that "power is exercised not just upon participants within the decision-making process but also towards the exclusion of certain participants and issues altogether" (as cited in Lukes, 1974, p.16). This political view of power applies a broader lens. Instead of focusing on individual behaviour, it emphasises the institutional practices that impact on power relations in organisations. Due to its concentration on processes and procedures that are used to exert power in organisations, this two-dimensional view of power is also called power-as-process (Dhillon 2004). Power-as-process refers to different methods, practices and processes that the powerful party uses to de-legitimise the other actors' actions and decisions, thus legitimising theirs (Buchanan & Badham, 1999; Dhillon, 2004; Pettigrew, 1979; Clegg, 2000).

The **three-dimensional** or **radical structural view of power** emphasises that power has the capacity to influence social processes. Gaventa (1980) asserts: "power influences, shapes or determines conceptions of necessities, possibilities, and strategies of challenge in situations of conflict" (p.15). Like the political and behaviour perspectives, power is viewed as a resource. However, this perspective focuses on the directed and intended methods that the actors use to shape social practices. Examples of these methods can be media and communication systems, through which A influences and shapes B's beliefs in a way that makes him do certain things that support beliefs or actions instilled by A. In such circumstances the powerless has been psychologically adapted to believe their "state of being without power" (Gaventa, 1980, p.16), as a result of which they see it impossible to reverse the situation and act against the powerful systems. Clegg and Dunkerley (1980) refer to this type of power that is practiced in organisations to control, manipulate and influence the subordinates in order to secure the manager's interests.

Hardy (1994) and Clegg (1989) add **the fourth dimension** or **the relational aspect of**

power to Lukes' list. This fourth dimension is embedded in Foucault's (1977) work, and unlike Luke's three dimensions of power, this perspective does not explain power as a property that can be possessed by either party. Instead, power is relational, inseparable from social relationships, and moving between parties, thus power is not an absolute factor possessed by only one group (Gergen, 1992; Handy, 1985; Linstead et al., 2009). Power is dispersed, for instance, when one party is empowered in one area then the other party might be empowered in other areas. Foucault (1997) explains, power is not "a privilege that one might possess", but it constitutes "a network of relations, constantly in tension, in activity" (Foucault, 1979, p.26–27). Here, the powerful might still have the advantage over the others, but their state of domination is not static, and the dynamic between the parties is expected to change. Foucault explains that "everybody is caught [in these power relations], those who exercise power just as much as those over whom power is exercised" (Foucault, 1980, p.156).

Power and Its Relationship to Knowledge

Lukes' three dimensions of power introduced above all view power as an entity and a resource that is independent of people that can be utilised to influence the other parties and help secure the interests of the powerful (Luke, 1974; Bacharach & Baratz, 1963; Dahl, 1957; French & Raven, 1959; Hales, 1993; Liao, 2008). Therefore in these three views of power, knowledge is regarded as a resource that exists independently of individuals and can be utilised to pursue and secure the interests of particular groups because it creates dependencies among groups (Pettigrew, 1979). In the knowledge management literature, studies seem to have mainly used this resource-based view of power, suggesting that power and knowledge can be the possession of special individuals/groups (Gordon & Grant, 2005; Hales, 1993; Liao, 2008; Swan & Scarbrough, 2005). The entity approach to power or the resource-based view of power argues that powerful groups and individuals utilise their resources to establish certain practices, norms and values. These resources are used to shape claims of truth; the practices and processes form values and norms, through which the powerful justify their decisions, thus pursuing their own interests. Through these established values, practices and norms, they promote or suppress, legitimise or marginalise their rivals' claims of knowledge. This resource-based view of power and knowledge can also be observed in Yanow's (2004) work that shows the exercise of power through organisational practices

and de-legitimisation. She found that bakery drivers' local knowledge was not only "discounted", but also "disparaged" by the executives who favoured codified knowledge, rather than tacit and local knowledge (p.S9).

However, the Foucauldian perspective views power and knowledge as inseparable and working in a dynamic relationship. It emphasises that power is relational, embedded in social practices and exercised through shaping knowledge. Deleuze (1988) delineates that power is tacit and for its exercise it requires a vehicle. Knowledge works as the vehicle through which power is produced and exercised. Knowledge justifies and rationalises the exercise of power, while knowledge benefits from the force and drive power provides it with (Guilfoyle, 2006). This interconnectedness of knowledge and power is underlined in the following Foucault's statement: "Knowledge and power are integrated with one another … It is not possible for power to be exercised without knowledge, it is impossible for knowledge not to engender power" (Foucault, 1977 as cited in Rabinow, 1991, p.61). Similarly, Contu and Willmott (2003) highlight the centrality of the concept of power in studying knowledge processes and describe power and knowledge as mutually constituted. Thompson (2005) also proposes that "knowing is a social activity, … not immune from power relations" (p.153).

One of the most important implications of the Foucauldian perspective on power in organisational studies is the interplay of knowledge and power. Power/knowledge claims are not viewed as absolute truths, but are constantly contested through social interactions, discourses and negotiations. In other words, actors are constantly involved in shaping knowledge by legitimising their other ideas and de-legitimising the knowledge of their rivals (Sewell, 2005). In her study of dispersed network of HR practice, Heizmann (2011) finds that practitioners marginalised and contested the legitimacy of each other's knowledge through discursive practices and negotiation. She argues that knowledge is discursively constructed, thus emphasising the role of the power-knowledge relationship in organisational knowledge sharing.

Similarly, Roberts (2006) highlights that power relations are formed through arguments and discourses. As she explores knowledge management methods in communities of practice, she observes that the power structures within an organisation shape the power relations between different groups and affect their knowledge sharing practices.

Therefore, the existing literature suggests that looking at the micro-practices, discourses and procedures of different social contexts can help develop an understanding of how truth or knowledge is constructed in different contexts (Buchanan & Badham, 2008; Ekbia & Kling, 2003; Hardy, 1994; Knights & Vurdubakis, 1994; Sewell, 2005).

This might seem to be similar to the discussions of the three-dimensional perspective of power, in which the dominant utilises processes and meanings to influence and control the weak. But what distinguishes the three-dimensional perspective from the Foucauldian view is the fact that in the former perspective, power and knowledge are exclusive to the dominant. In contrast, the latter emphasises that the weak also have access to power and knowledge, thus refuting the depiction of power and knowledge as an absolute factor.

Another implication of the Foucauldian perspective on power is that everybody is subject to power. In other words, everybody is both exercising power and being subjected to power (Foucault, 1977). Applied to organisational studies, this view highlights the role of mechanisms and organisational practices in shaping the power-knowledge relationship, also reiterating that power and knowledge are not absolute entities accessible only to particular groups. Instead, power and knowledge are relational and dynamic, embedded in social interactions, discourses and negotiations. Thus, the positions of power will change in negotiations over meaning; discourse and language shape knowledge and power.

Therefore, the Foucauldian perspective sees power as moving between actors: power is not solely the possession of the dominant, but the weak – or for the purposes of this discussion, the employees – can also exercise it. This perspective resonates with McKinlay's (2000) study of a multinational pharmaceutical company, in which management attempts to convert employees' tacit knowledge to explicit and codified knowledge, as a result maintaining control in the organisation. McKinlay (2000) finds that employees show resistance to the managers' exertion of power and instead they use their local knowledge to their own advantage. This highlights employees' awareness of their capabilities and their use of knowledge to exert power and maintain control.

Unlike the resource-based view that portrays power as something negative and

destructive, the Foucauldian perspective recognises power as "a productive force" that provides all parties with the opportunity to enter power relations (Swan & Scarbrough, 2005, p.920). The resource-based view presents power as the possession of one group/individual, where the weak is suppressed by the domination of the other, and that is why it is suggested that the practice of power should be avoided (Kanter, 1979). However, the relational perspective does not accept this monolithic view of power, thus portraying it as "a force that affects outcomes" (Hardy, 1996, S3). Hardy (1996) disputes the negative connotations of power, highlighting that power is crucial in facilitating collaborative action (Hardy, 1996, S6). Similarly, Swan and Scarbrough (2005) identify the productive aspect of power contributing to knowledge integration and innovation outcomes. Mintzberg (1983) also portrays a positive aspect for power, and explains that power games can be healthy if they are played in moderation in organisations.

In this section, I argued that cross-boundary collaborations are laden with difficulties associated with differences in perspectives and different ways of knowing and practicing, and proposed that to understand how knowledge is managed in these settings, the role of power, politics and negotiations need to be taken into account (Kimble et al., 2010; Knorr-Cetina, 1999; Carlile, 2002, 2004; Christensen et al., 2000; McGivern & Dopson, 2010). I presented four different perspectives of power and their relationship with knowledge, explaining what methods are being used to practice power and exert control in relationships. Although scholarly research emphasises the interconnectedness of knowledge processes and power, few studies have empirically examined the processes of knowledge integration in political contexts, or studied the role of power structures in these processes (Hislop, 2013; Karreman, 2010; Oborn & Dawson, 2010; Dopson & Fitzgerald, 2005). How different individuals/teams/groups with high levels of differences, dependencies and novelty manage power-knowledge relations is an unaddressed issue that needs further research. The literature has not explained how power structures impact on knowledge integration in an inter-organisational context where the partners seem to have unequal access to power resources. Consequently it is important to address these limitations and examine how power practices facilitate/hinder knowledge integration and collaboration across organisational boundaries.

The knowledge management literature emphasises the relational and social dimension of knowledge integration, and I chose a practice-based view because it accounted for the contested nature of knowledge. Similarly, I adopted the relational view of power for this research because it is in line with the practice-based view, recognising the contested nature of power/knowledge, thus providing a suitable conceptual lens to examine knowledge processes (Blackler, 1995; Fox, 2000; Hardy, 1996; Marshall & Rollinson, 2004; Swan & Scarbrough, 2005). The videogame development process requires the combination of various knowledge domains and disciplines in which knowledge seems to be interactively and collectively constructed. In this context, social interactions and negotiations are crucial in shaping the collaboration between different disciplines and partners in order to develop knowledge. Thus, the Foucauldian inspired relational perspective of power and knowledge will be utilised here allowing me to focus on the relational and social aspect of practices. By using this perspective I can develop an understanding of how power dynamics shape practices, how knowledge is integrated and how collaboration is facilitated in a highly political context of inter-organisational work. Since only a few studies in the knowledge management literature have utilised a Foucauldian perspective (Heizmann, 2011; McKinlay, 2000), this thesis will also contribute to the existing knowledge by highlighting the importance of the Foucauldian perspective on power to understand the contested nature of knowledge processes in boundary spanning collaborations.

2.2.3. The Development of Trust

Developing trust is regarded as another critical factor in managing knowledge processes and collaboration. This section reviews the knowledge management literature in order to understand the link between trust and knowledge sharing, and how trust influences collaboration across diverse groups. Many studies claim that the development of trust is a key determinant for successful collaboration in group working and inter-organisational relationships (Das & Teng, 2001; Geyskens et al., 1996; Geyskens et al., 1998; Håkansson et al., 2004; Jiang et al., 2011; Morgan & Hunt, 1994; Mouzas et al., 2007; Nandhakumar, 1999; Newell & Swan, 2000; Palmatier et al., 2006; Palmatier et al., 2007; Poppo et al., 2008; Ring & Van de Ven, 1992; Squire et al., 2009; Zaheer et al., 1998). The existing empirical literature underpins the role of trust in creating an effective relationship across boundaries in several ways. Developing trust has proven to

facilitate problem solving (Zand, 1972; Boss, 1978), communication (Thomas et al., 2009), commitment (Ristig, 2009; Paine, 2006; Darrough, 2008), partner satisfaction (Schreiner et al., 2009; Shockley-Zalabak et al., 2010), productivity (Kramer & Cook, 2004), and profitability (Davis et al., 2000; Bibb & Kourdi, 2004). Trust has also been found to foster continuance of collaboration (Jap & Anderson, 2003; Malhotra & Lumineau, 2011) and team performance (Dirks & Ferrin, 2002; Webber, 2002), while at the same time reducing the perception of risk (Doz, 1996) and transaction cost (Chow, 2008). Empirical studies conclude that trust can be a source of competitive advantage for organisations (Barney & Hansen, 1995; Nahapiet & Ghoshal, 1998). But, in the knowledge management literature the recent surge of interest in the concept of trust is due to its links with knowledge and innovation (Adler, 2001; Huemer et al., 1998; Marshall et al., 2005).

Before examining the trust-knowledge relationship, I will first define the concept of trust and different dimensions attributed to it. Trust can be defined as "a set of mutual expectations or anticipations regarding each other's behaviour and each other's fulfilment of perceived obligations" (Thorelli, 1986, see Madhok, 1995, p.120). Therefore trust is not simply a "naïve belief" in your partner (Bromiley & Cummings, 1993). Poppo et al. (2008) explain that trust is when the partners recognise that the agreements between them can be violated, but their partner chooses not to behave in their own interests. Sako (1992) defines trust based on how it can be developed in a relationship, giving the partners' the ability to predict they will be treated in a "mutually acceptable manner". Trust has also been defined as a risk-taking act or a "willingness to render oneself vulnerable" to the actions of another party (Rousseau et al., 1998, p.395). Newell and Swan (2000) add to these definitions by providing a threefold typology that has been extensively used and referred to in empirical research. Newell and Swan's (2000) typology distinguishes between companion trust, competence trust and commitment trust. *Companion trust* refers to partners' goodwill or personal friendships, where people rely on their morality in order to behave in certain ways and not to harm their partner. *Competence trust* is formed on the basis of people's ability and competence to perform. In this case partners develop a sense of respect for the complementary skills their partners have. The last form of trust in their typology is an *institutional trust,* called commitment trust, which is shaped and fostered due to contractual agreements between the parties.

Another way to conceptualise trust is to differentiate between structural and social trust. Structural or institutional trust is developed and reinforced through institutional factors, such as contracts or other formal mechanisms that build up a security for the parties, so that they feel they will not be abused or mistreated in the relationship (Bradach & Eccles, 1989; Dyer & Chu, 2003; McEvily et al., 2003). On the other hand, social trust refers to individual people's confidence in each other's goodwill and integrity (Madhok, 1995). This research utilises this latter typology of trust because these definitions of trust focus on the mechanisms or methods that are used to develop trust. Where as Newell and Swan's (2000) definition of trust centres mainly on the nature of trust, whether being companion, competence or commitment. Since the thesis aims to examine how development of trust facilitates knowledge processes in cross-boundary work, the structural and social typology and its focus on explaining the methods of trust development is much more relevant to my research. I believe this classification helps me enhance my understanding of the impact of different mechanisms/tools or processes on facilitating cross-boundary collaborations, rather than solely explain what type of trust is being developed.

Jiang et al. (2011) find that both *structural* and *social* trust have a significant role in building inter-organisational relationships. Depicting the development of trust as mutually constitutive and a "cyclical" process, Ring and Van de Ven (1994) also believe that both negotiations (formal bargaining, informal sense-making) and commitments (formal legal contract, psychological contract) are required to foster trust in the relationships between organisations (p.112). But other scholars argue that *social* trust, as "relational capital", is the key driver of inter-firm collaborations (Kale & Singh, 2009; Kale et al., 2000; Schreiner et al., 2009). For instance, Narayandas and Rangan (2004) study the trust-commitment dynamics in inter-organisational relationships and suggest that inter-personal trust can have a significant impact on commitments, but they do not support the role of institutional or structural trust in these relationships. This stream of research defines *social trust* as a knowledge-based confidence that is gradually shaped and developed mutually through partners' informal processes (Zaheer et al., 1998).

The critical role of trust in facilitating knowledge processes has been highlighted by a vast quantity of research (Abrams et al., 2003; Adler, 2001; Andrews & Delahaye, 2000; Ardichvili et al., 2003; Darvish & Nikbakshs, 2010; Davenport & Prusak, 1998; Dyer & Chu, 2003; Holste & Fields, 2010; Jonsson & Kalling, 2007; Lee et al., 2010; Levin & Cross, 2004; McEvily et al., 2003; Mooradian et al., 2006; Newell et al., 2007; Roberts, 2000; van Wijk et al., 2008). For instance, Niu (2010) examines 188 companies working in four international networks and concludes that trust facilitates open communication and knowledge acquisition. Mooradian and his colleagues (2006) explain the trust-knowledge sharing relationship, highlighting that those with a higher tendency to trust get more involved in knowledge sharing activities. Similarly, Ko (2010), in his study of consultant-expert dyads finds trust as a crucial factor in maintaining an effective knowledge transfer. The link between trust and knowledge transfer in the literature is so strong that some scholars even consider trust as knowledge transfer. For example, Yusof and Ismail (2010) define trust as people's willingness to share knowledge in order to gain mutual benefits and protect them from being exploited by the other actors within the organisation.

As stated above, the literature establishes the relationship between trust and knowledge sharing. However, it generally only links the *social* or *relational* aspect of trust to knowledge sharing, claiming that the trust which is developed through interpersonal relations has a significant impact on knowledge processes (Adler, 2001; Darvish & Nikbakshs, 2010; Dyer & Chu, 2003; Jonsson & Kalling, 2007; Lee et al., 2010; McEvily et al., 2003; Mooradian et al., 2006; Narayandas & Rangan, 2004; Newell et al., 2007; van Wijk et al., 2008). In contrast, contractual obligations do not always seem to be effective in facilitating knowledge integration, especially when tacit knowledge needs to be shared between different expert groups (Inkpen & Pien, 2006). The stable and fixed nature of contracts often cannot reflect the details and intensity of knowledge that is expected to be shared.

Rather than contracts, forms and structures, high levels of social interaction are sometimes needed to develop trust and enable the partners to share tacit knowledge (Becerra et al., 2008; Kale et al., 2000; Zajac & Olsen, 1993). Similarly, Holste and Fields' (2010) study of professional managers in an international organisation underline

that personal trust, developed through personal relationships, had a greater impact on the sharing of tacit knowledge, than structural and institutional trust. Another good example of the link between social trust and knowledge sharing is Harryson and his colleagues' work (2008). This study showed that the management had to encourage informal social interactions in order to increase the level of trust and knowledge sharing between different expert groups. But this perspective was disputed by Mouzas et al. (2007) who claim that trust should be conceptualised differently for inter-organisational relationships, suggesting that interpersonal trust will be insufficient for the collaboration between firms. They argue that protective mechanisms and standards should be used , alongside social trust, in order to facilitate business relationships.

Trust in Cross-Boundary Collaborations

Having reviewed the literature on the concept of trust, it can be concluded that trust, especially in the context of inter-organisational collaboration, is a multi-dimensional concept (Currall & Inkpen, 2006; Mouzas et al., 2007). The importance of trust and its significant impact on knowledge sharing in cross-boundary collaboration cannot be denied (Adler, 2001; Argote et al., 2003; Dyer & Chu, 2003; Jonsson & Kalling, 2007; Narayandas & Rangan, 2004; Newell et al., 2007; van Wijk et al., 2008). However when there is a limited amount of shared and common knowledge, as well as a weak or no sense of identity between the groups working together, the development of trust becomes a complex and difficult task (Hislop, 2013; Janowics-Panjaitan & Noorderhaven, 2009). The complexity of trust in cross-boundary work can be explained by its link to perceptions of risk, uncertainty and vulnerability. As Hislop (2013) highlights "development of trust-based working relations is by no means easy or straightforward, especially when the groups collaborating perceive that their interests may be conflicting" (p.179).

Research suggests that trust mitigates the perceptions of risk and failure, thus encouraging knowledge processes in these contexts (Nonaka & Takeuchi, 1995; Quigley et al., 2007). In other words, it is suggested that organisations need "trust as an input condition in order to stimulate supportive activities in situations of uncertainty or risk" (Luhmann, 1988, p.103). Thus, trust is used as a form of control to relieve uncertainty or risk in organisations (Das & Teng, 2001; Rodriguez & Wilson, 2002).

However, it can be argued that individuals/teams/groups face some elements of risk when they trust their partner(s) and share their knowledge with them. In other words, knowledge providers put themselves in a vulnerable position and they might lose competitive advantage if valuable knowledge is shared with a competitor (McEvily et al., 2003). This is particularly true when the partners view knowledge as a source of power (Kim & Mauborgne, 1998; Szulanski, 1996). Another part of the risk is that the recipient of knowledge may absorb poor quality knowledge that might have been conveyed with bad intentions (Mooradian et al., 2006). Therefore, sharing knowledge equals risk for the knowledge provider in such circumstances.

Since cross-boundary work and knowledge integration also involve elements of risk (Mooradian et al., 2006; Rousseau et al., 1998), I adopt Rousseau and her colleagues' depiction and define trust as a risk-taking act or a "willingness to render oneself vulnerable" to the actions of another party (Rousseau et al., 1998, p.395). Structural and social trust have been found to have different impacts on different settings and studies. As some highlight implementing protective mechanisms to develop trust (Dyer & Chu, 2003; McEvily, et al., 2003; Mouzas et al., 2007), others claim that social or relational trust enable different groups to engage in collaborative relationships in which knowledge is integrated successfully (Kale & Singh, 2009; Kale et al., 2000; Schreiner et al., 2009). However, the question of which dimension of trust (social and/or structural) facilitates knowledge processes when uncertainties and risk reside in the environment remains unanswered. This thesis addresses this gap in the existing literature and examines how the development of trust influences knowledge processes in the complex, uncertain and risky relationship of publishers and developers in the videogame industry.

2.3. Limitations of Existing Literature

High levels of innovation and competition demand effective work across different boundaries (Bruns, 2013; Bechky, 2006; Nicolini et al., 2012; Tortoriello & Krackhart, 2010). However, the management of collaboration and maintaining fluid knowledge processes across diverse groups cannot be easily achieved. This chapter has reviewed the literature on cross-boundary work and the challenges of managing cross-boundary collaborations. Three key factors were identified that facilitate knowledge processes in

cross-boundary work settings: boundary objects as coordinating mechanisms; extensive dialogue and power structures; and the development of trust. However, the review reveals that there is a limited understanding of three distinct areas in the existing literature that need further study.

Firstly, the multi-dimensional and dynamic aspect of boundary objects has been highlighted in the literature (Nicolini, 2011; Star, 2010). These studies mainly concentrate on the coordinative roles of boundary objects and the relationship between different objects to facilitate collaborations (Nicolini, et al., 2012; Scarbrough et al., 2015). However, there is a limited understanding of the role of social processes and interactions on the effectiveness of boundary objects and knowledge processes (Lainer-Vos, 2013; Zeiss & Groenewegen, 2009). The review also identifies that the dynamic characteristics of boundary objects and how they evolve during the course of a project or collaboration are relatively unaddressed (Nicolini, et al., 2012). Carlile (2002, 2004) proposes that "boundary objects are no 'magic bullet' because their characteristics are hard to sustain as problems and people change" (p.452), adding that depending on the level of novelty, differences and dependencies between the partners, knowledge processes require different mechanisms and methods to be managed. However, Carlile (2002, 2004) explains cross-boundary work and the role of boundary objects in the context of intra-organisational collaboration. Thus, our understanding of knowledge processes across inter-organisational boundaries, where there are expected to be more divergent interests and conflicts between partners, remains undeveloped.

Secondly, the review shows that the crucial role of power, politics and negotiations in cross-boundary collaboration has been recognised in the literature (Kimble et al., 2010; Knorr-Cetina, 1999; Carlile, 2002, 2004; Christensen et al., 2000; McGivern & Dopson, 2010). I presented different dimensions of power and discussed different methods that are being used to practice power in organisations, hence influencing knowledge processes and relationships. The interconnectedness of knowledge and power was emphasised, and the relationship between different dimensions of power and knowledge was highlighted. However, we know little about the impact of power on knowledge processes or about how knowledge is integrated in political contexts (Hislop, 2013; Karreman, 2010; Oborn & Dawson, 2010; Dopson & Fitzgerald, 2005). The Foucauldian/relational perspective on power is important because it accounts for the

contested nature of knowledge, recognising the role of social practices and interactions in shaping power/knowledge dynamics (Blackler, 1995; Fox, 2000; Hardy, 1996; Marshall & Rollinson, 2004; Swan & Scarbrough, 2005). However, the utilisation of this Foucauldian/relational perspective on power is particularly neglected in the literature.

Thirdly, the literature underlines that the development of trust is an essential factor in facilitating knowledge and cross-boundary work (Adler, 2001; Argote et al., 2003; Dyer & Chu, 2003; Jonsson & Kalling, 2007; Narayandas & Rangan, 2004; Newell et al., 2007; van Wijk et al., 2008). The review concentrated on structural and social trust – the former leads to the implementation of protective mechanisms to develop trust (Dyer & Chu, 2003; McEvily, et al., 2003; Mouzas et al., 2007), while the latter suggests that social interactions can facilitate knowledge processes and collaboration (Kale & Singh, 2009; Kale et al., 2000; Schreiner et al., 2009). However, the literature also highlights that the development of trust in highly risky and uncertain work environments is a complicated process that is hard to achieve (Currall & Inkpen, 2006; Hislop, 2013; Janowics-Panjaitan & Noorderhaven, 2009). I argue, first, that developing trust, cross-boundary work and knowledge integration across boundaries all involve elements of risk (Mooradian et al., 2006; Rousseau et al., 1998). Second, I suggest that the processes through which trust can be developed to enable knowledge integration and facilitate cross-boundary work in a highly risky and unpredictable environment have received very little research attention.

2.4. Existing Research in the Videogames Sector

Through this review I argued that integrating knowledge in cross-boundary collaborations is particularly challenging due to the complexity, unpredictability and uncertainty of innovation processes. Carlile (2002, 2004) proposes that the relational properties of knowledge, such as difference, dependency and novelty, are barriers to innovation, explaining that the higher the level of novelty in the collaboration across boundaries, the more complicated the process of knowledge integration becomes, thus requiring distinct methods to diagnose and address the existing difficulties. This empirical study examines knowledge processes in the context of the videogame industry because the challenges of complexity, unpredictability and uncertainty seem to be

highly prevalent and distinctive in the videogame development process (Nandhakumar et al., 2013; Stacey & Nandhakumar, 2009; Tschang, 2007; Zackariasson et al., 2006 a, b).

The focus of existing research in the videogames sector has been mainly on understanding creativity (Cohendent & Simon, 2007; Panourgias et al., 2014; Tschang, 2007; Zackariasson et al., 2006 a, b), highlighting the distinctive features of videogame development as a dynamic and unpredictable process that involves interdependent, emergent and under-specified tasks and goals (Kellogg et al., 2006; Nandhakumar et al., 2013; Panourgias et al., 2014; Scarbrough et al., 2015). There has also been some research on the methods and tools used in videogame development, such as project management tools (Kanode & Haddad, 2009; O'Hagan & O'Connor, 2015; Petrillo & Pimenta, 2010; Politowski, et al., 2016). However, few studies focus on knowledge processes in these contexts. Some of the scholarly work in the videogame industry identifies the role of objects in coordinating work across groups, concentrating on the "interpretive flexibility" of objects in facilitating practices and collaborations (Bruns, 2013; Kellogg et al., 2006; Nandhakumar et al., 2013). Scarbrough and his colleagues (2015) apply a relational view of the role of objects and examine the relationship between objects. In their study, they suggest that the relations between objects are effective in coordinating between groups. Conversely, their study focuses on intra-organisational dynamics within videogame development studios. Therefore, the existing literature shows that there is a limited understanding of knowledge processes in the highly complex, unpredictable and uncertain setting of videogame development. Nandhakumar et al. (2013) suggest that the existing research in the videogame industry is also less concerned with the conflicts and organisational politics between diverse groups. As a result, I believe that studying inter-organisational dynamics in videogame development will address these undeveloped areas in the literature and will explain the impact of organisational and social processes, including the role of power dynamics and social/structural trust, on boundary objects and knowledge integration in these creative and innovative contexts.

In the rapidly changing videogames industry, collaboration and communication are considered critical factors because to produce a successful game, companies need to facilitate cross-discipline activities between designers, artists, engineers and

programmers, as well as implementing knowledge of the international market with cutting-edge technology. The juxtaposition of all these skills, expertise, knowledge and technology, however, needs a large amount of investment, management and acumen. The predominant business model within the industry is based on the partnership of publishers and developers. This publisher-developer relationship is a critical driver for industry performance and has been the focal point for debate and scrutiny in the past few decades. However, it still remains intriguing and problematic. Since knowledge integration is an integral part of the publisher-developer collaboration, it is believed that studying the knowledge processes in the novel setting of this relationship will shed more light on how knowledge is integrated in cross-boundary collaboration. The next chapter will provide an outlook on the videogame industry and the documented conflicts of the publisher-developer relationship.

2.5. Summary of Research Objectives

Cross-boundary knowledge integration has attracted much attention in recent research due to the importance and challenges of having an effective working relationship in such contexts. The literature suggests different methods and strategies to enable organisations to facilitate knowledge integration across their knowledge domains. At the same time, the literature emphasises that this can be a problematic and complicated process when there are high levels of differences, dependencies and novelty between different disciplines working together (Majchrzak et al., 2012).

In this review, three key factors were identified to be effective in facilitating knowledge processes across boundaries. In the course of the literature review I identified three areas in the existing theoretical and empirical literature that need further research. To address these limitations, this research aims to examine knowledge processes within the cross-boundary practices of the large publishers and small/medium-sized developers in the creative and innovative setting of videogames development. The study will look at cross-boundary practices, the conflicts experienced within these boundaries, while at the same time looking for practices or methods that encourage knowledge integration within the developer-publisher collaboration. In order to achieve this, the research will address the following questions:

RQ1: How do boundary objects influence knowledge processes across the publisher-developer organisational boundaries?

RQ2: How do power relations influence knowledge processes across the publisher-developer organisational boundaries?

RQ3: How does developing trust influence knowledge processes across the publisher-developer organisational boundaries?

Chapter Three: An Overview of the Videogames Industry

This chapter provides a general overview of the videogames industry, introducing its six distinctive actors. The chapter focuses on two of these actors, developers and publishers, outlining their features and main responsibilities in developing videogames. I provide the statistics for the developers in the UK because the companies I have studied were all based in the UK. However, for the publishers section, I present a more general and global overview of the publishers and their function. This is because the publishers involved in my research were multinational firms. Later in this chapter, I highlight the importance of the publisher-developer relationship in the industry, explaining how this collaboration is formed and governed. The chapter underlines that the industry rhetoric depicts the publisher-developer relationship as conflicting and irreconcilable. Finally, I add that this negative portrayal inspired me to examine the publisher-developer relationship in order to understand how knowledge can be integrated in such a complicated setting.

Over the past three decades, the videogame industry has grown from a niche technology sector to a mainstream consumer entertainment, providing interactive content to a vast range of consumer segments. The global videogames market is worth over $100 billion annually, with a 6.2 per cent increase in worldwide revenue in 2016 (Newzoo, 2017). It is predicted that the entire games market will reach $188.6 billion by 2019 with a projected growth of 6.6 per cent (Newzoo, 2017). In comparison, the global film industry recorded worldwide revenues of $38 billion by the end of 2015 and is expected to grow to $50 billion by 2020, which is surprisingly much lower than the total videogame revenue (Ukie, 2017).

In terms of regional segmentation, China has overtaken the USA as the world's biggest market – $24.4 billion versus $23.6 billion. Given the greater number of residents in the region and the capacity of gaming to reach full market penetration, it is expected that China's global lead will only expand over time (Newzoo, 2017). However, the two market leaders, China and the USA, have significantly different sources of revenue, with the USA remaining established in its traditional market of games consoles and virtual reality (VR) at a $9.9bn share. On the other hand, China heavily focuses on the

PC market (consumers using personal computers to play games) at a $15.2bn share (Ukie, 2017). In terms of revenue generation, the UK videogames industry is the sixth largest game market after China, the USA, Japan, South Korea and Germany (Ukie, 2017).

The videogames industry in the UK is recognised as contributing significantly to the creative economy (TIGA, 2016). In 2014, the videogames sector accounted for £1,115 million of the UK's GDP and generated £471 million for HM Treasury in tax revenues (TIGA, 2017). The UK houses twenty three of the most successful and profitable game studios in the world, having produced titles such as *Football Manager*, *Tomb Raider* and *Grand Theft Auto* – the fifth iteration of which as of 2016 has sold more than 70 million copies worldwide (TIGA, 2016). Game development is regarded as a knowledge industry, employing highly-skilled and trained individuals. The number of skilled employees who work directly in games development reached 10,869 in 2014 (TIGA, 2017). A recent report highlighted that "there are 2,141 active games companies in the UK, operating at all sizes and scales, with world-class talent" and 95% of these companies are micro or small businesses" (Ukie, 2017).

The videogame industry is made up of six distinctive and connected layers, including publishers, developers (talent), production tools, hardware, distribution and retail, and customers (Bethke, 2003).

- Publishers are medium to large organisations that develop games either internally or fund external studios to develop them and seek returns through licensing, selling and distributing these games in the market.
- Videogame developers are composed of talents, such as artists, designers and programmers who work either independently, or in collaboration with a publisher under project-based temporary contracts, or they might be owned by the publisher.
- Production tools refer to game engines, middleware or production management tools that are used to create games. There are companies within the industry that create and sell this software to both publishers and developers.

- Hardware refers to the underlying platform required to run the game, which may be a games console or PC, online-based, or accessed through mobile devices such as the iPhone.
- Distribution or retail refer to the companies that are involved in marketing and channelling of games to the end user, via stores or online distribution portals.
- Customers are the end-users or players of the games.

Since this thesis focuses on the publisher-developer relationship, in the next two sections I elaborate on developers and publishers.

3.1. Profile of the Videogame Developers in the UK

There are over 220 developers (development studios) in the UK, the majority of which are small and medium-sized enterprises (Ukie 2014). This number includes (1) in-house developers, (2) third-party developers, and (3) independent developers.

An **in-house developer** is a studio or group developing games for – and owned by – a publisher or a console manufacturing company. These developers might use the name of the publisher or they might have their own trademarked name, such as Guerilla Games, owned by Sony, or Dice, owned by Electronic Arts (EA). An in-house developer can also be an independent developer that has been acquired by the publisher, such as developer Double Helix, acquired by Amazon in 2014. Whatever name the developer uses, practically it is owned by the publisher and they are considered as the "publisher's team". Developers acquired by the publisher tend to continue to operate much as they did before acquisition, with the primary differences being in exclusivity and the financial details. However, sometimes even these developers have conflicts of interests and clashes with the publishers, such as Infinity Ward whose directors had legal clashes with Activision after the publisher acquired them. The episode ended in the original directors of Infinity Ward being fired – this was one of the biggest scandals of the videogames industry in 2010 (McWhertor, 2010). The average mean turnover of in-house developers is £15,500,000 and they employ an average of 245 employees – this is only 9 per cent of the whole population of videogame developers (Wilson, 2015).

A **third-party developer** is an independent videogame developer, employing a highly skilled and creative workforce, including artists, programmers and designers. These developers collaborate with a videogame publisher to develop a game. In most cases, they do not own the IP (Intellectual Property) of the game. Instead, they are paid by a publisher to create a game and usually receive some form of royalties after they break even. The idea and concept of the game either comes from the developer, or it is shaped and developed through their collaboration with a publisher. This type of collaboration with a publisher is also called "work for hire" in the industry. I explain what a publisher is and how the publisher-developer relationship is formed and governed in sections 3.2 and 3.3. respectively. It is reported that 91 per cent of third-party developers are small and medium, employing an average of 55 highly skilled workers, including artists, designers and programmers. The average mean turnover of a third-party developer studio that develops games is £3,130,600. Although these developers mainly raise funds for developing games through signing a contract with a publisher, they might also self-finance their operations, draw on royalties and use bank overdrafts. The data show that collaboration with a publisher (33 per cent) and self-financing (30 per cent) constitute the most important sources of finance for most developers (Wilson, 2015).

An **independent developer** is an individual or a small software developer that is not owned by or beholden to a publisher. These developers self-publish their games and develop their games without a publisher's financial support (Gril, 2008). To market their games, these developers rely on the Internet and word of mouth. Without the huge marketing budgets of publishers, their products almost never get as much recognition or popular acclaim as those of larger publishers such as Sony, Microsoft or EA. However, these developers are free to explore experimental themes and styles of gameplay that publishers would generally not risk their money on. They might apply a different business model, such as designing a free-to-play social game, such as *Farmville* on Facebook (Irwin, 2008), and draw upon a wide range of sources of finance including venture capitalists/business angels (7 per cent), bank loans (1 per cent) or government/EU grants (3 per cent) (Wilson, 2015).

A recent study of videogame development studios found that the majority of development studios are independent, as opposed to being in-house, publisher-owned developer (Ukie, 2017). In 2012, there were approximately three times more

independent development studios than publisher owned, in-house studios (Gibson & Gibson 2012). However, these small/medium-sized enterprises typically depend on a single customer or a small number of customers, making their business highly risky. If a developer loses its key customer or customers the effect could be irreparable. Significantly, independent developers that also publish games have the most diverse customer base – since these developers can successfully publish and distribute their own games, they can diversify their route to market and reduce their dependence on publishers. But there are still a large number of developers that are reliant on collaboration with publishers. Wilson (2015) showed that 56 per cent of games produced by developers were "work for hire" projects and 63 per cent of games produced by independent games developers were funded by a publisher or other licence holders, such as toy companies, TV license holders, etc. (TIGA, 2015).

3.2. Profile of the Videogame Publishers

A videogame publisher is a company that takes to market games that they have either developed internally (in-house) or have them developed by an external company (third-party developer). Sony, Microsoft, Activision Blizzard, Nintendo and Ubisoft are among the major publishers in the world, with multiple regional operations and subsidiaries, employing a large number of staff. For instance, Ubisoft is based in France, but employs 10,000 worldwide. Activision Blizzard has its headquarters in the USA with 9,000 employees working for the company worldwide. There are smaller specialist publishers within the industry, such as Capcom and Konami that, according to their corporate data, hire 2,600 and 4,580 people respectively (Metacritic, 2014). Codemasters is the best-known British-founded publisher, employing 400 staff (Maxwell, 2017). However, the large publishers are the major players influencing and shaping the industry. O'dea (2006) asserts that publishers act as key agents controlling substantial resources and linking platform holders, distributors and retailers. Publishers derive their revenues from multiple sources: (1) the sales of videogames developed internally; (2) the sales of videogames developed externally through contracting third-party developers; (3) licensing fees for their Intellectual Property and franchises (Rabowsky, 2010). The highest revenue generated by these publishers is that of Tencent that has generated $10.2 billion in 2016 (Newzoo, 2017).

Similar to book publishers, videogame publishers are responsible for the manufacturing and marketing of the game. In addition to these, the videogame publishers sometimes distribute the games, or help distribute them by contracting distribution companies or larger videogame publishers. Other functions usually performed by the publisher may include deciding on and paying for any licensed technology that the game may utilise; paying for localisation; paying for the manufacturing of boxed products; paying for the server hosting of online functionality; providing for external QA (Quality Assurance); handling the relationship with hardware manufacturers; and the promotion of the product. Publishers are interested in being creatively involved in the development process – they often provide both their internal and external development team with creative services such as concept, art and sound design, as well as programming contributions.

Publishers finance videogame development and this is associated with high levels of risk for them. According to Zee (2013), development costs have massively increased in the past decade. O'dea (2006) explains that this change is because of the advanced technology of the console hardware and the high levels of competition. The technology powering recent console hardware in the market, such as Sony's 'Playstation 4', Microsoft's 'Xbox One' and Nintendo's 'Nintendo Switch', has advanced capabilities. Therefore, the market/consumer expectation is that videogames developed to be played on these consoles should be more complicated – such as more characters with more artistic details, complicated functions and in some cases hundreds of hours of playtime, etc. Developing videogames with high quality and complicated specifications needs bigger teams. That is the main reason development budgets for this generation of console games sometimes reach tens of millions. For instance, Activision spent $50 million on the production of *Call of Duty: Modern Warfare 2* – this amount did not include the marketing costs, which reached $150 million (Gibson, 2014). Another example is *Disney Infinity*, for which Disney Interactive Studios spent $100 million on its production, excluding the marketing costs (Gibson, 2014). Furthermore, the industry has recently been defined as "hits driven", meaning that the quality of the game might not necessarily lead to the success of the game and sometimes customers purchase the games that are marketed better (Matthews, 2012). This unpredictability results in high levels of competition between the publishers (Messina, 2013).

3.3. Publisher-Developer Relationship

The videogame development sector is a high technology industry, using highly skilled workers and cutting-edge technology, and investing massively in research and development (TIGA, 2016). While the data show that videogame developers spend on average 22 per cent of their organisation's turnover on research and development, it is reported that these developers have had difficulty securing the IP rights for their videogames and on average they own only 51 per cent of the IP of their games (Wilson, 2015). Therefore, in spite of high levels of technical, creative skills and their continued production of world-class games, videogame developers face important structural weaknesses and above all limited access to finance and skill shortages (Mateos-Garcia, et al., 2014). These problems constrain the developers' capacity to generate their new ideas and own their IP. The revenue flows generated with the independent business model are insufficient to develop original ideas. As a result, developers have to rely on publishers' funding to survive and compete with the international rivals. The UK's most successful independent studios derive two thirds of their gross revenues from contracts with publishers (Wilson, 2015). On the other hand, the publishers are cost-conscious, having great incentives to contract projects to cheaper studios in Eastern Europe and Asia. This competition is viewed as a threat to the UK developers and has made the sustainability of the development studios more perilous, as highlighted by the recent campaigning to gain greater tax breaks for British companies in order to stimulate local investment (Blake, 2014).

Despite new trends in the industry and opportunities for independence, development studios are still interested in collaborating with the publishers or being acquired by them in order to have access to finance, international markets and for the purpose of knowledge sharing (Cashman, 2014). PopCap is a previously independent developer that owns some of the most famous casual gaming IPs in the world and is behind very successful brands like *Peggle*, *Bejeweled* and *Plants vs. Zombies*. However, PopCap has been acquired by EA as part of a deal worth a reported $1 billion. Paul Breslin, PopCap's managing director, was confident that the studio is going to benefit from its association with EA. He asserted, "EA gives us the ability to accelerate our plans to get our games into more people's hands. There are 8,000 people at EA, and EAi, which

we're a division of, has a very good distribution capability. We can now tap into that distribution network and get more of our games out there" (Freeman, 2011, p.38).

The business between a third-party developer and publisher is formed and governed by a contract that specifies the game specifications, plans and milestones for the delivery of the game (while this thesis focuses on the relationship between third-party developer and publisher, I only use the term developer to refer to the third-party developers. This is done to simplify the language). Both publisher and developer contribute actively to the game design and production, but it is the publisher that is responsible for fully or partially funding the development. In return for this investment, the developer transfers full or partial ownership of their assets and their Intellectual Property. An industry source reports:

In most instances, it is the publisher that funds the development of a game it intends to publish. This normally takes the form of a royalty advance and is paid on a milestone basis. Once a game is released, the developer receives no royalty payments until the title [game] has recouped the publisher's advance (Game Investor, The Publishing Process, 2006).

The publisher-developer contract can value between a hundred thousand to tens of millions of pounds, depending on the type and the scope of the game, as well as the platform for which the game is produced. For instance, Schreier (2015) reports that *EA* paid $19,700,000 to *38 Studios* for their deal to make a game in 2015. The publisher pays this amount to the developer at different stages, as periodic advances on royalties. These advances are paid when the developer reaches certain stages of development called milestones. After the developer delivers an updated version of the game for each milestone, the publisher verifies that the project is progressing, meeting the publisher's criteria. Upon the publisher's approval of each milestone, the publisher pays the developer an advance on royalties (Walfisz et al., 2006). When the publisher finances development, it manages development risk and monitors the project with a team of producers and project managers. This team keep track of the progress of the project, critique ongoing development and assist the development team in production as necessary. The publisher team might be involved in designing the game or developing

the concepts and art. The publisher's involvement in the development process varies from project to project.

From the developer's perspective, signing a development agreement with a publisher provides a high level of security that they will have the required finance to complete the project (Bakhshi et al., 2010). The developer uses this money to fund its production and general operations within the studio. However, there has been abundant criticism of this publisher-developer relationship in the industry. The relationship has been defined as unequal and one-sided, where the publisher is the only beneficiary and the developer is described as being exploited. O'dea (2006) explains that it is "the publisher [who] retains the largest share of the revenue generated by videogame sales at retail and enjoys significant profit margins" (p.41).

The industry is replete with stories that the publisher-developer relationship has contributed to the demise of the development studio (Kotaku, 2013), examples of which include the associations of Team 17 with Lilith Ltd (Booker, 2016) and Rockstar with Team Bondi (McMillen, 2016). Some criticise the structural weakness of the developers and their lack of financial stability (Wilson, 2015). Wilson (2015) explains that third-party game development is a volatile business because these developers can be entirely dependent on funding from one publisher, and a single cancelled game can lead the developer to go out of business. The continual struggle to get payment for milestones and to line up the next game contract is a persistent distraction to the management of every game developer. A common and desirable exit strategy for an extremely successful videogame developer is to sell the company to a publisher, and thus become an in-house developer.

The dominant rhetoric within the industry accuses the publisher of exploiting the developer in this relationship, thus damaging the publisher-developer relationship. Doucet (2017) depicts the publisher-developer conflicts as below:

> *[Their] conflicts are obvious – the stereotypically greedy businessmen [publishers] who leverage their power to put themselves and their rich partners first, at the expense of … the developers that toil under bad working conditions*

> *to produce them [the games]. This is a sadly familiar example in our industry (Doucet, 2017).*

The publishers and developers are described to be different in skills and expertise. Confirming these differences, Heaton (2012) explains that "developers are from Mars, publishers from Venus". The developers are described as "the real heroes of games development", while the publishers are portrayed as "lack[ing] the expertise to develop games" (Hill, 2012). In addition to these differences, it is highlighted that the publisher is the party with more leverage, thus controlling the relationship to secure their own interests. Hill (2012) claims:

> *Publishers expect developers to shoulder a huge burden and because they hold the purse strings they can be as demanding and difficult as they like. Most developers will be able to tell you some story about a ludicrous demand they received from a publisher and the bottom line is profit for publishers whereas for many developers all they care about is creating a great game (Hill, 2012).*

While the publisher-developer relationship is said to be conflicting and problematic, some believe that the relationship is irreconcilable and they, therefore, suggest empowering developers within the industry, so that they can work independently from the publishers (Fahey, 2015). Johnson (2015) asserts:

> *I don't think [the publisher-developer relationship] is fixable. Big business mixing with small business never really works well as the entire mindset is mismatched. Neither party is doing anything deliberately, well not usually, so there's no real blame. Thankfully there are so many other publisher-free routes to market, available for the small guy [developer] that they at least have breathing space nowadays.*

People have responded differently to this portrayal of publisher-developer relationship as incongruous and toxic (Fahey, 2015) and some disagree that this collaboration should be eradicated from the industry (Heaton, 2012). Instead, it is suggested that "the connection between developers and publishers is the great, largely unwritten, story of videogame history". Thus this business model should be reviewed and modified, and

other approaches might be used to develop a better understanding of the publisher-developer relationship and create a more successful collaboration between the two (Heaton, 2012).

3.4. Conclusion

The videogame industry has a major impact on the economy through the sales of consoles and games throughout the world; however, it is facing constraining problems. Development costs were previously minimal; therefore, videogames were highly profitable. Games developed by a single programmer, or by a small team of programmers and artists, could sell hundreds of thousands of copies each. Many of these games only took a few months to create, so developers could release several games each year. Thus, publishers could often be generous with benefits, such as royalties on the games sold. Many early game publishers started within this economic climate, such as Electronic Arts, Capcom and Activision.

Due to technology advances, the increasing consumer demands for complex and diverse products and the competition in the industry, the videogame development process has become complicated and risky. Large sums of investment and big development teams are required to address the ever-increasing graphical and market complexities. With the budgets reaching tens of millions of dollars, the developers rely on the publishers to fund and develop their games. At the same time, publishers seek innovative and competitive ideas, spreading the risk of development by investing in multiple development studios. Some developers turn to alternative production and distribution methods, such as online distribution, to reduce costs. However, the publisher-developer business model is still relevant in such a fast-growing, knowledge-intensive industry, with both parties needing their partner's knowledge and resources to thrive and compete. The challenge for the developers and publishers going forwards is to develop a better understanding of their relationship and learn how knowledge could be integrated more effectively. To address this problem, this thesis examines the role of boundary objects, power games and trust in the publisher-developer relationship.

Chapter Four: Research Methodology and Methods

Having laid out the literature on knowledge sharing across boundaries and a review of the context of my research (videogames industry), I proceed in this chapter by providing a critically reflexive account of my research process and justifying the approach and the methods I've chosen. I also explain how my research methods developed and changed due to difficulties I experienced in negotiating access.

Firstly, I introduce the epistemological and theoretical perspective underpinning my methodology. Defining methodology as the philosophy and methods that support the research process (Seale, 1998), I explain my use of social constructionism and interpretivism as my underlying methodological position (Section 4.1.). Next, I outline respectively the research design (Section 4.2.) and the techniques I utilised to generate my data and explain why they have been chosen (Section 4.3.). Then, I present my data analysis approach and provide a detailed account of how I executed this analysis (Section 4.4.). The next section provides my reflections on how as a researcher I have influenced the process of my research (Section 4.5.). I conclude this chapter with a short summary of how my methodological approach to this study contributes to a credible, plausible and transferable piece of research (Section 4.6.).

4.1. Research Philosophy

This section outlines the theoretical approaches underlying this thesis. The researcher's philosophical paradigm should be clear because ontological and epistemological assumptions influence the research process, including the research questions, the methods utilised to generate data and the data analysis approach (Cassell and Symon, 2004). I explain here that I take a social constructionist and interpretivist position and I describe why this theoretical perspective is appropriate for this research.

This thesis rejects the notion of a single and objective truth (Partington, 2002). Instead, it recognises social constructionism as its ontological position. Social constructionism attempts to explain the nature of reality and it supports a relativist and anti-realist stance (Hammersley, 1992). This theory focuses on the constructed and created nature of social reality – meaning that truth and reality do not exist externally to be discovered,

but they are socially constructed through the subjects' interaction with the world (Gray, 2014; Watson, 2008). Therefore, meanings are not fixed, but dependent on the context and constantly formed and reified through subjects' experiences and interpretations over time (Berger & Luckmann, 1966; Denzin & Lincoln, 2000). Charmaz (2000, 2006) explains that the terms constructivism and social constructionism tend to be used interchangeably, and sometimes they can both be referred to as constructivism as a generic term. While constructivism focuses on the constructed aspect of reality through the individual's mind, social constructionism highlights how social interactions shape and form reality. Therefore, understanding these social interactions is paramount in order to make sense of social reality in forming knowledge about it (Young & Colin, 2004).

Interpretivism is drawn from the writings of scholars, such as Max Weber (1864–1930) who argued that understanding social reality requires understanding the point of view of the people residing within it. This notion is rooted in the ontological doctrine of indeterminism arguing that there might be multiple accounts of reality that can be equally valid. So the researcher's role in developing an understanding of a social phenomenon is to study people's perceptions and experiences of this reality (Berger and Luckmann, 1966; Cohen & El-Sawad, 2007; Bryman, 2008). This does not mean that there is no prospect of consensus over meaning. Instead, interpretivism emphasises that meaning matters, but it acknowledges that subjects' social interactions influence and inform meanings and knowledge (Cohen & Ravishankar, 2012). Therefore, a researcher uses an inductive reasoning and considers multiple accounts of reality by an interpretive understanding of human experience in its context.

I have taken a social constructionist and interpretivist perspective in this thesis because these ontological and epistemological assumptions translate into a view of knowledge as a process, rather than an object (Spender, 1996), and they are in line with the position my research takes in terms of conceptualising knowledge. The interpretivist perspective supports an epistemology of practice (Schultze & Stabell, 2004), viewing knowledge as an on-going social phenomenon (Zander & Kogut, 1995), inseparable from people (Weick & Roberts, 1993) and action (Cook & Brown, 1999). As documented in chapter two of this thesis, the literature on knowledge management and cross-boundary work

also recognises the importance of using a practice-based perspective in the study of knowledge processes because it was highlighted that:

- Knowledge is multi-faceted and complex (Blackler, 1995).
- Knowledge is socially and dynamically constructed in the course of human interaction. So practice and knowledge are intrinsically interrelated (Boland & Tenkasi, 1995; Nicolini, 2011; Orlikowski, 2002; Østerlund & Carlile, 2005).
- Knowledge is contestable, so there might be different understandings and interpretations of knowledge (Yanow, 2004).

Having considered the nature of knowledge as documented in the literature, my study focuses on social practices and processes in order to understand how knowledge is integrated across boundaries (Nicolini et al., 2008; Nicolini, 2011). This requires a methodology with similar ontological and epistemological assumptions towards the social world, thus reinforcing the suitability of the interpretivist approach to look at and examine this phenomenon.

I can justify the usefulness of an interpretivist research methodology for this study by also highlighting how a practice-based perspective can be valuable for examining the nature of videogame development. Chapter three provided a description of the videogame industry and development processes, emphasising the uncertainties of the industry, as well as the high levels of complexity and unpredictability involved in the making of videogames. Due to the creative nature of development, the knowledge produced in videogame development is the outcome of an iterative and collective process, and this process requires the extensive interaction and mutual inferring of various disciplines, teams and individuals (Chandler, 2009; Nandhakumar et al., 2013; Scarbrough et al., 2015; Zackariasson et al., 2006). Given the tacit and social nature of knowledge formed in videogame development, I decided to adopt a practice-based perspective to enable me to examine knowledge processes in the context of publisher-developer cross-boundary work. For the same reason, I take a social constructionist and interpretivist position because I believe this theoretical perspective will enable me to focus on the processes and micro-practices in the publisher-developer collaboration. Since several disciplines are involved in the videogame development process, I believe

studying the perspectives of these different disciplines helps to develop a better understanding of how boundary objects, trust and power dynamics facilitate/hinder knowledge processes in their cross-boundary collaboration.

4.2. Research Design

This section outlines my qualitative research design. I explain that my social constructionist and interpretivist positions, together with the nature of the research questions support a qualitative methodology. Bryman (2008) distinguishes between the research design and research method, describing the former as "a framework for the [generation] and analysis of data" and the latter as "simply a technique for [generating] data, ... such as a questionnaire, a structured interview guide, or participant observation" (p.31). So I only discuss my research design and what research techniques I chose for my study, leaving the details of the techniques I used to generate data to the next section. In this section, I also describe how my research techniques evolved throughout the research, whilst I reflexively responded to the barriers I faced in negotiating access to my research subjects.

The aim of this research is to examine knowledge processes across boundaries with a focus on the role of boundary objects, trust and power dynamics in shaping and influencing the knowledge processes. I formed the three following research questions, all contributing to developing an understanding of how knowledge is formed, shared and integrated across diverse disciplines or organisations:

RQ1: How do boundary objects influence knowledge processes across the publisher-developer organisational boundaries?

RQ2: How do power relations influence knowledge processes across the publisher-developer organisational boundaries?

RQ3: How does developing trust influence knowledge processes across the publisher-developer organisational boundaries?

As stated earlier in this chapter, my study focuses on the role of social practices and interactions to find out how these influence boundary objects, trust and power dynamics, thus shaping knowledge processes. Therefore, in order to capture their

practices and interactions, it was essential for me to get close to the research subjects and their perspectives. This also enabled me to interpret and understand how my research subjects would form and share knowledge (Shaw, 1999).

Since the central goal of my research was "to understand people's actions and experiences of the world", I initially chose an ethnographic research method to collect my data, but I had to change my methods when I faced difficulties accessing the research participants. My assumption was that ethnography would create "intimate familiarity" with the social phenomenon, thus this would help me "in capturing the voices of people who inhabit it" (Alvesson, 1996; Brewer, 2011). As advocated by Atkinson and Hammersley (2007), ethnography should be used when the researcher wishes to explore the nature of a specific social phenomenon. Whilst resonating with my interpretivist position, the literature on knowledge management also suggested the use of methods that involved observations (Carlile, 2002; Nicolini, 2009; Nicolini et al., 2012; Spradley, 1979). However, after nine months of negotiation with companies, I was unable to gain access to development studios to conduct observations (this will be discussed in more detail in section 4.3.1). Given these difficulties, I decided that conducting interviews was a more plausible and practical method for my research.

Having considered all the factors involved, semi-structured interviews were used as my primary method for data generation. In semi-structured interviews, "the interviewer has a list of issues and questions to be covered, but may not deal with all of them in each interview" (Gray, 2014, p.385). According to Gilbert and Stoneman (2016), in semi-structured interviews "the interviewer asks major questions the same way each time, but is free to alter their sequence and probe for more information in their own words" (p.282). So these interviews are more flexible than structured interviews and generally an interview guide, including both closed-ended and open-ended questions, is used to assist the interviewer in probing views and opinions when it is appropriate (King, 2004). By contrast, in unstructured interviews "the questions are not, generally, pre-planned. The researcher must have a notion of the objectives of the research, [and] the input of the interviewer is mainly confined to checking on any doubtful points and rephrasing answers to check for accuracy of understanding" (Gray, 2014, p.386). In the semi-structured interviews that I carried out in this research, I used the list of my interview questions along with an interview guide. This helped me to stay focused on my main

questions and simultaneously allowed me to show some flexibility and probe the respondents when I found them feel comfortable to share their opinions with me (I will provide more details on my interviews and questions in section 4.3.3.).

As supported by Alvesson (2003), interviews constitute a human encounter, through which opinions, perspectives and experiences can be gathered, hence their appropriateness for my study. However, I recognise that along with its advantages, this method holds its own disadvantages too (Cassell & Symon, 2011) and I explain how I addressed these disadvantages below.

Establishing trust and commitment between the interviewer and the respondents is considered to be a critical factor in conducting interviews successfully (Alvesson, 2003). In terms of my research, however, establishing trust with the respondents was not an easy task and it took me time to build a trusting relationship with the people I talked to. The videogame industry is very small and highly competitive, where everybody seems to know each other. People were wary of revealing much about their projects and themselves, fearing this information might damage their reputation or their top secret technology/project would be leaked – as a result harming their company financially. The industry is also male-dominated and being a woman made the development of trust and establishing credibility more challenging. In addition, the respondents felt awkward when they were asked about the challenges of the publisher-developer relationship, and this was due to the sensitivity of this relationship within the industry. I addressed and tackled the participants' lack of trust in me by immersing myself in the industry, learning jargon, technical words, key industry people, products and events (Altheide & Johnson, 1994; Tracy, 2010). I also prepared an interview guide for each interview that contained some background information about the participant, their company and the projects they had worked on (I provide more detail on my interview guide in section 4.3.3). This pre-interview document equipped me with useful knowledge that I could deploy at different points in our conversation to remind the participant of my enthusiasm for what they had said or achieved, thus helping me bridge the gap that existed between us.

Another relevant limitation of interviews is the over-reliance on transcripts as representing truth (Alvesson & Ashcraft, 2012) and not considering the influence the

researcher's and respondents' perceptions and interpretations can have on the research process (Kuhn, 1970). I argue that the philosophical position of this study and the exploratory nature of the research questions offsets this limitation of interviews. Informed by the interpretivist perspective, the interview transcript is not viewed as representing the "real" experience of the interviewee, but it is only an interaction or interpretation of an "indefinite number of possible interpretations" (King, 2011, p.13). The researcher's subjectivity and interactions with the interviewee "is part of the research process, not a distraction from it" and the interviewee is considered as a "participant in the research, actively shaping the course of the interview" (King, 2011, p.11). Both the researcher and the participant together contribute to the production of knowledge and theories (Cunliffe, 2003). The researcher and the participants' interpersonal interactions can actually benefit the interview process, through which the researcher can build trust and rapport with the participants. In other words, these interactions enable the researcher to access useful and sensitive information (Korczynski, 2000; Robson, 1993).

It is vital for the researcher to be aware that reflexivity in research can help counterbalance the limitations of qualitative interviews. According to Finlay (2002), reflexivity refers to researchers' engagement in "explicit, self-aware analysis of their own role" throughout the research process (p.531). Interview transcripts can sometimes be considered as representing an "absolute truth", so other factors influencing the transcripts can be overlooked (Alvesson & Ashcroft, 2012, p.245). Therefore, the researcher needs to take into account the impact of her own perspectives and sense-making process, which might have influenced the course of the interview (Cassell, 2005; Myers & Newman, 2007). Reflexivity allows the researcher to understand the interview transcripts as not an absolute representation of truth, but rather a complex setting that has been influenced by many factors (Goffman, 1959; Myers & Newman, 2007). Johnson and Duberley (2003) highlight the complexities of interview transcripts, by explaining that "in undertaking reflexivity, we do not arrive at 'the answer', rather researchers gain more (but not complete) understanding of the complex and ongoing interrelationship which exists between themselves and their research" (p.191). I discuss the role of reflexivity in my research and how it affected my research process in section 4.5.

4.3. Data Generation

In this section, I explain the techniques I used to generate data. Informed by my epistemological position, I avoid using the term "data collection" because I believe knowledge is produced and constructed as a result of the researcher and the participants' interaction throughout the research process (Bevan, 2009). In the previous section I discussed that I chose semi-structured interviews as my research method. Here, I start by presenting the issues I faced in negotiating access to the research participants and describe how these difficulties affected the process and criteria by which the participants were selected. Next, I introduce the three networks I developed within the industry through a chain-referral method. This will be followed by an elaboration of the techniques I used to generate and record my data. I will end this section by discussing the ethical considerations of my research.

4.3.1. Access to Participants and Their Selection Process

Negotiating access to the research subjects in the videogame industry was not a straightforward process and the selection of participants was significantly influenced by these difficulties. As I referred to it in section 4.2, I initially aimed for the research to use observations as the main method for data generation. As highlighted by Patton (1987), producing rich information is the primary objective of qualitative research, not representativeness of the data. For this reason, I selected two cases that I thought would lend themselves to the research problem in this study (Shaw, 1999) – the study of the collaboration between large publishers and small/medium-sized developers producing videogames. Both cases were medium-sized companies, collaborating with a large publisher on a big budget project. I was hoping that through these development studios, I could gain access to their publishing organisation. I also assumed that comparing two cases with similar business set-ups would allow me to develop a deeper understanding of the phenomenon under investigation.

Unfortunately, I was refused the permission to carry out observations in the studios. I had initiated the negotiations with these two companies through personal contacts and referrals. As suggested by Bryman (2001), I drafted a research proposal that clearly explained the aims of my research and the methods I intended to use in my research to generate data. I sent this proposal to the studio heads to clarify my research aims and

objectives. The directors of both companies showed interest and enthusiasm towards the research and tentatively granted me access. However, further in the process, when it was actually time to do the observations, both studio heads changed their minds and showed reluctance in cooperating with me. Having completed my research in the industry now, I can better understand and reconcile the reasons for facing these difficulties. The relationship between the developer and publisher was highly political and sensitive. The technology they used in the studios and the game concepts were also top secret. The companies seemed to be worried that this information might be disclosed to the public or within the industry, thus putting their reputations and businesses at risk.

In response to the difficulties I faced in gaining access to the studios and having realised the sensitivity of the subject, I amended the research method and used semi-structured interviews to conduct the research. To encourage people to take part in the research, I first contacted some studio directors who seemed to be more outspoken on social media and had already carried out numerous interviews with the media. At the same time I contacted the heads/managing directors of numerous studios (Eland-Goossensen et al., 1997) in order to increase the response rate. Using social networking, such as LinkedIn and Twitter, I contacted these directors, to which a good number responded and agreed to an interview. It was notable that senior directors and informants within the industry showed more willingness to talk to me, but middle managers and junior members of staff did not respond to my attempts at making contact. The middle managers and junior staff only agreed to interviews when they were introduced by their studio heads.

Biernacki and Waldorf (1981) support snowball sampling in cases where the study focuses on a sensitive issue and when there are difficulties in gaining access or recruiting participants. I used the snowball method to expand my sample – I started off by conducting interviews with the senior directors, and used their referrals to form three networks of developers and publishers who had collaborated together. As I mentioned in the previous paragraph, I chose a number of informants in the industry and I used them as informants in my research – these informants talked generally about the publisher-developer relationship, but they were not necessarily part of the three networks of publishers and developers that I formed in this research. This data generation process developed organically, as I followed the lead of a few directors who

were willing to introduce me to more colleagues and friends in the industry. Some senior directors introduced two or three people within their company or the industry. As a result of this organic process, I conducted thirty six semi-structured interviews in three distinct networks. Each network presented a publisher-developer collaboration on a big budget game, where both companies were actively involved in the co-production of the game, hence providing similar contexts for studying knowledge process. I provide more details about my interviews and the three networks I developed in the next section.

4.3.2. The Three Publisher-Developer Relationships

Here I will provide a brief summary of each of the three networks that I developed in the process of my interviews, but in order to protect my research subjects, I refrain from presenting more details about their projects and companies. This is due to the sensitivity of the subject under study. The industry is so small that more details might be too revealing, leading to the subjects involved in my research being recognised. Table 8 outlines the number of interviews conducted, as well as displaying the number and types of roles I interviewed within each network.

Company	Name	Current Role	Years in the Industry	Sex	Age	Length of the interview
Industry Informants	Yousef	Development Studio Director / Ex Publisher Producer	25 yrs	Male	40s	1 hour
	David	Development Studio Director	20 yrs	Male	40s	1 hour
	Timothy	Publisher Vice President	20 yrs	Male	40s	1 hour
	Ethan	Development Studio Director/ Ex Publisher Producer	18 yrs	Male	40s	1 hour 15 minutes
	Matt	Development Studio Director/ Ex Publisher Producer	15 yrs	Male	40s	2 hours
	Adrian	Development Studio Director	23 yrs	Male	40s	1 hour
	Leo	Senior Publisher Executive	32 yrs	Male	40s	1 hour
Developer A	Brian	Managing Director/ Artist	20 yrs	Male	40s	1 hour
	Nigel	Managing Director/ Programmer	18 yrs	Male	40s	1 hour 20 minutes
	Angelo	Creative Director/ Writer	10 yrs	Male	30s	1 hour
	Dylan	Programmer/ Producer	14 yrs	Male	30s	1 hour
	Ken	Executive Producer	25 yrs	Male	40s	1 hour
	Alex	Art Director	15 yrs	Female	30s	1 hour 15 minutes
	Charlie	Game Director/ Programmer	15 yrs	Male	30s	1 hour 15 minutes
	Marcus	Lead Artist	11 yrs	Male	30s	1 hour
	Ben	Founder/ Designer	13 yrs	Male	50s	3 hours
	Jordan	Project Director	8 yrs	Male	40s	1 hour
	Andrew	Project manager	16 yrs	Male	30s	2 hours
Publisher X	Simon	Publisher Executive Director	21 yrs	Male	40s	1 hour 10 minutes
	John	Publisher Producer/ Designer	20 yrs	Male	40s	1 hour 14 minutes
	Rob	Publisher Executive Producer	16 yrs	Male	30s	2 hours
	Jing	Producer/ Product Manager	10 yrs	Male	30s	1 hour
Developer B	Todd	Development Studio Director - Founder	30 yrs	Male	50s	1 hour
	Adam	Developer Producer - Ex Publisher Producer	20 yrs	Male	40s	1 hour 15 minutes
	Mike	Game Director / Designer	22 yrs	Male	30s	2 hours 30 minutes
	Stanley	Art Director	14 yrs	Male	40s	1 hour 10 minutes
Publisher Y	Allan	Publisher Executive Producer	20 yrs	Male	50s	1 hour
	Laurence	Vice President	20 yrs	Male	40s	1 hour
	Gareth	Publisher Lead Programmer	20 yrs	Male	30s	1 hour
	Chris	Senior Publisher Producer	13 yrs	Male	40s	2 hours
Developer C	Francis	Development Studio Director - Founder	6 yrs	Male	40s	1 hour 15 minutes
	Jacob	Creative Director	4 yrs	Male	40s	1 hour 15 minutes
	James	Lead Programmer	13 yrs	Male	30s	1 hour
	Fin	Lead Designer	5 yrs	Male	20s	1 hour 20 minutes
	Andrew	Managing Director	13 yrs	Male	30s	2 hours
Publisher Z	Timothy	Publisher Vice President	20 yrs	Male	40s	1 hour
	Olly	Publisher Producer	18 yrs	Male	40s	2 hours 15 minutes
	Matt	Development Studio Director/ Ex Publisher Producer	15 yrs	Male	40s	2 hours 15 minutes
	Leo	Senior Publisher Executive	32 yrs	Male	40s	1 hour

Table 8. Demographic and Business Details of Participants

Developer A and Publisher X

Company A was a videogame developer, based in the UK. It was a medium-sized company, well known for a couple of critically acclaimed games internationally and within the industry. The games they produced were all "big budget games" (AAA or Triple-A games) that required large investment from the publishers. This company had the experience of working with several publishers for their different titles. I started off interviewing the founders and the senior directors, including the ones who were still running the company and the ones who had left for a variety of reasons. Through the directors' reference, I interviewed a few directors and team leaders who were placed lower in the organisational hierarchy. The interviews focused on the publisher-developer relationship and knowledge processes, but the participants seemed to be reluctant to discuss their current publisher and project, instead they were willing to share their stories on their previous projects. As a result of this, I focused the interview around their last project and followed the same pattern for the later participants from this network. Following this lead, I also managed to identify four key people from the publishing organisation this developer had worked with on that past project. These participants were involved closely in this project. However, I had to contact these people directly without any reference to the developers I had talked to. I had realised that due to the sensitivity of the publisher-developer relationship and the history between these people, it was prudent not to use the developers as my reference. As a last note, developer A and publisher X released a game that was averagely scored by the critics and it should be noted that these two companies never collaborated together again after this project. I conducted fifteen interviews within this network.

Developer B and Publisher Y

Company B was another medium-sized developer, based in the UK. This company had produced very successful big budget games with an internationally renowned publisher. My network within this company was initiated through a cold-call approach and gradually developed through the snowballing method. My interviews focused on two previous projects they completed with a publisher. In this case, I also started off by interviewing the founder and proceeded with two executive directors and one team leader. As was the case with Company A, the participants were unwilling to discuss

their current projects, so I gradually found my way to talk to a good number of people from the development studio and managed to secure interviews with four participants from the publishing organisation, including the vice president and three key members who were closely involved in the two projects with this developer. The collaboration between company B and publisher Y resulted in two very successful games, but they ceased collaboration after these two projects. I conducted eight interviews within this network.

Developer C and Publisher Z

Company C was a small independent developer who had been recently founded and was almost new to the industry. The company produced an "AAA game" with a smaller budget compared to the other two networks. The smaller the scope of the game, the smaller the budget for the game. Therefore, this would imply that the relationship between the developer and publisher was comparatively less sensitive, when the financial investment was not as large as bigger projects. Since this company was small, the number of participants from this network turned out to be smaller compared to the previous two networks. I conducted the interviews with the founder, two directors and one team leader, from company C. These participants discussed a previous project and one current project with me. In terms of their previous project, their relationship with their publisher did end with a number of controversies. I attempted to contact their publisher, but I did not receive any response from them. I also did not contact the producers and managers involved in their current project within publisher Z, because I did not wish to risk their relationship. However, I interviewed senior executives from publisher Z – they were not directly involved in the project, but I thought they followed the same values and policies, therefore could provide me with an insight into how this publisher dealt with their external developers. I conducted nine interviews within this network.

4.3.3. Interviews, Questions and the Participants

I carried out thirty six semi-structured interviews with the industry informants, senior directors, and team leaders, such as lead designers, lead artists, lead programmers, etc. I interviewed eight of my participants twice at two different dates and sittings, so I collected more than two hours of data with each of these eight participants. The

frequency of these interviews was due to the participants' key role and knowledge in the publisher-developer relationship and their willingness to share more information with me. Having noted this, I responded to their enthusiasm and grasped the opportunity to learn from them more. The rest of my interviews took approximately sixty to ninety minutes. They were all audio-recorded, except two cases in which the participants preferred that I took notes. All audio recordings were later transcribed verbatim.

The literature suggests using an interview guide in qualitative interviews to help the researcher with the process and, as a result, elicit better results (Denzin & Lincoln, 2000). This interview guide does not provide a formal and rigid structure to the questions, but it lists the main topics that the researcher should address during the interview (Cassell & Symon, 2004). Cassell and Symon (2004) identify the sources of an interview guide as following: “the research literature, the interviewer’s own personal knowledge and experience of the area, and informal preliminary work such as discussions with people who have personal experience of the research area” (Cassell and Symon, 2004, p.15). Likewise, I prepared a separate document, drawn from the participant's public website, industry publications or social media. This information reflected the participant's biography, achievements and perspectives relevant to the issues being investigated in my research. In those cases where participants had already conducted numerous interviews with the media, I included their opinions and point of views not only in the interview guide but I also used their quotes in my data analysis. This interview guide helped me to start the interview with confidence. Using this information in the interviews helped me build a better rapport with the participants. Given the sensitivity of the topic (the publisher-developer relationship), as well as the difficulties in gaining access, building up trust with the participant was paramount to me. Therefore, I started each interview by introducing myself and the research, followed by some questions that carefully referred to the participant's achievements. Immediately after each interview, I also took some further notes to present my general impressions, feelings and comments, as well as my observations of the participant's body language, company's premises and interview atmosphere (Byrne, 2006, p.37). This document enabled me to compare and contrast the interview with the previous ones, create links and unravel the stories, especially for the interviews embedded in each network.

Informed by the existing literature on knowledge management and cross-boundary work, my research focused on three main factors that seemed to influence knowledge processes in cross-boundary settings, including boundary objects, trust and power structures. However my flexible questions and also my interviewing techniques allowed me to gain in-depth and detailed knowledge about the concepts under investigation. I designed an interview guide with a clear set of questions to address these three areas (Guest et al., 2006). However, I showed a great amount of flexibility in order to make the participants feel comfortable and in control of the interview. I made sure that I would subtly steer the conversation towards where I wanted it to go when it was required. I also used probing questions to encourage the participants to provide me with more details and expand their responses (Bryman, 2008; Cassell & Symon, 2004). This was very difficult during the earlier interviews. But gradually as my research progressed and I gained more knowledge about the industry, my ability in using probes to elicit more information from participants improved. By transcribing and listening back to the interviews, I learned more of the names, products, technical terms and above all became aware of sub-stories. Therefore, this gradually built up my confidence and interview skills, thus I could elicit better results with the probes.

4.3.4. Ethical Considerations

In this section, I explain how I observed and followed the ethical standards of research. Before embarking on the fieldwork, I had my research design approved by the Ethics Committee at Loughborough University that had procedures in place to ensure the research followed the standard ethics. My research focused on the publisher-developer collaboration in the videogame industry, and in my interviews I attempted to delve into the dynamics of this relationship and reveal the participants' hidden thoughts and reflections on the issue under study. As has been emphasised throughout the research so far, the publisher-developer relationship was highly sensitive, in terms of the technology they used, the political nature of the collaboration and the risky and bulky investments at stake. All these factors together compelled me to strictly comply with the ethical standards and give the participants constant reassurance that their information would remain confidential and anonymised (Remenyi et al., 1998). Revealing some sensitive information that participants shared with me, whether consciously or unconsciously, could sabotage their reputation within the industry, thus jeopardising their future

projects or collaborations. Therefore, I made sure that my actions or research would not put the participants' employment and businesses at any risk (Silverman, 2010).

As suggested by Gray (2014), informed consent is a critical ethical consideration in research. The participants' informed consent was ensured through an industry research proposal that I enclosed in my correspondence with them prior to the interviews. This document detailed the research aims and objectives and ensured the participants of the ethical considerations of my research, including confidentiality and anonymity of data (see Appendix A). The participants were also informed of their right to withdraw from the study at any stage of the research with no reason required. In addition to this, some companies also asked me to sign a non-disclosure agreement form (NDA), which I agreed to. At the start of each interview, participants were again reminded verbally of the purpose of the study. However, I refused to use a consent form in order not to influence the interview dynamic. The participants were expected to share their thoughts and perspectives on a sensitive topic, so I designed the interview to be an informal chat, rather than a formal affair, and I thought the formality of signing the consent form might make the participants feel uncomfortable (Ryen, 2011). Ryen (2011) comments that building up trust and rapport between the interviewer and the subjects of study are instrumental in interviews. So instead, I made sure that I asked for their consent to be recorded – all agreed except two. In these two cases, I took notes and revised my notes immediately after the interviews. I used pseudonyms for each participant and their company, while taking notes and transcribing the voice recordings. When I used their quotes and wrote up the thesis, I also made further attempts to disguise the participants' identity by using anonymised references to their projects and companies (Bryman, 2001, p.483).

4.4. Data Coding and Analysis

In this section, I explain how I used thematic analysis to identify and analyse themes and patterns within the generated data (Braun & Clarke, 2006). Informed by my social constructionist and interpretivist perspective, I employed an inductive approach that allowed me the flexibility to focus on the processes by which the participants were constructing meanings (Gioia, et al., 2013). This, as a result, enabled me to identify new

themes and concepts, thus developing a deeper knowledge of the untold stories and hidden transcripts (Eisenhardt, 1989).

My data coding and analysis involved an iterative process that evolved throughout the course of my fieldwork (Bowen, 2008; Langley, 1999). After finishing each interview, I transcribed and imported it (including notes and transcriptions) into NVivo 10. My initial coding list consisted of general descriptive themes drawn from the existing literature, using a pen and paper method (Silverman, 2010). However, this list evolved as I conducted more interviews and gradually represented emergent themes when I started detecting inconsistencies and contradictions in participants' viewpoints (see more detail on this contradictory data later in this section). I have provided my initial coding list as Appendix C in this thesis, where I have highlighted the emergent codes as well as the codes that were drawn from literature. For instance, I intended to understand the role of power practices in shaping the publisher-developer knowledge integration and relationship. This was highlighted in the literature (see section 2.2.2) and formed my second research question. Therefore, I made sure that I included questions during my interviews to understand this relationship. It should be noted that due to the sensitivity of the publisher-developer collaboration, I had to ask questions that were not too direct, making the participant feel uncomfortable (see Appendix B).

One of the sensitive topics of conversation was "man month rate", which was found to be highly contentious between the publisher and developer. Rather than asking questions directly about the problems resulting from "man month rate", I would enquire about how easy/difficult it was to stick to time and the budget specified for the project. I would also ask how would the publisher support the developer in case the project was not going to be finished on time and budget. Or in case of interviews with the publisher, I would also ask what the publisher's contingency plan was for when the project was found to be needing more resources. These questions would firstly trigger discussions about challenges and dependencies. However, when the participants were probed and encouraged to illustrate the matter and bring some examples and details, they would reveal much about frustrations with their partner, their perceived loss due to changes in the projects and the games they had to play to secure themselves. As indicated in Appendix C, the initial codes pertinent to the second research question included themes such as challenges, differences, power inequalities and developer dependencies.

However, new themes emerged as I carried out more interviews and generated more data - codes such as, power dynamic, power games and publisher dependencies (see Appendix C for more details). The earlier interviews revealed the sensitivity of determining "man month rate", so I tried to probe this topic by asking indirect questions and also asking for more details / examples. As explained in the example above, this resulted in new themes to emerge, such as power dynamics, power games and publisher dependencies. I added these emergent themes to my coding template - this is shown in Appendix C.

After all the data was transferred into NVivo 10, I grouped and collated similar and relevant themes, which allowed me to eliminate irrelevant themes and develop documents for further interpretation (Braun & Clarke, 2006; Patton, 1987). I followed the techniques Ryan and Bernard (2003) suggested for data analysis: "(1) discovering themes and subthemes, (2) [narrowing down] themes to a manageable few (3) building hierarchies of themes or code books, and (4) linking themes into theoretical models" (p.85). As a result of this process, I developed a final "data structure" consisting of three levels as presented in Table 9 – this table formed the basis of my data analysis and findings chapters (Gioia, et al., 2013):

Table 9. The Three Level Data Structure (Adapted from Gioia et al., 2013)

The Main Question	1st Level Data (Cliché Responses)	2nd Level Data (The Contradictory Data)	3rd Level (Aggregate Dimensions)
How Knowledge is Integrated Across Organisational Boundaries?	**Open Communication** "The key is trying to create an environment where people feel comfortable being clear and open in their communication, either within the team or between the team and the publisher, or anyone else who's involved in the project" (Chris - publisher).	**Producers who know the game** "As a producer you make sure that all of our people are talking to each other and dependencies are taken care of. Producers help out facilitate communication between the publishers and the developer, making sure that that pipe line was clean and happy" (John - publisher).	**The Shifting and Dynamic Dimension of Boundary Objects**
	Design Documents "The design document is exceedingly important ... [this document] is an exhaustive high level, medium level, all level 200-page design bible that runs to every little thing (Dylan - developer).	**Prototypes** "Well, design documents are a bit of a joke - we waste so much time installing a massive design document that like a hundred other design documents that no one reads" (Matt - publisher).	
	Transparent Project Planning Methods "When I'm planning out a project I would use a massive spread sheet broken down week by week for each department and each person - this roughly includes the things that were meant to be delivered each week for the whole project" (Dylan - developer).	**Iterative Project Planning (Agile Scrum)** "People like the game to evolve and get better [gradually]. In terms of the project management approach, you need to know that you can't map [the game] it all out and at the starting point. I don't think I ever started a game where I had a really clear idea of what it would be in the end" (Ethan - developer).	
	Contracts "Contracts are essential - we make an assessment and devise a contract to secure a quality delivery"(Simon - publisher).	**Meetings** "What's lost in communication can be covered in meetings - when you have face-to-face interaction" (Mike - developer creative director).	
	Trust I've had lots of different relationships, lots of different partnerships. It's a 2-way street, a successful relationship is just all about trust and honesty (Jordan - developer).	**Lack of Trust; Distrust** "I don't know any publisher trust their developers really ... the two parties can't trust each other in this relationship" (Adrian - developer).	**Distrust, Knowledge Hiding and Deception to create a Working Relationship Across Boundaries**
	Knowledge Sharing "Knowledge transfer is hugely central to this whole process between the publisher and developer" (Simon - publisher).	**Knowledge Hiding** "The biggest challenges are keeping projects to timescale and budget? ... But some of the studios are not honest and conceal the truth" (Simon - publisher).	
	Transparency/ Honesty "For me transparency is always the number one thing. When we communicate clearly, regularly and efficiently, the project is going to work and I think being transparent and honest is all part of that" (Mike - developer).	**Deception; Collusion** "They were charging [the publisher] for a team that didn't exist... this sort of thing creates deep distrust" (Adrian - developer). "So I had to do a short presentation that said we can make this game for 3 and half years and basically I had to lie to and cheat myself" (Jordan - developer).	

The Main Question	1st Level Data (Cliché Responses)	2nd Level Data (The Contradictory Data)	3rd Level (Aggregate Dimensions)
The Publisher - developer Relationship	**Power Inequalities** "The power extensively and exhaustively is with the publisher. As a developer, you realize slowly but surely that you're fighting a massive machine, and you'll never win" (Laurence- publisher).	**Power Dynamics** "Once we got well underway and we were proving [to the publisher] that the game was awesome, then we would worry about asking for the extra money" (Todd - developer).	**Shifting Positions of Power Facilitating Knowledge Integration and Work Across Boundaries**
	Differences in Skills, Perceptions and Objectives "The skill set of the two groups [publishers and developers] is very different, with massive differences in opinion and approach. And I think that's why the relationship between these groups can be quite difficult sometimes" (Stanly - developer).	**Us and Them Culture** "In many ways it was a depressing farce talking to [the developer], they just wouldn't get it" (Allan - publisher).	
	Lack of Understanding "A good example of the divide between the publisher and developer is the gap in communication and the gap in understanding between the two" (Allan - publisher).	**Resistance to Control** "Publishers are incredibly nervous and they want to micro manage everything. They try to manage something that is remote from their control. This makes the relationship difficult and fundamentally one-sided" (Nigel - developer).	
	Irreconcilability "The reality is the publisher wants to spend as little money as possible and the developer wants to make as much money as possible - the developer wants to be paid, but the publisher doesn't want to pay. This marriage is set out to fail" (Todd - developer).	**Power Games** "It's just amazing how much time you spend politicking to make a game .... These tricks of the trade are necessary to stay in business and it's just the way the relationship works" (John - publisher)	

Table 9. Continued.

The first-level data portray a superficial level, representing participants' initial responses to my questions. This level of data consists of cliché responses that resonate more with what the existing literature suggests in facilitating cross-boundary work and knowledge sharing. This first-level data highlight the importance of trust, communication, honesty and knowledge sharing in facilitating cross-boundary work. While the participants emphasised the role of static boundary objects, such as contracts and design documents, they also attempted to portray an asymmetrical and irreconcilable relationship between the publishers and developers by stressing their differences and dependencies. This implied power inequalities between the two parties.

The second level represents the data I generated through probing, which is more detailed and contradictory. At the beginning of each interview, all participants provided me with cliché responses, but later during their interview session they would reveal some more information that sometimes contradicted their earlier statements. Probing was indeed a useful method in order to delve more into practices and processes they used in their relationships and elicit some new themes (Shaw, 1999). These contradictory statements were found to be consistent in the majority of the interviews. For instance when Simon was asked to explain how they managed their work with the developer, he highlighted the crucial role of knowledge sharing, saying "one of the factors that makes a game successful is when the development is done as a joint project with a publisher ... knowledge transfer is hugely central to this whole process between the publisher and developer" (Simon – publisher executive). However, after being probed about particular projects and collaborations, he revealed that the ideal scenario is when you have "supervision, collaboration and support from the publisher, and honesty and transparency from the [development] studio". However, in reality "some of the studios are not honest" and they hide information, creating tensions between the two parties.

At the second level data, the participants revealed the existence of high levels of distrust and opportunistic practices, such as knowledge hiding, deception and collusion in the publisher-developer relationship. This level also shows power dynamics and power games between the partners, where both partners had access to positions of power. These findings contained emergent themes and concepts that were not initially identified in the literature, such as the concepts of distrust and knowledge hiding and their role in cross-boundary work.

In the third level of my data structure I have aggregated the two contradictory themes, linking them to relevant concepts, as well as generating new theoretical insights. This last level has three sections each addressing one of my research questions. Contradiction in data complements and enriches the findings, providing further scope for refining theory (Mays & Pope, 2000; Richardson, 1991). Similarly, the juxtaposition of contradictory evidence – that I found within my interviews and across the three networks – assisted me in reframing my understanding of the knowledge processes in the context of my study, thus generating new theories (Cameron & Quinn, 1988; Eisenhardt, 1989).

4.5. Reflexivity

My fieldwork was an outcome of a reflexive and iterative process, in which I developed as a researcher. My gradual learning shaped and evolved the research process, including the questions, the research design, my position as a researcher and the findings of the research. In this section, I reflect upon my role as a researcher and explain how my assumptions influenced the research – before the fieldwork started, during the interview process and while I carried out my data analysis. This "self-conscious analytical scrutiny of the self as [a] researcher" is defined as reflexivity (England, 1994, p.82) and it is in line with my social constructionist position, proposing that reality is socially constructed through the actors' interactions (Berger & Luckmann, 1966). This notion of reflexivity is viewed as "a resource which helps researchers recognise their own creative input" in the generation of data, thus enabling them to construct new interpretations (Johnson & Duberley, 2000, p.188). As argued by Haraway (1988) and Cunliffe (2011), not only the experiences and perspectives of the researcher, but also those of the research subjects influence the process of research and analysis. Therefore, the researcher should reflect upon their role in constructing meaning and "truth claims" (Cunliffe, 2003, p.985), and also recognise the inevitable power dynamics between the researcher and the research subjects (Cohen & Ravishankar, 2012).

During the research process, having ongoing contact with an "insider" within the industry had a crucial role in providing me with deeper and broader insight into the participants' perspectives and shaping the research (Adler & Adler, 1987). The insider was my husband who has sixteen years of work experience in the videogames industry both as a developer

and publisher. At the outset of my fieldwork, I was a complete stranger to the videogame development process, but I gradually developed my knowledge of the settings and approached the interviews with more familiarity and confidence (Brannick & Coghlan, 2007). Through the insider's help, I familiarised myself with names, technical lexicon and jargon. The insider also facilitated access to some participants, helped me in the sampling process to identify some key informants and also provided continuous discussions on the issues being investigated. Through his personal contacts, I had the opportunity to attend videogame events and socialise with the videogame developers/producers in a less formal and more relaxed set-up. This built up my confidence to engage in conversations with my interview subjects in a less intimidating environment, thus preparing me for my interviews.

The insider also had a significant role in evaluating my findings and assessing the credibility of my claims. This was especially beneficial to my research, because he had worked both as a developer and a publisher and could provide insight from both perspectives. While I cannot deny the insider's role in educating me within the industry, I was aware of the impact he might have had on my perspectives and I continuously questioned whether my assumptions and my research were influenced by his/our preconceptions and biases (Calás & Smircich, 1991, p.664). In order to address this limitation, the findings were discussed and validated by four participants in the study – two developers and two publishers. With these participants I conducted extensive interviews of over two hours in different sittings and at different times to discuss my findings. Two of the above also reviewed the data analysis chapter.

According to Maykut et al. (1994), "the qualitative researcher's perspective is perhaps a paradoxical one: it is to be acutely tuned-in to the experiences and meaning systems of others ... and at the same time to be aware of how one's own biases and preconceptions may be influencing what one is trying to understand" (p.123). At the beginning of the research, the focus was on knowledge management in intra-organisational cross-boundary work. This had evolved, as a result of the literature on knowledge management and, indeed, the discussions I had with my insider. But later in the research, this focus gradually shifted to inter-organisational dynamics, due to the themes that emerged from the interviews. Interestingly, the roles my insider had undertaken in the videogame industry were in capacities that were more involved in the intra-organisational dynamics and less

aware of inter-organisational politics. This change of direction in my research from intra-organisational to inter-organisational processes obviously limited the impact that the insider's pre-conceptions and biases had on the research findings.

During the course of my interviews, I reflexively studied the data generated, my role as an interviewer and the dynamic between myself and the participants. As a result of this, I improved and modified my interview techniques, interview questions and research focus. The videogame industry was a male-dominated community, where I found it very difficult, especially at the earlier stages of the interviews to create a relaxed and friendly atmosphere for my interviewees. I felt the participants had more power in leading the conversation, in which they kept providing me with cliché responses. I was aware that my background as a non-British academic woman influenced the dynamic between me and the participants (Cohen & Ravishankar, 2012). This dynamic, however, changed, when I found myself more in control in discussions at later stages of the interviews. For instance, I realised that using academic language might be alienating for the participants. Instead I consciously used jargon and name-dropping in order to put the participants at ease and at the same time gain some credibility in the interviews. In order to create a more balanced power dynamic between us, I gave the participants the flexibility to move between topics or discuss issues that they were willing to, and, instead, carefully steered the conversations towards the topics that were on my agenda. Utilising semi-structured interviews to generate data allowed me to have this freedom to be explorative and elicit better outcomes from the interviews (England, 1994; Haraway, 1988).

The last consideration in the aim to be reflexive during my interviews was my probing technique and its potential impact on my research. As I became more familiar with the industry and as a result of the emergent themes, I shifted the focus of my research to knowledge processes across inter-organisational boundaries. The topic centred around the publisher-developer relationship that seemed to be highly sensitive. So in order to encourage the participants to disclose some information about this issue, I had to ask probing questions and become really engaged in the conversation. This method resulted in accessing richer and deeper data. However, I was aware that this might have influenced the participants' accounts or have put more emphasis on certain topics. I addressed this

problem when I analysed the data – I asked the insider and four of my participants to review and validate my findings and results.

I remained reflexive during my data analysis process and considered how different actors in my research and their perceptions and biases affected the way I interpreted my data. In order to develop a deeper understanding of my respondents' accounts, in addition to the participants' perspectives, I attempted to record their manners, body language and other cues in their environment in a post-interview document (Jackson, 2012). I did this to create a context for what the participants had said. However, I was aware that these details would not necessarily provide me with an unadulterated account of their thoughts and experiences, and these were only one observation of the participants' account. Therefore, I consciously looked for more details, patterns and inconsistencies across different perspectives, thus I did not take the participants' perspectives for granted. This required constant reflection on my position as a researcher, my research focus and techniques. As stated earlier in this chapter, my data coding and analysis started when I was carrying out my fieldwork, while I re-read/re-listened to my interviews, notes and transcripts. As a result of this continuous re-assessment, new themes emerged, I enhanced and improved my interview techniques, and my research took new directions.

I believe personal reflexivity has been a valuable tool that has enriched my "research process, method and outcomes" (Finlay, 2002, p.225). This reflexive practice has given me the awareness of how my position, perspectives and relationship with the research subjects can influence the course and direction of research, thus enabling me to identify and respond to the limitations of my research and as a result generate rich data from a complex and rather inaccessible setting.

4.6. Credibility, Plausibility and Transferability of the Research

I outline the attempts I have made to ensure rigour in my research in this section. While traditionally the quality of research is assessed by its validity, reliability and generalisability, the literature questions the appropriateness of these evaluation measurements for qualitative research and claims that these seem to be suitable for studies that are conducted from a positivistic worldview (Cassell & Symon, 2004; Easterby-Smith et al., 2002). Silverman (2010) argues that with qualitative research that follows a social

constructionist perspective an objective truth cannot be found. He suggests that qualitative research, instead, should aim to produce a credible and plausible account of the phenomenon under study. Consequently, I present credibility, plausibility and transferability as the alternative evaluation criteria to assess the rigor of my study (Guba & Lincoln, 1994).

Credibility of the research is achieved by demonstrating that the research design and methods have resulted in findings that are accurate and believable (Gray, 2014). In other words, the interpretations and theoretical conclusions should present a credible description of the phenomenon under investigation. Hall and Callery (2001) explain that credibility in research can be strengthened through plausibility, which can be defined as the researcher's ability in "convinc[ing] the reader of the soundness and sense of their research" (p.187). Hammersley (2005) describes research as plausible in the sense that respondents agree with findings and what we know, whereas he explains credible research as unlikely to generate significant error. Hammersely (2005) highlights that the plausibility and credibility of research are two important criteria to achieve rigour in qualitative research. In order for the research to be credible the researcher should be aware of the impact she has on the research process and she should frequently check the accuracy of the data (Curran & Blackburn, 2001). Scholars have also recommended transparency of techniques and methods used to generate and analyse data in order to secure credible research (Easterby-Smith et al., 2002; Gephart, 2004; Silverman, 2010). This requires providing in-depth and concrete detail so that readers can draw their own conclusions about the accuracy of the research findings (Tracy, 2010).

In order to ensure a credible and plausible piece of research, I adopted the following techniques:

1. As in all qualitative research, where the quality and richness of data should be aimed for not the quantity (Easterby-Smith et al., 2002), my main aim was also to produce rich and detailed data. For this reason I chose to conduct semi-structured interviews to gain access to the participants' thoughts and experiences. The flexibility of these interviews also helped me to allow the participants to digress when it was appropriate and as a result elicit relevant

and interesting details about the phenomenon under investigation. This also allowed me to delve deeper into the subject through probing questions, especially when I recognised inconsistencies in participants' opinions.

2. In order to develop a deep understanding of knowledge processes in the publisher-developer relationship, the perspectives of various participants were sought. The participants held different roles in the companies under study, ranging from studio heads and producers to different team leaders, such as programmers, artists and designers from both development studios and the publishers. I aimed for multiple and varied voices in my research, based on Easterby-Smith et al.'s (2002) suggestion that the researcher should ensure "a sufficient number of perspectives have been included, [so that] the study clearly gains access to the experiences of those in the research setting" (p.53).
3. To ensure transparency, I have provided a detailed description of my research process, including the access and sampling method, interview techniques, and finally coding and analysis process (see sections 4.3. and 4.4.). I also audio recorded my interviews and transcribed them all verbatim as explained in the data generation section (McMillan & Schumacher, 1997). I also made an effort to be honest and transparent when presenting and analysing my data, making sure that I distinguished between my interpretations and the data to provide a clear picture for the reader (Skrtic, 1986).
4. Reflexivity gave me the opportunity to reflect on my assumptions and how these assumptions influenced my interpretations (for more details on reflexivity see section 4.5.).
5. The use of multiple sources or multiple data generation tools is considered as one of the most important means for achieving credibility in research (Denzin, 1989). In addition to paying heed to multiple voices during the data generation process, I asked four participants and the insider to review and validate my interpretations and conclusions during the processes of analysing the data and producing the research report (Lindlof & Taylor, 2002).

The third evaluation criteria I have sought for in my research is transferability. Transferability refers to the extent to which the research findings can be transferred to wider groups and circumstances (Guba & Lincoln, 1994). This definition can be associated

with generalisability – “the relevance of the concepts and constructs derived from [a] study to other settings” (Easterby-Smith et al., 2002, p.53). However, generalisability in qualitative research is problematic. This is because a qualitative piece of research incorporates interpretations and personal experiences that make it almost impossible for other researchers to replicate it (Babbie, 1995). Instead, Dey (1993) recommends transferability as an alternative measurement for qualitative research, in which the researcher provides a detailed description of their method and justifies that their findings can be transferred to other contexts (Silverman, 2008). While generalisability is "conclusive", transferability in qualitative research is only "suggestive" (Gray, 2014, p.183).

In the case of my research, the chain-referral sampling method allowed me to develop three networks that I closely studied for similarities and discrepancies (Miles et al., 2013). These three networks all represented publisher-developer collaboration on an AAA game (see section 4.3.2.) and it is likely that in similar cases where there is a publisher-developer relationship formed to develop a big budget game, the same practices and processes can be identified. However, I refrain from generalising my findings. One of the significant contributions of my research is developing Carlile's Integrated Framework and explaining how knowledge is integrated in the political context of inter-organisational cross-boundary work. I assume that this model can be applied to similar contexts where there are high levels of differences, dependencies and novelty between partners. However, I am aware of the limitations of research and remain cautious in generalising my findings. Instead, I recommend that further research be required to confirm whether this model can be applied to other contexts. I will explain this in my conclusion chapter, where I discuss the limitations of my study and recommendations for further research.

4.7. Conclusion

The aim of this chapter was to outline and justify my underlying methodological position, the research design and methods I used to carry out this study. This required me to explain briefly about the aims and objectives of my research, and discuss how my social constructionist and interpretivist theoretical position would fit the questions I was asking in the study. I described the methods and techniques I used to identify the research subjects, negotiate access and carry out the interviews. I provided a clear explanation of how the

generated data was preserved, coded and analysed. I also elaborated on how adopting reflexivity enabled me to recognise that the research process was subject to personal interpretations and the influence of different actors. But as a result of this reflexive process, I contend that I was able to address these limitations and generate rich and deep data in a credible, transferable and plausible piece of research.

Chapter Five: The Role of Boundary Objects in Facilitating/Hindering the Publisher-Developer Cross-Boundary Work

The complexity and unpredictability of videogame development, the inter-dependencies between different collaborators and the time and resource constraints of production make cross-boundary work a complicated and contentious process. However, publishers and developers utilise a wide range of objects, methods and infrastructures in order to manage their multi-disciplinary collaboration. This chapter presents the interview data on how boundary objects are used in the publisher-developer relationship and how these objects contribute to knowledge processes and the videogame development process.

The nature of the game development process necessitates the application of certain devices and methods in order to assist coordination and collaboration within and across boundaries. According to the participants, game development should be an iterative practice, through which an under-defined concept will turn into a marketable product. Thus, trying to launch production with pre-defined plans and structures is deemed unnecessary and ineffective. However, this is at odds with what most publishers expect from their multi-million-budget investment. They often require plans, prototypes and contracts that reflect a clear picture of the product and the process of making it, in order to reduce the investment risks. An experienced developer emphasises the unpredictable and iterative nature of game production:

> *It's quite difficult sometimes to know what the game is, earlier on. People like the game to evolve and get better. I don't think I ever started a game where I had a really clear idea of what it would be in the end and even if I did, it wouldnever been mapped and I think that's just because they're very complicated things (Ethan – developer director).*

Another developer executive defines the production process as below:

> *Game development is not like you have this pre-defined idea and this is where we're gonna go. It's kind of like, oh, let's do this in the first two weeks and then get there. Then after we get there, we'll decide where to go next. It works like that, rather than defining at the start. To define the game from 10 months in advance won't be of good use for a creative product, but it certainly makes lawyers and publishers happy (Todd – developer executive).*

A publisher producer also confirms the iterative nature of videogame development:

> *You've got something in your head, you try it out, so often when you try for the first time it doesn't work, so you try again, based on what you've learned from the first time and the changes you've made based on that experience. Then you'd try it again and you'd try it again. The more times you reiterate, the more right it gets, the better results you get (Paul – publisher producer).*

Due to the iterative and unpredictable nature of game development, certain types of boundary objects are found to be useful at different stages of the production. The study has detected a wide range of objects that facilitate the game development process. However I only focus on static and dynamic objects that have been found to be effective in the publisher-developer relationship, facilitating knowledge integration and work across their organisational boundaries. The two following sections will present static and dynamic objects consecutively.

5.1. Static Boundary Objects

This section gives an account of static boundary objects that are effective at the start of projects for creating the impression of trust and reducing high levels of risk. However these boundary objects lose their effectiveness later in the project and even lead to disagreements between the publisher and developer. This is because the iterative, creative and unpredictable nature of game development necessitates changes to the plans and documents. However, these boundary objects are not regularly updated due to the costs and resources that might be required to implement changes. In other words, even if these objects are not static in nature, they are static in the context of videogame development. That is why I have defined these boundary objects, as static boundary objects. Here, I

present Game Design Documents, Project Planning Documents and Contracts as the three static boundary objects that I found to be prevalent in use in the three networks I studied:

5.1.1. Design Documents

Design documents can refer to a set of documents, such as the game design document (GDD), the technical design document (TDD) and the art design document (ADD). GDDs contain the detailed design of the game, including the characters, mechanics, tasks, plot, etc., as well as the scope of the game. TDDs show the technical specifications of all the elements in GDDs, while ADDs are more art focused and show the environment, the characters, etc. more in detail from the art perspective. The development studio refers to them interchangeably as design documents, and might implement an ensemble of all these three documents, or sometimes only one. This is how a publisher producer describes a design document:

> *Design document is an exhaustive high level, medium level, and all encompassing 200-page design bible that runs to every little thing, so that everyone knows what part they play, what role they're delivering and what they actually have to do (John – publisher producer).*

There is no set format for a design document; it can be a text document or an electronic presentation or even in the form of an online wiki. The document is compiled at the outset of a project by the developers to reflect the game vision in as much detail as they can. This document is used both internally at the development studio, and also externally for the investors and publishers. Within the development studio, design documents help different disciplines to have a better understanding of the game, creating a point of reference for discussions between the disciplines. Design documents are considered to be crucial for the pre-production stage when the publisher-developer relationship is formed, because they provide a relatively clear picture of the game vision and specification, thus making better grounds for publisher investment. Ethan a developer director highlights the important role of design documents at the outset of the project to create a unified vision between the publisher and developer:

Game design documents is the statement of the vision. These documents go around the management team initially to ensure that we have a shared vision and there's no disagreement there, and then we will filter that down to the team through dialogue and conversation (Ethan – developer director)

Design documents are particularly important for the publisher because they form a basis for their assessment of the project, its plausibility and potential risks. They help the publisher assess how the game vision is going to be gradually developed and whether the appropriate resources have been allocated to it. A publisher producer highlights the crucial role of "design documents" in building up trust between the publisher and developer:

Publishers love seeing these types of things. It makes the publisher feel better because it proves that developers have thought of everything all the way through or all the way that they could (John – publisher producer).

Matt, a publisher producer reinforces that design documents provide some security and clarity for the publisher. He states that the publisher "wants more security and assurance that they are not wasting their money and the design documents help them make their assessments on the project and decide whether they want to spend that x amount of money" (Matt – publisher producer).

Although respondents emphasised that design documents are crucial in creating mutual understanding between the developer and publisher, they highlighted that these documents should evolve in order to be useful and practical in the development. Since game development is an iterative process, these documents will be irrelevant in a short period of time due to changes that are progressively imposed on the game/game vision. In other words, as the creative vision is gradually shaped into a playable version of the game, the initial design documents need to be updated, revised and reviewed throughout the game development. Here, a developer underlines the iterative nature of the game development and how it impacts game design documents:

A design document is a snapshot of the moment. So here is the current design but next week when we figure out something didn't work or could work or could be

done better or whatever, it invalidates huge sections of it, right, and that's just not useful for anybody (Ethan – developer studio head).

The interview data reveal that these documents, despite their usefulness at the earlier stages of the production, can become redundant later on. Due to the temporal and financial restrictions, these documents are often not upgraded and are rarely exploited. According to the head of a development studio:

This is a creative endeavour right and, things change as you work through the project. Why should I spend all this money and waste my staff time to make a document that I have to change again in a month's time? We don't do that anymore. That doesn't work (Adrian – developer director).

Updating lengthy documents needs time, money and resources, and the developer finds it time-consuming, costly and distracting to constantly revise and write the documents. The technicians are also reported to be unwilling to use these documents, instead they are more willing to utilise more visual objects (these options will be discussed later in this chapter). A developer designer claims that continuous meetings substituted an updated design document in their studio:

Design document was just an initial thing that needed to be done to please the publisher, but the game changed quite drastically and the document never really got updated. We didn't really have a central design document that was an evolving document and we were pretty much okay, because we were working over the Skype mostly (Fin – developer lead designer).

Considering it more of an unnecessary chore, some developers might even go into production not having one. Calling it "a relic from previous generations", a senior publisher producer who owns his own development studio says:

Design document is the one I don't believe in. Well it's a little bit of a joke. People spend a lot of time and resources installing a massive design document, like a hundred of other design documents that no one reads. Even if you put it on a wiki

or a network, it sits there; people will never go to that location to read it, it can be great as a repository of information but it kind of often gets left there. So we stopped doing that (Chris – senior publisher producer).

A publisher senior executive also believes that long written documents are not effective in the context of videogame development. However, he suggests that having visual material that can be updated and revised is of more benefit to working across boundaries.

When am I going to read 150 pages of game design? And after they update it, I've got another 150 pages. I haven't got time to read any of this. I think forms of documentation are needed for in studio, but I don't see that necessarily as a massive design document. Largely visual material is much better than written materials. Let's say I've got some marketing guy coming in. It's like, do I want to show him a game or do I want to ask him to read [a] ten page document? (Laurence – publisher vice president).

Here, Laurence explains that design documents can be useful at earlier stages of production, but if you consider the production as a whole, their impact reduces as production goes on. He suggests that implementing an updated playable version of the game might be a better replacement for a bulky written game design document. Section 5.2.3. elaborates on the role of the playable/build/prototype in facilitating cross-disciplinary work. However, the next section introduces another static object that is sometimes used in videogame development.

5.1.2. Project Planning Documentation

A dominant approach to the organisation of projects in videogame development is called the Waterfall Model (Weisert, 2003). This establishes a set of clear-cut phases for the project, where moving to the next phase is contingent upon the completion of the preceding phase. This method calls for adopting objects, such as project planning documentations at the outset of the project, which present requirements of the development, timelines, staff, and budget, with specified milestone deliverables. This is how Rob – a creative director and an ex publisher producer – describes project plan documents:

A project planning document is like a big spider's web that covers the whole production, with all the tasks, dependencies, dates and issues to be resolved. A solid project planning can be integral to the whole production which reaches out and touches all different departments and organises them (Rob – creative director and ex publisher producer).

The Waterfall Model with a sequential and robust architecture for product development remains a highly popular approach for videogame development, because it creates a perception of stability and predictability, based on which investors/publishers can hold developers accountable for, primarily, the sequential delivery of milestones for an agreed budget and timeline.

However, most of the developers in my study show disapproval for the method due to its incongruity with the game development process and its requirements. Stanley, a developer art director and studio founder talks about the absurdity of using rigid and meticulously written project plan documents in the following statement. He says:

The difficulty comes when the publisher needs something down on a paper to be able to believe that the developer have an understanding of what and how they are going to deliver. They need to break the whole game design down to the nth degree, [but] scheduling this in the project plan and milestone deliverables is a huge mistake; we need some flexibility in production (Stanley – developer art director and studio founder).

The participants emphasise that the Waterfall Model can create some security and trust for both parties. Paul, a publisher producer explains that utilising this project planning method is "one of those mind-numbingly important things to be done and it's very detail orientated like a cold hard battle of scheduling". This publisher executive highlights that when "you've got a waterfall method and plan agreed at the start then you don't have to face up to [the developer's] their disagreements. It's tough, but they have to get on with it and do the project [as planned]" (Paul). Jing, another publisher producer, confirms that detailed

project planning documents can give the publisher some security over the quality. He states:

> *The trinity of project management is budget, timing and quality, you know. The one thing that will put budget, timing and quality off balance is planning. Without planning we can't ensure the game will come out on time, budget and with the quality we asked for (Jing – publisher producer).*

Some developers in the study also emphasised that using detailed Waterfall Model planning documents could create stability and security for the development studio. David who is a studio head states that these documents will help them "agree exactly with the publisher on the scope of the game before they start the project" and this can secure them because the publisher might "change their mind and want more things in the game than what was agreed upon".

Conversely the participants contend that the method and its sequential project planning documents at the later stages of development have proven to be not only inefficient for the game development process, but sometimes also hindering the work across disciplines. The interview data show that the iterative and unpredictable nature of game development disrupts the highly detailed Waterfall Model plans. Unexpected problems and the need for changes and amendments throughout the production can make detailed planning documents redundant.

Due to the dependencies between the disciplines within the development studio, addressing the emergent problems or making changes sometimes requires increasing or reallocating staff, which in turn calls for more temporal and financial resources. This will lead to further disruption in planning, hence disagreements and clashes between developers and publishers. Here, Andrew – a production director and an ex project manager – illustrates how this project plan document can be a hindrance to cross-boundary work that has high levels of dependencies. He recalls:

> *In our project, the project plan was a big source of contention between us and the publisher, because there had been a game plan initially specced out with a month*

by month milestones definitions. This plan wasn't practical at all, because after being six months in production, the game had changed and it was constantly evolving, therefore the whole plan had to change. So basically what we had to do was, we had to work with publisher team constantly to try and make our game fit in with the old definitions, which they were willing to a degree at the beginning. But when push came to shove and the relationship broke down, the willingness to be flexible became less and less to the point when there was zero flexibility. Obviously the game had changed and was changing continuously and this became a big source of contention between the parties (Andrew – production director).

Implementing the Waterfall Method with highly routinised and predictable plans seems to also interrupt the creativity of developers. As a result, the use of rigid and structured project planning documents is considered as impractical and non-functional even within the development studio. The project managers who are responsible for planning the game and managing the team claim that their practice is sometimes received as disruptive by some developers within the studio and they are often considered as "outsiders" (Allan – publisher executive). A publisher senior executive underlines the tension between creativity and rational planning, highlighting the resistance teams show towards planning and structures:

It is really interesting how they still subvert project management. I think the credibility of the project management in the videogame space is absolutely diabolical. The only reason project managers are disliked [by developers] is because [the developers] don't understand what [project managers] are doing. This is the executive producer's responsibility to make the team value [project managers] and clear the ambiguity about the role of project manager. The industry is young and inexperienced. People have big egos and they don't like to be told what to do (Allan – publisher executive).

The participants of the study, including both publishers and developers, admitted that the detailed Waterfall Model planning documents are found to be impractical and also create clashes between both parties. The developers showed more disagreement towards these planning documents because they suggested that adopting a structured and highly

controlled method in development would restrict creative freedom, thus alienating the creative staff. The creative freedom is what the publisher seeks in the developer. However, the publisher insists on applying the planning documents despite their awareness of the impracticality of this document at the later stages of production. The publisher seems to ignore the developer's resistance to this structured and sequential planning because through these planning methods the publisher attempts to reduce the risks of investment and development. The participants (both developers and publishers) confirmed that these documents create perceptions of stability and trust at the outset of the project, hence they are viewed as crucial in forming the publisher-developer relationship.

5.1.3. Contracts

A contract is a standard object that translates and facilitates understanding and work between two different but dependent organisations. The publisher-developer collaboration starts with a written contract that is intended to increase mutual understanding and build trust between the two. This contract is composed at the outset of the collaboration and incorporates game specifications and features within the game design documents, as well as an elaborate project plan. Publishers demand a detailed and structured contract because they can hold the developer accountable for the timely and quality delivery of the product; hence their usefulness at the start of the project. A publisher executive highlights that "contracts are essential – we make an assessment and devise a contract to secure a quality delivery" (Simon – publisher executive). Matt – an experienced publisher producer – talks about the role the contract plays in creating perceptions of trust and stability for the publishers:

> *We try to come to this belief that the developer can really deliver a product and using the contract we get the developer to commit to the contractual milestonesand game specifications (Matt – publisher producer).*

The developer also explains that the contract makes them trust each other. He says "we stick to the spirit of the contract ˙ we know what that is and we don't dispute it. There are absolute lines in the contract and they are given. We trust them [the publisher], we work with them and we respect them and their contract" (Francis – developer director).

However, the interview data reveal that this traditional and detailed contract at the later stages of project seems to be not only impractical, but is actually a hindrance to the cross-boundary videogame development. Adrian, a highly experienced developer/studio head complains that:

> *The contracts are often not fit for purpose really. You will never end up having a game that you designed in the contract. This will never happen; it's impossible with software. But we all sign the same contracts every year, exactly the same framework. I challenge you to find a single development contract that actually represents the game (Adrian – studio head).*

The interview data also show that contracts are generally not referred to or used during the development process, unless serious problems arise. Ken explains why they tend not to discuss contracts with publishers:

> *We never go to the contract, because first of all, that's not what we want to be doing. We want to make games not be sitting in court. Second, our companies are much smaller than publishers, there's no way we can win. So we try not to get to that position (Ken – developer executive producer).*

Developers are not the only ones who talk about the ineffectiveness of contracts in this relationship. Here Jing – a publisher producer who currently owns his development studio – states that contracts are only taken seriously when the relationship is formed, but later they are avoided. He states:

> *The contracts are there to be and they might only be used when things go wrong between partners. It's always written in the contract that it's going to work along those timelines, but it never does. It's blank trust and it's one that's biased in the beginning and it's not later. It's a grey area that is difficult to navigate and people often don't go there (Jing – publisher producer).*

Publisher executives also admit that a contract is not an efficient device to manage the publisher-developer relationship. Here, a publisher senior executive delineates:

You can put stuff in a contract, but you can't manage people with contracts. You can't manage vision; you can't manage your game with a contract. Contracts, largely, set out terms and conditions, but using contracts and waving bits of paper to get what you want is not normal course of business (Laurence – publisher executive).

Some developers in the study perceive the detailed contract as a medium for the publisher to exert control and monitor the developer. Ben – an experienced developer who has worked on very successful game titles – explains that the publisher pushes for a detailed contract in order to make sure the developer delivers the game with the quality and timeline they want. However, he believes the publisher's expectation for detailed planning in the contract is "unrealistic" and "overly ambitious":

On the publisher side I think there has always been a suspicion about the relationship and they want the contract to be something which they could use to drive the whole thing through, so they want to see ambitious scheduling (Ben – developer executive).

The developer views the contract as "unrealistic and overly ambitious" because they believe that there is incompatibility between the game development process and the nature of the contract. Due to the iterative and creative nature of game development, the developer emphasises that they definitely have to change the features/specifications that were agreed upon in the contract later on in the production. As a result, contracts are not suitable for a creative development process, and they only lead to disagreement and dissension between parties. A developer executive complains:

Publishers' lawyers want a contract with clear milestone definitions, they want everything defined, designed and mapped out from the first day all the way up to the end. This is not a great way to make a creative product; you can't granulate or procreate a creative product (Todd – developer executive).

Here, a developer creative director also reinforces how the contract will create more clashes between the parties in the publisher-developer relationship:

> *There's a definite conflict between the need to define a game as delivering a certain amount of content and features in a contract, and the process of actually developing the game with those specifications. The problem is that when you start making a game, you might have planned a certain set of features and content for it, but as you develop that game, you may need to cut some of them, either because they don't quite work in gameplay terms, or simply because sometimes, in order to stay on time and on budget you need to cut things. Obviously, from a publisher's point of view, this is not what they originally agreed to pay for – even if the end result might be a better game, hence all sorts of problems arise (Dylan – developer creative director).*

The contract seems to provide a resource for the publisher in their disputes with the developer. If the developer diverts from the contractual milestones, the publisher can legally withdraw from paying and they can also cancel the project. A publisher executive confirms that they "devise a contract to secure a quality delivery and penalise late delivery" (Simon – publisher executive). That is the reason why the developer sometimes avoids committing to a detailed contract so that they have more flexibility to implement the changes that might be needed in the game. The point here is that given the complexity of dependencies between the partners, detailed contracts can be detrimental. The head of a development studio emphasises that the developer prefers to share less information with the publisher about the development, especially at the beginning of the relationship in order to stop more misunderstandings in the future. He explains:

> *There are some grey areas in the contract that can't be measured properly, these are some milestone criteria that are mainly subjective themes, and they are not black and white. The contract says this feature should be completed 70% but it's not measurable. Our contract with the publisher has lots of details such as staff plan, which determines how many people should be in each group. We never exactly liked those details because these could work against us. This is very complicated due to crossover within the team. There is always some information*

that you don't want to share, as a developer, I'd better be careful because that information might be used against me (Nigel – developer studio head).

The publishers in the study also confirm that contracts create clashes between the parties. A publisher executive says "the contract spells trouble, I have to wave contracts when I have a massive problem" (Laurence – publisher executive). In other words, he expresses his disapproval of exploiting the contract as a threat to resolve the disagreements in the relationship, while confirming that the developer can be very difficult in sharing some information and committing to the contract. Another publisher executive states:

They [the developer] sometimes wouldn't give you design documents, wouldn't give you schedules or dates. They just wouldn't commit to the contract or contractual milestones. Getting details from them is like you have to get blood out of stone (Allan – publisher executive).

The interview data reveal that design documents, project planning documents and contracts are widely used in the publisher-developer relationship because they create perceptions of trust and stability between the partners, thus enabling them to form a relationship regardless of their differences and dependencies. Although design documents, project planning documents and contracts are not static in nature, they are static in use because they are not regularly updated and upgraded due to the costs and resources that are required to do this. Therefore, the study suggest that these static boundary objects are not a useful medium/object at later stages of videogame development. The participants emphasised that these can also create more clashes and disagreements between the parties. The next section presents the dynamic objects that were found to be useful for the iterative and unpredictable process of the videogame development.

5.2. Dynamic/Epistemic Objects

The creative and iterative nature of videogame development makes it very difficult to define the product and its development at the start of the project. The static boundary objects need to be updated and revised regularly in order to be useful for the duration of the project. However, this is not done due to the costs and expenses that are required to upgrade these documents. The developers are under immense time and resource pressure to

deliver the game on time and budget, so they prefer the methods that are more cost and time effective. Therefore, they utilise dynamic objects or processes that can be easily upgraded, updated and revised throughout the development process. The dynamic and epistemic objects are used alongside the static objects, to facilitate knowledge integration and collaboration during game development. The following sections examine three dynamic objects/processes that are widely used in the industry and are considered as effective for the videogame development process, as well as the publisher-developer relationship. Agile project planning, meetings and prototypes are the three dynamic objects that will be discussed in the following parts.

5.2.1. Iterative Planning, a Dynamic Process

As noted earlier, due to high levels of novelty, videogame development is an unpredictable process and the participants highlighted that instead of the static Waterfall Model of project planning, an approach based on cycles and iterations could be more effective. Iterative development is a response to the deficiencies of the horizontal and inflexible methodologies, like the Waterfall Model, which were implemented in the industry. There might be other iterative software development methodologies, such as Extreme Programming, Adaptive Software Development, Pragmatic Programming, etc. that put forward an approach to software development that is very different from the rationalist, plan, document and process intensive strategies implicit in the Waterfall Model. But the interview data only refer to the Agile methodology as an effective replacement for the traditional Waterfall Model in videogame development.

An Agile project deploys a series of iterations/cycles for the development (Schwaber, 2004). According to Schwaber (2004), iterations/cycles are short intervals that take generally two to three weeks. Each iteration/cycle includes all the phases of development, such as concept, design, coding, integration, and testing of the game within that time frame. At the end of each cycle/iteration, an updated and playable version of the game will be submitted to the customer. The customer can be the publisher producer, developer producer, etc. who reviews the game and produces a product backlog that defines and prioritises the game features and plans for the next stage. The iterative development process might contain numerous cycles/iterations in its timeline.

An experienced development studio owner confirms how the Agile methodology gives them more flexibility in development:

> *We've changed our old ways of doing things. Now we try to be very agile in development and do things with short-term goals. You know, it's a day-to-day thing; sometimes things are being decided almost every morning. The flexibility of Agile and redefining goals is very useful (Ethan – developer studio head).*

A publisher programmer also confirms the effectiveness of the Agile methodology in game development:

> *It's hard to use any sort of project management software, except Agile because game development is more of a day to day thing, with short-term goals (Gareth – publisher lead programmer).*

With the Agile methodology, the implementation of static tools, documents and inflexible contractual plans are ineffective. In an Agile project, they do not avoid planning, but they adopt dynamic planning practices that allow for change as the project is developed. David, a renowned developer, emphasises the critical role of the Agile methodology in facilitating development: "Through Agile programming and Scrums, we can recognise the changes to the project and identify the resources needed for those changes – this is crucial for the project" (David – developer studio head).

Chris – a publisher producer – stresses the importance of the Agile methodology for development. However, he highlights that while they are flexible to changes, they attempt to prevent implementing big changes to the project:

> *We use Agile and Scrum, which is the most sophisticated development approach. We track performance daily, we ask for printouts daily and we monitor the whole project on a daily basis. We are flexible to changes but we don't tolerate really massive changes in schedule (Chris – publisher producer).*

Rather than focus on milestones and documents predefined in the contract as in most Waterfall Models, the Agile project concentrates on dynamic processes and objects. Communication between parties and multiple disciplines is facilitated through frequent meetings that are held regularly between the internal teams, and on organisational and inter-organisational levels. Yousef – a developer director – confirms:

> *When we have an Agile and iterative project, we have more frequent meetings both internally and with the publisher to make sure we are all on board in terms of the vision or the direction of the game (Yousef – developer director).*

While both publishers and developers emphasise that iterative planning such as the Agile methodology is highly useful for the videogame development process, they express their concern over managing projects with these plans. Dylan describes iterative planning as "extremely difficult" (developer programmer), while Timothy – a publisher executive – calls them "risky":

> *In the last ten years, we all became professionally changed and trained. We learned about Agile, we learned about Scrum. But it's risky to use them. The development budget and risks involved are so high that employees, especially developers running these projects have to be pretty sophisticated (Timothy – publisher executive).*

Due to the large sums of investment, the publisher associates Agile planning with high levels of risk and this is the main reason why they demand that the developer starts the project with a clear and detailed project plan. However, later in the project the publisher will show more flexibility towards using iterative planning. The interview data above showed that this project planning methodology is congruous with the iterative and unpredictable nature of videogame development.

5.2.2. Meetings

Face-to-face meetings seem to be an integral part of the development process that facilitate communication and knowledge integration within and between different disciplines. The meetings also happen virtually, through Skype calls and other sorts of video conferencing

methods. However, the interview data suggest that communicating via these methods is not as effective as face-to-face meetings. A developer highlights the difficulty of communication through other media: "unlike face-to-face meetings, email and Skype can be unforgiving [creating misunderstandings]" (Francis – developer). Adam, another developer director, highlights the importance of face-to-face meetings:

> *I don't like emails because so much gets lost, whereas personally I think face-to-face meetings are always the best. I always make an effort to talk to everyone on my team at least once a day, even if just to have a coffee. When you start having bigger teams, meeting everyone on the team would get difficult. But you make sure that the teams meet on a daily basis and you meet with your leads everyday, cause you don't have time for that face-to-face interaction with everybody on the team on daily basis (Adam – developer director).*

The participants claim that implementing the Agile methodology calls for more meetings during development, thus leading to better communication between and within the teams. Here Ken – an experienced developer producer – explains:

> *So the frequency of meetings depends on how we are managing the development, so if we are more on an Agile iterative kind of team then it would be more frequent, and of course it results in better communications. If it is more Waterfall based then the meetings are less frequent (Ken – developer producer).*

The internal meetings within the development studio range from daily to monthly and formal to informal, depending on the size of the development studio. The head of a large and renowned development studio outlines:

> *We've got different types of different meetings: weekly meetings; bi-weekly meetings; some meetings every five to six weeks. These meetings are based-on different aims in order to keep track of all stages of product development and for information flow, to make sure we have a shared vision, and that's anything from the way the game monetises all the way through to its story and what's going to*

make it fun and everything. We also do have some everyday meetings as well between the internal producer and leads (David – studio head).

Face-to-face meetings also have a critical role in facilitating communication and knowledge integration in the publisher and developer relationship. An on-going publisher presence within the development studio is common in the development process. Paul explains that in the projects, he is responsible for a development team:

I always ask for a desk and I stay there with my team regularly, this is partly to see what's going on, keep track of everything, have regular meetings and support the developer. But above all making sure if they say they have twenty people on the project, they do really have those people onboard (Paul – publisher producer).

However, the publisher's level of integration into the development studio and the access they will be allowed will very much depend on the level of trust between the two parties. Another publisher producer talks about his approach to the developer:

I would insist on weekly or at least bi-weekly meeting, just like a short update. On a high level, we used stand up meetings, plus ad-hoc meetings. But ideally, I would want my producer on-site; it would be ideal to try and get a desk in the studio, somewhere, anywhere (Matt – publisher producer).

Ad-hoc meetings are used as a method to monitor and assess the development progress. The publisher's on-site visits can take place "as little as once every few months or as frequently as once/twice a week depending on the stage of development, the proximity of the publisher to the studio, as well as the level of trust between two parties" (Andrew – developer producer). But it is likely that during these visits, random/ad-hoc meetings occur in and around the office between the publisher representatives and various members of the development team. Unlike ad-hoc meetings, the stand-up meetings are planned. Chris, a publisher executive producer, defines stand-up meetings:

In stand-up meetings, we would get the whole team up in a room once a week, normally where everyone is working. We gather them around and get everyone to

stand up to give a little bit of information, within fifteen to twenty minutes, like here where we are at, this is what is happening (Chris – publisher executive producer).

When the publisher is present at the development studio, whether daily, weekly or monthly, the publisher team holds informal ad-hoc or other low-level meetings with the development team. These meetings are held to monitor and support the development team. The formal publisher-developer meetings are called steering meetings, in which company directors, senior development staff, as well as key stakeholders such as marketing, PR and QA are involved. The interview data show that the steering meetings are held between the publisher and developer on a regular basis to present overall progress of development, outline future plans, and potentially negotiate and approve various facets of the prototype. These meetings are essential in facilitating the publisher-developer knowledge integration and collaboration. Rob, a publisher producer, highlights:

It's really important to get face-to-face time with the developer. Through discussions and regular meetings we surface the issues and reach agreements (Rob – publisher producer).

The interview data reveal that in case of problems and clashes, contracts are not referred to (as shown in section 5.1.3), instead the publisher and developer resort to steering meetings to resolve their issues and create "a unified vision and direction for the game" (Ethan – developer director). Mike who is the creative director of a development studio also confirms that "what's lost in communication can be covered in meetings – when you have face-to-face interaction" (Mike – developer creative director). As the project progresses, meetings replace the use of contract in order to address the changes to the project, misunderstandings and disagreements. These face-to-face publisher-developer meetings provide a good opportunity for the partners to resolve their differences and create mutual understanding.

5.2.3. The Prototype

Another dynamic boundary object that seems to work effectively in videogame development is the prototype. The prototype is a playable version of the game that is developed at the pre-production phase. The prototype will be updated and refined

iteratively as the game progresses, and it is interchangeably referred to as the "build", "vertical slice" or "playable". Although the term "build" is used prevalently within the industry, in this thesis, I choose the term prototype to refer to this updated version of the game during the project. This is because the term prototype seems to be intelligible to a wider audience.

The developer and publisher use the prototype as a point of reference and discussions both within the studio and across the companies. This is regarded as the most effective way to communicate and create better understanding between different disciplines. Brian – a developer executive and founder of a very successful studio – delineates how in their studio they have replaced the "time and resource consuming" game design documents with the prototype to create a better understanding of the vision and the game between different disciplines. He states:

> *For our projects we actually create a prototype really quickly and focus on updating them iteratively as we go on. Some people certainly in the past quite often would write a lot of things down in a bulky bible, but we've decided to skip the documentation, but talk about what we want to produce and then just create a build (prototype) really quickly. That goes pretty well because it gives us a talking point between teams, and it actually gives us something to play, and then see if there is either potential for fun or actually if there's fun in there at all (Brian – developer executive).*

The prototype shows the gameplay and features of the game, and it also displays the dependencies of different disciplines. In addition, the prototype allows all the stakeholders, including programmers, artists, designers and the publisher, to see and test how their ideas can all work together. A developer producer and creative director called Dylan highlights how not having a playable version of the game until late in the development created misalignments between different teams; hence, a detriment to their project:

> *On that project we were constantly trying to catch up with where the art and design had gone to, with the technical side of it. So I would say doing the build (prototype) and having something playable is a great thing to have, something that people*

would look at and say yeah it works; it's fun. But this was something we didn't do on Star Soldier. Looking back on it, maybe we should have done a build (prototype) using our existing engines. But now I've learnt that when we do a project, the first thing we do is get something playable going and make sure it's fun cause if it's not fun there's no point in making it (Dylan – developer producer and creative director).

Apart from building a common point of understanding between publishers and developers, the prototype also helps the developer plan the development process more realistically. The prototype provides an overview of the development and the resources required to finish it, such as staff, technology and time. Therefore these requirements can be easily detected by the developer and communicated to the publisher. Marcus, a developer lead artist, elaborates:

Key to keeping a project on time and budget is to know before you start (a) exactly what it is you're making and (b) that it's actually something fun. The only reliable way I know of, to do this, is to prototype things at the start, iterate them as you go along, and then when you're happy with the results, enter full development. I've seen projects come together without prototypes and it's pretty galling to only reach the stage where a game is properly playable late in development and to realise that it's not actually much fun. Obviously that then requires extra work to turn it around, which will often add to the time/budget (Marcus – developer lead artist).

Keeping the project on time and budget is one of the main objectives of any publisher investing in a project. This is also important for a development studio, because sometimes the costs of running a studio for one extra month can be so high that the developer may find it difficult to finance. There can be a breakdown in the publisher-developer relationship if the project runs late and requires extra budget. This might result in the termination of the project and sometimes the demise of the development studio. Therefore, using a prototype which is gradually upgraded and updated can prevent these problems and create a better understanding of the development process for both the publisher and developer.

The prototype is sometimes created at pre-production stage, as a proof of concept, gameplay and assets for the publisher or other investors, to raise funds. The prototype is also used throughout the development process to show the investors/publishers or other stakeholders how much the project has progressed. The updated and playable version of the game seems to be the best document to be presented to the publisher for each milestone, through which the publisher can assess and track the game's progress. Paul, who is a publisher producer, emphasises the importance of the prototype (build/playable) in winning the trust of the publishers to invest:

> *The playable (prototype) is like seeing five minutes gameplay that represents of what the final game will be like. So by seeing a vertical slice, you can de-risk that massive chunk of money that you must spend because then you know what the game is going to be like. The analogy might be like making a show home, for a property developer. When the developer can't afford to do that, it is a sort of like rolling the dice for the publisher (Paul – publisher producer).*

Another publisher producer confirms that he wouldn't approve any milestones, unless the developer presents an upgraded and progressed version of the prototype:

> *I would always ask for builds (prototypes). For me the proof is always in the build (prototype), I'm not interested in things that are done in people's PCs, I'm not interested to see 50 assets, like 50 cars, made on PCs. I would ask to see those 50 assets in the game, so the idea of hiding stuff becomes very difficult for them. Since all the milestones are quite based on builds (prototypes) that I can play and I can see, not documents, it makes it harder for them to hide stuff away (Matt – publisher producer).*

Here, the publisher producer believes that the prototype can provide more transparency on the development for the publisher, through which they can track the development progress much better and hold the developer accountable. In the quote below, Ken, an experienced developer producer, also suggests that the prototype maintains clarity. However, he complains that this transparency might not be as beneficial for the developer, which is why sometimes they prefer to not show all the changes to the publisher. Ken thinks submitting

the prototypes to the publisher might create some conflicts. This is because the publisher might disagree with the diversions from the original vision and game specifications that were documented and agreed upon in the contract and game design documents. In these circumstances, the producer himself intervenes to explain the prototype and negotiate the changes they have made to the game. Ken states:

> *In my experience, the publisher would often like to have builds (prototypes), but we've always been slightly cynical about that and it comes from the fact that if you are not there to talk them through things, especially when you've introduced a new feature, for example if you want to try something out that it's not budgeted for, then you get all these questions: why are you doing that? Why aren't you doing what we've asked you to do? They start asking endless questions; most of the time you just prefer not showing it to them. The best way of showing them the build (prototype) is standing next to them and say, look this feature here, don't worry about that, forget that, but if you are not there to say it, they may think you have focused on something that is broken (Ken – developer executive producer).*

The interview data showed that publishers and developers used dynamic boundary objects such as iterative planning methods, meetings and prototype at the later stages of production to facilitate their collaboration and knowledge integration. These boundary objects were utilised both within the development studio and between the studio and the publisher. The participants highlighted the unpredictable and complicated nature of videogame development, stating that detailed planning and implementing structures were only useful at the outset of the project to create stability and security for both parties. However, dependencies and unpredictability of the project necessitated the use of boundary objects that could be easily updated and upgraded. That was why the participants found dynamic boundary objects useful for the development process. The participants highlighted that through discussions and conversations they facilitated the use of dynamic boundary objects and created a better understanding of their dependencies, vision and the directions of the project. This refers to the role of brokers in mobilising the effective use of dynamic boundary objects through their mediating and negotiating abilities. Brokers or producers (as they are called in the videogames industry) are responsible for mediating and negotiating between the publisher and the developer. Brokers/producers are regarded as

key to the development success and the publisher-developer relationship, and they are also central in mobilising dynamic boundary objects. Therefore, I have allocated the penultimate section of this chapter to elaborate on their role in the videogame development.

5.3. The Critical Role of Producers

The interview data reveal that producers have a critical role in managing the publisher-developer relationship and the development process. Producers or brokers are appointed by the publisher to work closely with the developer and to supervise the game development. Sometimes development studios on bigger projects assign internal producers too in order to oversee the production and connect with the publisher producer in managing the development. Whether it is a publisher producer or a developer producer, their role is considered as vital for the collaborative relationship. They have to constantly "review the game and make sure the quality level and the overall vision is maintained" (John – publisher producer). They also supervise how the developer is spending the money invested by the publisher. They have to "make sure that the developer is spending the money correctly, wisely and effectively" (Jing – publisher producer). Here, Matt, who is another publisher producer, describes how he reviews the game:

> *I look at a game design and go, where is it strong? Where is it weak? And I'll run up a report and do talking through it all the way. I do the same thing for the product and then go on-site and actually fix it or fix might be a strong term but I'll push it to the direction where it needs to be fixed. I am always that bridge between the developer and publisher (Matt – publisher producer).*

The participants of the study highlight the main responsibility of producers in bridging the gap between the publisher and developer. They explain that producers act as intermediary bringing different expertise together. An experienced publisher executive asserts: "I think it's a really critical role because they need to be able to serve both sides effectively. They kind of serve two masters and have to maintain the relationship, so they are the buffer between the publisher and the developer" (Allan – publisher executive).

Producers need to have much broader skill sets and have knowledge of the creative side, as well as the business side of game development. They should understand the marketing process, the localisation process, the QA process, the PR process, the strategic planning, the finance requirements and the development process, and also make sure that all different disciplines have an understanding of each other and are working towards the same goals. Laurence – a publisher executive – explains:

> *If you've got like 200 people in the game studio and then you've got another 100 people in the publisher, all working on the game, trying to coordinate the efforts of 300 people is pretty difficult. You have to interface between these different disciplines and make sure they understand the vision and everybody is informed about it. It's a dual facing role, you make sure the development team are aware of the business demands of the production and the marketing and sales guys are aware of the product vision (Laurence – publisher vice president).*

Angelo, who is a creative director working for a renowned development studio, also confirms that:

> *The producers are like the hinge with which the whole thing works, they have to make sure that people are really solid together and they can go back in their respective directions and work properly in their individual teams (Angelo – developer director).*

Producers also claim that they act as catalysts for the communication and knowledge sharing between the publisher and developer. This is done by mobilising and negotiating boundary objects that are used in the development process. A publisher producer delineates: "I have to help out facilitate communication between the publisher and the developer, through negotiating the build, the plans and the milestones all the time, almost every day, making sure that that pipeline is clean and happy" (Rob – publisher producer). By "clean and happy", he means the producer has to make sure that both parties are well-informed and happy about where the project is and whether there is a unified vision about the game and its directions.

The participants emphasise the role of producers in facilitating communication and "sharing information". However, the interview data suggest that producers have to share information selectively with both publishers and developers in order to maintain the relationship. Here Ken, a developer producer, talks about his struggles in sharing information with the publisher. He thinks if they stay transparent about everything, the relationship could fail. He says:

> *It is all just politics. I have to just make sure, as a producer, that the company is being paid. It's purely about the economics of making games. You have to create the dual balance between the two, you've got always that massive dilemma, between "do we tell people the truth and potentially cause a problem? Or keep quiet about certain things?" If we do so, it might blow up the whole thing entirely. I guess we have to often keep stuff under the radar purely, so that we [as the developer] could still get paid (Ken – developer executive producer).*

This is confirmed by Matt who is a producer working for a publisher. He highlights the role of producers in facilitating meetings between the publisher and developer, and also stressing that the producers should always be cautious in sharing the information between both parties:

> *Sitting in the meetings between the publishers and the developers, I learnt a lot of the skills about knowing what information to surface at what levels. It's crucial to know what does the team need to know, and what would be beneficial for them to know. With developers you always have to be careful in these meetings about what to say and how and when to choose to disagree with their build or plans (Matt – publisher producer).*

A developer producer called Andrew emphasises how critical and sensitive the producer's role can be in managing transparency and knowledge:

So it's a very dynamic thing. You have to as often as possible remove all emotions, remove all ownership and just really coldly look at something and go [is it] good or bad? How does that help? How does that not? Then you zoom out and ask how does this manage the

relationship between all the different parties involved? So there are a lot of different layers to making a decision… when presenting spreadsheets [planning documents] or discussing the build [prototype] you sometimes need to lie and cheat, there's a lot of politics involved. You don't want to ring alarm bells at the wrong time (Andrew – developer producer).

The data show that the producer is a vital entity that facilitates the publisher-developer relationship in the complicated setting of videogame development. The producer seems to be able to interface and direct different parties through constantly reviewing and negotiating the boundary objects whether static or dynamic, such as game design, vision, contractual milestones, planning documents, prototype, etc. between them. But most importantly the producer seems to control knowledge that is formed and shared between parties. This role of producers in controlling knowledge will be presented in more detail in chapter seven.

5.4. Conclusion

This chapter described how the publisher and developer bring together their various expert knowledge, manage their cross-boundary work and develop videogames. They do this by implementing a combination of static and dynamic boundary objects, as well as employing skilful producers/brokers to manage the collaboration. The data show that static objects, such as game design documents, planning documents and the contracts, were useful in forming the publisher-developer relationship and at the early stages of development. The participants highlighted that static boundary objects created perceptions of trust and stability, hence their effectiveness. However, due to the iterative and unpredictable nature of development, the static boundary objects were proven to be impractical, also hindering relationships in the later stages of the project. I also discussed that videogame development required dynamic/epistemic objects or processes that allowed some flexibility, creativity and responsiveness for the development. The dynamic objects, such as iterative planning methods, meetings and prototypes were found to be facilitating the communication and knowledge integration, by creating common points of understanding. It was also shown that due to high levels of dependencies and complexities in the publisher-developer cross-boundary work, the producers/brokers were integral in mobilising the static and dynamic boundary objects, hence facilitating knowledge integration and collaboration.

Chapter Six: The Power Games in the Publisher-Developer Relationship

In this chapter, I initially explore the participants' perspectives on the publisher-developer relationship. Then, I highlight the problems and challenges, focusing on the sources of the tensions between these parties and identifying an "us and them" culture in their relationship. Both parties emphasise that their discrepancies and differences in objectives have turned the relationship into a battle, rather than a collaboration. The participants also highlight that the existence of a power inequality is the reason behind a one-sided and asymmetrical collaboration, where the larger, wealthier party have the most power to shape the decision-making processes, hence the apparent irreconcilability between publishers and developers. However, the second level data find power dynamics rather than power inequalities, where surprisingly the developer has more control over the project in the later stages of the project.

6.1. The Publisher-Developer Relationship

Videogame publishers are large international organisations whose main function in this relationship is to sponsor the development of games and to provide development studios with the knowledge of the international market, distribution channels, and a pool of skills and resources, including art, design, programming, acting, etc. For instance, SEGA is a typical multinational videogame publisher, hiring almost 5,000 staff in their headquarters in Japan and their multiple offices around the world. SEGA owns internal studios developing videogames, but they also invest immensely in independent developers to draw upon their skills and expertise. Although a developer can use a different business model, independent from a publisher, this traditional business model is still prevalent within the industry. This is mainly because this publisher-developer relationship provides the partners access to multiple resources and as a result helps them maintain competitive advantage in a volatile and risky business environment. In this thesis, I have focused on this business relationship that is formed to create a big-budget videogame that requires a wide range of skills and expertise drawn from both companies (developers and publishers), as well as investments sometimes reaching to multi-million pounds for a two to three year project.

Although the developer's main contribution to the project is creating new ideas and developing these ideas into games, the publisher is also involved in the development process to different degrees, shaping the concept and supporting the process throughout the whole project. In a development studio, there are usually different disciplines that are distinct, yet interdependent and interactive. These different disciplines are programmers, artists, designers, the quality assurance team (QA) and sometimes the research and development team (R&D), each of which is headed by a team leader or team director. Depending on the size of the development studio, a producer or a production team composed of producers and project managers supervise the development team and the project/game development internally. In the case of large budget games, and in the three networks I have examined, all projects have one or two producers – this was highlighted in section 5.3. Developer producers are responsible for the interactions with their counterpart in the publishing organisation, called the publisher producer. Since the publisher is essentially responsible for the manufacturing and distribution of the game, the different departments that shape the organisation are sales, marketing, finance, legal, QA, executive management, etc. It should be noted that all the game production and the interactions between the two partners are supervised and managed by the publisher producer, who involves teams of artists, designers, programmers, etc. to assess and support the developer and development process.

In the publisher-developer relationship, throughout an entire production cycle almost all departments within a development studio have to work (sometimes very closely) with different publisher departments, in order for this partnership to be successful. However, this is a problematic process, due to a number of areas of contention. Examples of the typical decisions that can be contentious between these two parties are outlined below. These points will be further referred to frequently in this chapter:

- Design Decisions – This is one of the major tensions between the developer and publisher. Earlier in development, design decisions might be compromised and/or facilitated easily between the developer and the publisher. However, later on in the project, the need for stabilising the software, as well as the extra resources required to incur changes, make it difficult to accommodate changes, which becomes a contentious subject between the two.

- Release Date – All parties have a huge interest in making sure that the project is released on time and on budget. For the development studio a missed release date could incur additional development costs at their own expense or a reduction in royalties, depending on the terms of the contract. For the publisher, a missed release date could mean wasted marketing budget, lost ground to competitor products, lost revenue and a major impact on the financial year's results.
- Budget – Whilst an initial budget is agreed upon when the long-form contract is drawn up between the two parties, changes in market conditions, technology and further design requirements can necessitate additional funding to be called for, often leading to extreme differences.
- Ad-Hoc Requests – Due to the complex make-up of a publishing organisation, demands from the publisher on the development team can often come at relatively short notice and cannot always be easily accommodated by the development schedule. These ad-hoc requests can be mainly design-related, such as adding a feature to the game, or changing a feature, etc. When these demands are repeated and extended over a period of time, it can put significant strain on the relationship.
- Milestone Deliverables – These are pre-arranged deadlines, usually at four to eight week intervals, for which the developer has to deliver an interim/updated version of the game, in exchange for a pre-agreed payment to fund the next phase of development. Different publisher departments will assess the "deliverables" and upon their approval the payment for that stage will be processed. The production teams of both companies draw up the milestone criteria at the early stages of development. Whilst there is usually some flexibility, the agreed milestone schedule needs to be maintained in order to keep the publisher's confidence in the schedule and overall project quality.

As discussed earlier, the publisher and the developer form partnerships to share the high risk of game production and to mutually benefit from the collaboration. However, throughout the history of the videogames industry, the relationship between the developer and the publisher has been portrayed as challenging and problematic (Heaton, 2012). Some people in the industry believe the relationship is irreconcilable or as a developer explains

"the marriage is set out to fail" (Todd – developer executive); therefore, the dominant rhetoric suggests empowering the small developers to self-publish their own products, where there will be no need for them to collaborate with the publisher (Fahey, 2015). However, according to Mendez (2017), the traditional publisher-developer relationship is still deemed crucial to produce high-end products, due to the large sums invested, as well as the knowledge and expertise these types of products require. Therefore, regardless of conflicts and challenges, he suggests rethinking the relationship, creating a sustainable and workable collaboration.

6.2. The "Natural Tension" Between the Publisher and the Developer

The publisher-developer relationship is formed because the publisher looks for innovative ideas outside of their formal and structured establishments in a small independent studio, while the developer needs the publisher's investment, knowledge of the market and expertise in new technology. However, the data suggest a "natural" tension between these two parties due to their seemingly divergent characteristics. Leo, an industry veteran who has worked for a multinational publisher for nearly twenty years, elucidates this tension as follows:

> *So this natural tension between the developer and the publisher whatever that period in history, has always been the same, has always been about the developer's desire to achieve the freedom to create what they want and keep going, keep paying themselves and the publisher's desire to continue to stay in business and to pay their staff and to become more successful and get return for their shareholders or their investors and the owners (Leo – publisher executive).*

Another publisher senior executive describes the relationship as "the friction between market-facing requirements and investment and tension relative to studio side, creativity, innovation and investment in product" (Timothy – publisher senior executive). In other words, he thinks there is a tension between the creative investment of the developers on one side and the financial investment, as well as marketing knowledge of the publishers on the other side. Then, he suggests that the success of a relationship and a product can be

achieved by creating a balance between these two poles.

The tension between the publisher and the developer appears to be a "natural" outcome of the work across the boundaries that seem to have different skill sets and knowledge, engaging in a partnership with supposedly different priorities and objectives. Both the publisher and the developer in this study claim that these differences throughout the production gradually increase friction, which will result in more complications and misunderstandings. In the following sections, I elaborate on the factors that are said to be the cause of this "natural" tension between the developer and publisher, including: the differences in skill sets and knowledge, as well as disparate priorities and objectives.

6.2.1. Differences in Skill Sets and Knowledge

The interview data suggest that differences in skill sets and knowledge between the publisher and the developer are considered one of the main reasons behind the challenges in their relationship. The participants of the study claim that bringing together different disciplines creates clashes due to their different expertise and their lack of common knowledge. The publisher disciplines are finance experts, experienced marketers with high skills in market data analysis, the lawyers who are knowledgeable in international law, etc. but they all have minimum experience or knowledge of the technical aspects/limitations of game development. On the other hand, the developer is composed of creative individuals with technical expertise that have minimum knowledge of the marketplace, consumers, the financial and business side of development, etc. This is how Laurence, a publisher senior executive, talks about the collaboration between different disciplines:

> *The relationship between the groups can be quite difficult sometimes, because the skill set is just different. So you're not talking to, necessarily, someone who is exactly the same as you, in terms of your makeup, your skills and everything else. These are the people who share some of the same insights, visions, skills, [but they have] actually different points of expertise (Laurence – publisher executive).*

Despite the clashes, the publisher views the involvement of the marketing, finance and legal teams in the game development processes as necessary. This is to reduce the risks of development. Sometimes, large sums of investment reaching tens or hundred millions of

pounds are required to produce high-end games. By appointing marketers, lawyers and accountants to supervise the production, the publisher will also make sure the project is on track and can make enough profit for the shareholders. As a result, the developer often has to comply with the publisher's marketing, financial and legal requirements all throughout the game development regardless of their technical expertise and experience in the development.

The data suggest that the differences in skill sets and knowledge can lead to lack of understanding between the parties, hence hindering the communication and collaboration. John, an experienced publisher producer, highlights here that both the developer and the publisher think the other partner does not have enough knowledge because they don't have similar skill sets. He explains that this lack of understanding makes them feel frustrated. He continues:

> *The number one source of frustration in my career is having disagreements with people with a lack of knowledge ….[the developers are] around talking to lawyers and marketing, and think, "what do they know about making a good game and selling it?!?" This can also happen where the publisher thinks the developer says something crazy, or seemingly crazy, and they don't know the background or why they came out with this decision and the publishers go, "what are these guys doing? What do they know?" (John – a publisher producer).*

The publisher emphasises that the developer's lack of knowledge of the market and the business side of the production sometimes prevents them from fully appreciating and understanding the publisher's position. Gareth is an experienced designer who has worked for a publisher for a long period of time; he has also been appointed as a publisher representative in the development studio and has worked intensively with the developers to assist and supervise the game production. He explains that the developer makes games regardless of what the market needs and without considering the commercial aspects of the game development, highlighting the role of publishers to complement the developer's lack of skills in selling and marketing their games:

> *Developers don't understand that they have to make a commercial product, so they need a publisher to help them understand that. A lot of game makers think they are artists and they are making art. The thing is, they are spending the publishers' money, making their masterpiece, their art, but it's not commercial. No one wants it. No one will buy it. The developers think if they make something beautiful and amazing, they deserve financial success. But that's not the real world (Gareth – publisher designer).*

The differences in knowledge and skills seem to affect the relationship from the developer's point of view too. Jordan, a developer producer, stresses that the publisher's lack of knowledge and skills in the videogame development often creates problems for them. He claims that in many cases the publisher's demands are not supported by technical knowledge. As a result, the discussions and arguments between the two parties become frustrating and fruitless:

> *When you have publishers who have expectations that aren't realistic because they've never worked [as a developer], and they don't know the technical limitations, ... I think [it] is soul destroying, because it's like arguing with this bottle [points to bottle on table]. There's nothing there, I can't have an argument with that bottle about anything because it doesn't know the facts (Jordan – developer producer).*

The interview data show that both the developer and the publisher complain about their partner's lack of knowledge and understanding of the game development. The developer refers to the publisher's lack of skills and knowledge in technical aspects of the game development, while the publisher indicates the development team's lack of knowledge of the markets and other business-related aspects of the game development as the source of their conflicts. They also claim that this lack of understanding between the two hinders discussions and communication. In the three following sub-sections, I will bring more examples and elaborate more on how differences of skills and knowledge can be the source of conflicts. There are three different areas where the participants think they have more clashes of skills and expertise: publisher producer vs. developers; marketing vs. developers; finance and legal vs. developers.

The Publisher Producer Vs. the Developer

According to most participants, one of the challenges of the publisher-developer relationship is the difference in skill sets between the publisher producer and the developer. The publisher appoints a producer or executive producer to supervise the development process and make sure the game is on track and in line with the company goals and directions. The responsibilities of a producer vary from publisher to publisher, but generally the producer acts as a liaison between the development team and the publisher's higher management and the other relevant publisher departments, such as, PR, Marketing, Finance, etc. The producer also negotiates contracts and develops and maintains budgets and timelines for the project, thus making sure the game is completed with the expected quality and delivered in a timely manner. This is how a publisher producer talks about his role: "I make sure that the quality level and the overall vision is maintained and keeps pushing forward, facilitating communication between the publishers and the dev., through negotiating stuff all the time, almost everyday" (Matt – publisher producer).

Although the data reveals that the producer is the main point of contact for the developer and is supposed to facilitate the relationship, surprisingly most developers in this study complained that the producers do not have relevant development knowledge and skills, which can lead to a lack of understanding between the two parties. Because the producers have the power to influence the development, such as changing the game design, the developer's perceptions regarding their lack of knowledge or skills can create clashes and conflicts in the relationship. Andrew, a developer producer, explains:

> *Clashes come when publisher producers make decisions and influence the production in a way that isn't really helpful for the project or the team, because they are not taking into consideration the whole myriad of different technical factors. If you are lucky, you get a producer who has hands-on experience in development, but you are not generally in that position (Andrew – developer producer).*

The publisher producers argue that in order to be able to interface with different disciplines and mediate between the publisher and the developer, they should have much broader skill

sets. That is the reason why they might not be purely development focused. Rob, a publisher producer, justifies that "being able to relate to the developer is just one part of my job, I should understand the marketing process, the localisation process, the QA process, the PR process, the strategic planning, the finance requirements and the development process. A good producer should have a handle on all these areas" (Rob – publisher producer). This section provides an example of how the participants attempted to highlight the differences between the publisher and the developer, depicting the relationship as challenging and irreconcilable. However, in section 6.4. and 6.5, I will present the data that reveal there is more to this rhetoric, than blaming the other party.

The Publisher Marketing Department Vs. the Developer

The relationship between the publisher marketing team and the development studio has been regarded as another source of conflict, where differences in expertise and knowledge apparently lead to lack of understanding. As explained earlier, the publisher contributes to the relationship by marketing and selling the game, hence the inevitability of the marketing team's involvement in production. The marketing team's aim is to adjust the game vision to what the market needs, thus making sure the game will turn into a profitable and successful product. But their attempts at improving the game vision are not always well received by the developer, but seen as interference. The developer feels the marketing team does not understand them or the game development limitations either. Both teams accuse each other of not having enough knowledge, thus leading to more friction and misunderstandings.

Laurence, a publisher senior executive, confirms this clash between the development and the publisher marketing teams, explaining: "the marketing team just don't get the development team and they sometimes [complain] kind of like, 'Why are these guys [developers] kind of forward and rude?'" (Laurence – publisher senior executive). This clash is also reported by a developer project manager saying:

> *One key point of conflict on that project was between the design of the game and the marketing of the game. The publisher's approach was to directly involve the marketing team initially in directing the feature set of the game and then in the approval process for the implementation of those features. The problem with this*

was that what the marketing team felt were marketable features tended to change quite frequently. To put it cynically, this was mostly based on what other games were successful at any one time, which led to a problem of 'shifting goalposts'. Also the game turned into a bit of a grab-bag of features, based purely on what the marketing team felt they needed to be able to market the game successfully (Jordan – developer producer).

The marketing team's feedback on the game was based on their abilities in analysing the market data, the consumer behaviour, etc. However, the developer here found the marketing team's contribution to the game vision and design unhelpful because of the marketing team's lack of knowledge in technical aspects of game development.

Jing runs a very successful development studio at the moment, but he previously worked as a product manager in the publisher marketing department and was also the producer for *Star Soldier*. He believes he has insights into "both sides of the fence", because he has the experience as both a developer and publisher. He defends the marketing position in the relationship:

It is a pity for me to see that developers think usually the marketing guys have no idea what they are talking about; they don't know games, they don't know how to market their game… The developers see it as just marketing [expletive]; they don't see it as a science. And marketing guys on the other side, they believe, the developers have no idea about the markets, which often is true. The developers usually don't know about the figures, about what's happening, about what works, what doesn't work, or how to calibrate a message, how you get it to the right audience, etc." (Jing – publisher producer).

The developer and the marketing team both feel the other does not have enough knowledge and expertise in each other's field. The developer thinks the publisher marketers do not know what game production entails and the marketers say the developer team do not have the understanding of the market; hence, conflict arises between the two. Since the developer is required to amend/add game features based on what the marketing team suggests, this can lead to some on-going conflicts between the two parties.

Finance and Legal Vs. Developers

Conflict in the relationship can also be found between the developer and the publisher's legal and finance teams. Finance is an integral part of a publisher and there is much emphasis on the financial potential of the game production. A publisher senior executive highlights the importance of accountants and lawyers in the publisher-developer relationship as follows:

> *Well, at the end of the day, a publisher is measured by its finances. It's plain and simple. Well, ok, a publisher is judged by its products as well as its finances. But most people within a publisher are a little bit further removed from the actual games, themselves. They're looking at the numbers, and they're all looking at the business from a financial perspective. I suspect there are more accountants and lawyers in our company than any other discipline (Simon – publisher senior executive).*

The publisher is dependent on professional lawyers and accountants in order to ensure the business is on track from the financial and legal perspectives. The finance and the legal team will be involved in all stages of the game development, from business pitch to milestone approvals, where their decisions have an impact on the developer's production, including the features of the game and the length of the project, which are both highly controversial. But the collaboration between the finance and legal team and the developers can be problematic. A developer game director talks about this difference as below:

> *The friction between the two probably comes down to different skill sets. Within a publisher mechanism, there are lots of people who actually don't know anything about games. An accountant [says], "I don't know about games, I have to run spreadsheets and I have to make financial calculations". Well, this can produce a bit of a divide, in terms of trying to understand the product that drives your business (Stanley – developer director).*

The publisher's senior producers who are more oriented towards game development have asserted that sometimes they find it difficult to collaborate with the internal finance team

too. They believe justifying the development decisions and the discussions pertaining to that with the accountants and lawyers can sometimes be pointless. Due to their focus on the financial aspects of production and their lack of knowledge of the merits and limitations of the development process, there are also some internal conflicts between the publisher producers and the finance and legal team (Chris – publisher producer). Matt, a publisher producer explains how difficult he sometimes finds discussing a game's features with "a group of people who are not as invested in the game development", namely the finance and legal team:

> *So why am I going to keep pitching up to an accountant, (chuckle) trying to explain that game idea or that sort of direction? They are just like, "Look, just show me the money. How does that look on our sheet, our balance sheet?" And that's the biggest, that's the biggest issue, really. It's like they just want you to make money ...you can have all the product discussions you like in the world and all the kind of great things about the developer, they would go, "guys, shut that down! We are not making any money there, we're moving out of there" (Matt – publisher producer).*

Although participants unanimously emphasised that the difference in skill sets and expertise is one of the main sources of conflict and misunderstanding between the publisher and the developer, the interview data (second level data) reveal that there is more to this story. As discussed in chapter six, the data show that there are high levels of distrust between the parties, where they seem to not give enough credibility to one another for their contribution to the game development.

6.2.2. Disparate Objectives and Priorities

Although the publisher and the developer seem to have one common interest – that is making a successful game – the interview data reveal that the difference in their interests and priorities is one of the other challenges between them. This relationship is fundamentally formed because of "competition for ideas" for the publisher and "access to funding" for the developer (Allan – publisher senior executive). Ethan, a developer studio head, explains how a disparity in objectives and priorities between the developers and the publishers affects the publisher-developer relationship:

> *The goal of the publisher [is] to maximize shareholder value, the ideal scenario is I don't want to share any of the wealth with anyone other than my shareholders. That is the logic [behind] a lot of the breakdown in the relationship. There has always been this tension [between the publisher and developers] (Ethan – developer studio head).*

It seems the discrepancies between the objectives create some clashes between the publisher and the developer. One of the main reasons the developer forms a partnership with the publisher is because of their need for the publisher's funding. However, the developer emphasises that they are game enthusiasts and their central focus is on creating a game that is fun to play. The developer insists that the publisher's priority, on the other hand, is only the financial gain. Ben, an experienced development studio owner, states: "It's always been an industry which is just so aspirational and populated by people who just want to make the toys that they enjoy playing with… whereas a lot of the publishers, the senior management, just genuinely like money and power" (Ben –development studio owner). The developer describes the strain of the publisher-developer relationship as the tension between objectives, between the developer's creative freedom and the publisher's priorities to make money.

While depicting themselves as product-driven, the developer claims that the publisher is not necessarily interested in the quality of the game. A developer creative director describes publishers as "being obsessed by the amount of money that they are investing" (Dylan – developer creative director). He continues to state that "it is funny how rarely [he] meets people in publishers who even seem to care of what are good games, they don't seem to care much about that" (Dylan – developer creative director). As a result of the tension between objectives, one money-oriented and the other product-driven, there seems to be a divide between the two partners.

Due to these differences in objectives, the developer insists that they are not able to communicate to the publisher. They express how difficult it is for them sometimes to relate to the publisher because they know the publisher doesn't care about the games. Nigel, a developer director, admits that "[he] never ever respected any of them [the publisher team] as game developers themselves or even games players, cause they [the publisher] don't

seem to care much about games. It's all about the money for them" (Nigel – a developer director). Paul who has worked as both a publisher producer and a developer producer explains that developers feel more invested in the game they are developing, therefore they find it difficult to be directed by the publisher's team "whose only concern is money". He says:

> *Studios make games, and they're in there every day, and have heart-felt discussions on what's going to make a great product, what's the vision for this thing and so forth, and I think, it's a difficult kind of parameter to take all that passion and take all that kind of day-to-day vision and sweat and everything you're putting into it, and have what's perceived as a slightly cold publishing team, kind of walking into a meeting room saying, "Well, we're not sure we like that bit. And what's that bit all about? And why don't you cut that out?" (Paul – publisher producer).*

Here Paul points out that the directions from the publisher are not received well by the developers, because they feel that the publisher's feedback and impact on the game is only driven by their financial intentions for production.

The interview data suggest that there are some inherent differences between the publisher and the developer that will create tension in their relationship. Both parties regard themselves as "different machines" whose relationships always have a "missing link" (Laurence – publisher senior executive). They persist that the differences in knowledge and skill sets, as well as their disparate objectives and priorities, create a lack of understanding between the two. If one peruses the structure of the companies and the skills employed in each, it is evident that one is creative and the other is more finance oriented. Perhaps these differences in skill sets and expertise justify the dependencies and the collaboration between the two.

In order to explain the nature of their cross-boundary work, the participants not only repeatedly referred to the "natural" tension between the two parties, they also highlighted the power inequalities between them. They insisted that these differences and inequalities would lead to an "unending battle between the publisher and developer" (Adrian – owner of a renowned development studio), or "a one-sided toxic relationship" (Jacob – developer

creative director). The general picture that the industry portrays of this relationship is that of a monstrous publisher versus an innocent developer, where one is formidable and the other weak and frail. The nature and impact of these seemingly unequal powers are elaborated in the next section.

6.3. Power Inequalities: Evil Monsters Vs. Fluffy Bunnies?

According to the participants of this research, power inequalities play a principal part in the conflicts within the publisher and developer relationship. It is predominantly believed that "whoever provides the money has the power in the relationship" (Adam – development studio head). This implies that the publisher is the most influential party in the relationship. As well as affecting decision-making, to a great extent all throughout the production cycle, this unequal wielding of power seems to have had a role in the demise of many development studios. The almost five decade history of the videogames industry is replete with stories about the small development studios that have gone out of business because of lack of access to money to fund their projects. Failing to secure a relationship with a publisher, or sometimes the publisher's decision to cancel the projects have led to the closure of many development studios, hence the depiction (mainly by developers) of publishers as "evil monsters" and the developers as "fluffy bunnies" (Matt – publisher producer). Fahey (2015) also takes a further step and accuses the publisher of abusing the developer and calls for this "cycle of abuse" to end.

The data suggest that the developer would like to have full authority and flexibility on production decisions, including game design, budget and release date, which often cannot be the case and creates clashes. This is because the publisher is involved in decision-making at all stages of game development from concept formation to releasing the game, and they exert power and influence on the game development in order to secure their large sums of investment and increase their revenue, as a result of which, the developer often feels helpless and impotent. An experienced developer explains: "Sometimes it's hard to [disagree with the publishers], well at the end of the day, you're the little one in that relationship anyway" (Mike – developer creative director). Another high profile development studio owner adds: "The problem is when you have a publisher that's basically paying the bills, then they call all the shots, because they have the money" (Ethan – developer executive). Although the relationship seems to be reciprocal, the developer

claims that the publisher uses their position of power in order to pursue and favour their own interests, creating an imbalance in the relationship.

Conversely, a few participants express a different opinion towards this seemingly "asymmetrical" and "toxic" relationship. Depicting the publisher as a formidable partner, some developers think the publisher is indeed entitled to more rights and financial gains in the relationship. This is because they believe the publisher's multi-million investment in the project entails a bigger financial risk for the publisher. For this reason these developers feel obligated to follow the publisher's directions and allow the publisher to make the final decisions. Francis, a studio head, appreciates the publisher's significant financial contribution to the project, saying:

> *There are absolute lines in the contract and they are given. I think the bottom line of the contract is when you're spending someone else's money; they have a right to say "here are some guidelines". If you use someone else's money, you've got to move faster than them. They provide the money; you provide the pace. If they want something, you've got to deliver it before they ask a second time, because it's their money (Francis – development studio head).*

Similarly, a few participants feel they should show some respect to the publisher, because of their expertise and experience in game development. Yousef argues that "publishers' opinions carry weight, ... especially some of [their] senior people are kind of behind the glass wall and they are there, lifting the developer to make something" (Yousef – developer director). Adrian, a very successful game developer, also feels that the publisher should be respected due to their expertise and the fact that they own the product, so the developer needs to follow what the publisher asks for:

> *If someone who holds the IP like Reload Media [a renowned publisher], we have to respect their IP and, you know, they have very strong plans, and you have to kind of fit in with that and the brand team and stuff like that (Adrian – development studio head).*

Highlighting the publisher's contribution to game development, a few participants (developers) insisted that it sounded unreasonable to ask the publisher to stay detached from the development, especially due to the publisher's hefty investments in the project. However, this was found to be a rare attitude towards the publisher and most developers did not welcome the publisher's involvement in decision-making. Instead, they emphasised how unfair and asymmetrical the power distribution is between the parties and they felt they were abused in the relationship. The next section focuses on the developer's resistance to the publisher's involvement in the project.

6.3.1. Developer's Resistance to the Publisher's Wishes

The data showed that most of the participants felt bitter about having to comply with what were perceived as the publisher's whims. Although these negative feelings varied from one developer to another, they persisted among the developers in the research. Nigel, an experienced developer director, complains that:

> *Publishers are incredibly nervous and they want to micromanage everything. They try to manage something that is remote from their control. This makes the relationship difficult and fundamentally one-sided (Nigel – developer director).*

Developers' resistance to publishers' demands was partly emotional. As they themselves put it, the development team can develop a "sense of ownership" for the game they are working on: they gradually grow emotionally attached to it. They develop a sense of satisfaction by creating games and they feel most proud when they can put the stamp of ownership on the game, when they feel that they are in control of what they make. However, they experience a loss of control when they form a partnership with a publisher or when the publisher is too involved in the production. James, a developer programmer, says, "Historically and traditionally the moment the publisher gets involved, you hand over your ownership" (James – developer programmer). Therefore, the developer might show resistance to the publisher's involvement, due to the fact that they feel strongly invested in the game they are creating.

Ken has almost twenty years of experience in the videogames industry and has worked both for publishers and developers as a producer and creative director. He explains how

difficult it is for a development team to respond to the publisher's changes, and sometimes due to the level of the publisher interference, they are often confused about the vision of the game. He says,

> *We lose sight of what the game is supposed to be, yeah it is difficult, but we have to do what the person who is paying for the project told us to do (Ken – developer executive producer).*

Here, Ken emphasises how disheartening it can be to give in to the publisher's pressure to change the vision of the game constantly, make changes or add features to the game.

This resistance to the publisher is not only because of losing the sense of ownership on the part of the developer, but it is also due to some significant financial disagreements. At the outset of a project the general concept of the game, features and specifications of the game, as well as the length of the project and the resources required for the completion of the project are all specified and agreed upon. However, during the course of the project, the publisher demands continuous assessment of the game where they approve whether the developer can progress to the next stage of development. Upon the approval of each milestone, the publisher pays the developer. During this assessment and approval procedure, the publisher might request changes to the design and the game features. The developer sometimes shows resistance to these changes due to the costs that these changes and modifications might incur to the project. Jordan, a developer producer complains:

> *They [the publisher] kept asking for changes and asking for rework, but they didn't rebuild these [the cost of these changes] into their budget. It was ridiculous – we had to fund those changes ourselves (Jordan – developer producer).*

To implement the changes, the developer most often needs more resources, such as time, people and money, depending on what the changes are and at which stage of the development they are. Jacob, a developer director, explains how the publisher's constant request for changes was perceived as a financial gain for the publisher, implying that the publisher was taking advantage of the power inequality in the relationship, trying to gain more than they had paid for:

> *The publisher repeatedly tried to insert more content and features into the game than were originally agreed, in the words of one producer I worked with, in order to "get more for their money". Again, this can frequently turn into a point of conflict since the developer doesn't want to deliver more content and features than they are being paid for (Jacob – developer director).*

In contrast to this negative and distrustful attitude, there were some developers who claimed that "it [was] unreasonable to expect the publishers to stay detached from the project" (Dylan – developer creative director), expressing respect and empathy towards the publisher. Interestingly, from the publisher's perspective, it was their "absolute right" to have full authority in shaping the game and visibility on the development process (John – publisher producer). The publisher perceived their large sums of investment as a justification for their full access to the project. The publisher claimed the changes to the game and their contribution to development were critical in reducing their investment risks, and ultimately benefiting both parties involved, including the developer.

Since the level of financial investment in game development can be significant and risky, publishers typically insist on having control over the game production. However, they are aware that the developer does not always fulfil their demands for visibility and transparency over the project. Allan, an ex publisher senior executive, outlines how difficult it was when the developer would not acknowledge their direction and their constant request for clarity and transparency on the project:

> *We are giving you [the developer] tens of millions of dollars to make a videogame. That in itself is a privilege, that is a serious and risky investment and we are investing our money that we can put on shares and other areas of business. This is our money; this isn't your money. You're making a project for us, and you need to behave professionally, so it's very hard if they [the developers] don't want to (Allan – publisher senior executive).*

This section discussed the developer's resistance to the publisher's influence on game development. The data showed that the developer's sense of ownership for the game and

the extra costs for changes, made the developer unhappy to receive recurrent directions and changes from the publisher. Despite this emotional and financial resistance, however, the developer claimed that they felt obliged to comply with the publisher's demands, and as a result they felt abused in the relationship. The next section explains how the developer may feel taken advantage of and victimised by the publisher they work with.

6.3.2. Victimisation

Despite all the limitations and discontent, developers often feel they have to submit to the will of their publisher, due to the power inequalities of the relationship. Most of the developers in this study claim they feel impotent due to their financial instabilities and them being highly reliant on the publisher to run their business. Francis, the head of a development studio, says:

> *Sometimes you have to bite the bullet and do what they want. You don't have a choice. You're in the middle something that you have no control of. You're getting feedback from the publisher – they want something that is incorrect and doesn't fit in with the game ...you have no choice! (Francis – developer studio head).*

The development budget paid by the publisher covers all the cost to run the studio including the staff salaries and office overhead. Therefore, without securing a contract with the publisher, it is quite a rarity that the development studios can survive. This feeling of insecurity is also felt throughout production because the publisher has the power to terminate the contract at any point if they think the project is either unsuccessful or not in line with the company's direction and objectives anymore. Leo, a publisher executive, explains how the developer will be affected when the relationship with the publisher goes wrong: "One failed project to a developer could mean people not being able to pay the rent, not being able to buy food; the whole business will fail" (Leo – a publisher executive). This insecurity, along with the financial dependence on the publisher forces the developer to comply with the publisher's demands, hence they feel emotionally hurt and victimised in the relationship.

Due to the pressure exerted by the publisher, some developers claim that they sometimes have no option other than submit to what they are told. Brian recalls their precarious

situation with nearly 200 staff in the development studio. He said that they had to agree to make changes that seemed to be unrealistic and undoable only because they were desperate for the publisher's milestone approval and payments:

> *I was trying to make sure we have a life raft … we were trying to save our future. They wanted to make an impossible thing. And, we had to agree to make an impossible thing because otherwise we would be out of business (Brian – developer studio head).*

Brian explains that as the studio head, he felt responsible for the 200 people working for him. He knew they were not able to produce what the publisher had demanded, because the core technology they were using to make the game was not sophisticated enough to match the requested features and the timeframe was too short. In hindsight, he thinks it was "stupid" to accept those terms, but he still thinks they had no way out.

The developer's dependence on the publisher's funding seems to influence the dynamic of the relationship. But the developer also blames the publisher for using their power and exerting pressure on the development team in order to gain control and influence over the project. Todd, another studio head, explains that the publisher reminded them relentlessly about their huge sums of investment in their project. Hence, putting the team in an awkward position so that they felt they had to give in to demands:

> *We had made top-rated games and had considerable achievements and we were so proud of it. We knew how to do this job. That [the way the publisher treated us] wasn't the way to do things with our team, treating us like children and you have no ability to say no to them …We were locked in and it was difficult to change the course. We found it difficult to handle. It always comes down to money. They were constantly telling us how expensive the budget was. We felt guilty (Todd – development studio head).*

According to some developers, the publisher sometimes even resorts to direct threats in order to gain what they want from the relationship, and due to their financial instability, the developer has no choice except agreeing to the terms and conditions. But, as a result of

this, they end up feeling resentful and abused. Matt talks about his experience in dealing with the publisher's pressures on production. He delineates:

> *They [the publisher] would say, "you have to change this, this and this and if you don't change it, we are not going to pay the milestone". We were on a relatively small budget, but if we were not getting that 100 grand, I knew the boss had to go to the bank and borrow a 100 grand and pay the people their salaries, this was [expletive]. So it was a big deal when they threatened us like that (Matt – developer producer).*

Another example of the publisher's threats can be seen in Ken's statement below. Ken, as a developer producer, explains how the publisher threatened them to agree to some new timelines in the production, and how futile he found the discussions. When Ken failed to convince the publisher director that the timeline was too short for the production, the director simply resorted to warning him that this might be relayed to the shareholders, and might result in the termination of the project, so the developer had to agree with the terms:

> *They said "you have to release the game in nine months" and I said, "It can't be done". They said, "You're just being really negative". I said, "It doesn't matter, but I'm just telling you it can't be done". We had these long arguments and I couldn't understand why they wouldn't believe me, they would not accept it. In one particular heated discussion the [publisher] producer said, "Well, I'm going to have to go and tell my shareholders that they are not going to get their bonus" (Ken – developer executive producer).*

While the developer insists on depicting themselves as a victim in the relationship, the publisher presents a different perspective. As explained earlier, the publisher feels the game production should be a collaborative experience, in which the publisher's contribution and knowledge has a critical role in making a profitable product. The publisher also justifies their need to have influence and visibility on all stages of game development; they highlight that their technical input is critical to the development process and more importantly their large investment necessitates having some visibility on how their money is being spent. Allan explains: "Ultimately the developer has the choice to

sign the deal with the publisher or not? They can walk away, it is a democracy, they don't have to sign that contract. So they have to be very clear in their own mind on what that relationship is based on" (Allan – a publisher senior executive). Here, Allan claims the developer is not at all a victim and that the developer is aware of the publisher's demands and the terms of the contract, so they should act accordingly.

The publisher also states that cancelling the project with the developer is not always an easy decision for them, despite how it appears. Here a publisher senior executive outlines that these decisions are most of the time down to "shareholders and obligations to financial stakeholders". He continues:

> *This is always the worst side of the business, we have to always make difficult decisions like cancel that project, close that studio, shut down that area of business. Yeah, it happens a lot, it's a really difficult situation (Laurence – publisher senior executive).*

Leo adds that they sometimes have to cancel the projects, because some projects seem to be making a loss, therefore, they have to prevent more loss, like what other businesses in other industries do. He, then, compares the situation to how manufacturing companies deal with their faulty vehicles, highlighting the emotional versus rational attitude of the developer and the publisher, respectively towards game production and the problems arising from their collaboration:

> *[The publishers] have to make that call, it's just like in Fight Club or auto manufacturing and their failure rates on vehicles. If the amount to the payouts is going to be less for a faulty vehicle, than cost of fixing the vehicle, then let the accidents happen and we will do the payouts. So it's likely the same; it's purely financial decision and an insurance-based risk (Leo – publisher executive).*

This section outlined the power inequalities between the publisher and the developer. Developers in this study highlighted that the publisher has more access to power and as a result they felt impotent and under pressure. However, the data show that the publishers had a different perspective on these claims of power inequalities. Interestingly, the

secondary data show that the positions of power change throughout the production cycle and it is this change in the balance of power which is examined next.

6.4. David Vs. Goliath?

The second level data (the contradictory data) reveal that power inequalities are not constant throughout the development process, but they change significantly over the course of a project. The dominant rhetoric in the industry depicts the work between the publisher and developer as a "toxic" and "abusive" relationship (Jacob – a developer director; Fahey, 2015), where the developer is the vulnerable party. Similarly, most of the participants in this research (mainly the developers) attempted to highlight that there were power inequalities in the relationship, and the developer did not have access to power resources. Interestingly, the second level data show that it was the developer's wielding of power that controlled and shaped the relationship at the later stages of the project and this power dynamic between the two parties had a significant impact on knowledge practices and processes.

A striking sign for the developer's wielding of power and control on the project was the anxiety and fear that all the publishers and publisher producers in the study expressed, while recalling their experiences working with the development studios. These publishers unanimously stressed how vital it was for them to finish the game with the quality, time and budget that was agreed upon. But they stated that there was "a growing suspicion and fear that the developers [were] not going to deliver" (Simon – a publisher executive). They explained that at the later stages of the development process, the developer tends to ask for more resources in order to implement changes to the project, and changes most of the time require more time and more money. Considering the multi-million investments the publisher makes on each project, it seems to be reasonable to ask for a return on investment. In some cases, it was reported that if the developer failed to complete the project, it was the publisher's stakeholders who were at risk. Allan – an ex publisher executive – highlights that "if the [developer] doesn't deliver what they had promised, [the publisher] could go under... the developers have proven that they don't deliver what they have been asked". Rob – a publisher executive – adds that "there is an intrinsic fear [among publishers] that [they] are going to get abused [by the developer]" (Rob – publisher producer).

The data reveal that developers resort to knowledge hiding and deceptive practices during a project in order to control the relationship – I present the data and elaborate on knowledge hiding and deception in chapter seven. Chris, a publisher producer, admits that "developers deny access to the project and that is what a lot of them do". The data highlight that publishers show more flexibility and leniency towards the developer when a project has progressed and they are at the later stages of the development. This is perceived to be due to the large sums of cash that the publisher has already invested in the project, thus at this stage completing the project and making some return on the investment is seen as the publisher's priority. Adam, the head of a development studio, explains:

> *Once we got well underway and we were proving [to the publisher] that the game was awesome, then we would worry about asking for the extra money (Adam – developer studio head).*

Similarly Todd, the head of a development studio, admits that at the outset of the project they can't influence the decision making, but at the later stages of the project when the publisher is fully and financially involved they have more leverage in the relationship:

> *It's actually easier to ask for more money when the [publisher] likes the game and it's nearly done. We used to use the phrase – "get them nice and pregnant". Asking for another ten per cent more money up front in a negotiation is hard. Asking for an extra ten per cent more time is easier if the game is looking good and we've nearly delivered (Todd – development studio head).*

Having recognised this publisher's weakness, the developer, in return, uses opportunistic behaviour and practices to be on equal grounds (I focus on these practices in chapter seven). By doing these, the developer (1) secures the project and their business, (2) reduces the risks of project cancellation and (3) makes some profit. The developer states:

> *You don't want to fail; they [the publisher] can knock you down ... it's hard to have a conversation [with them] about what is going wrong (Nigel – development studio head).*

This statement reiterates that by sharing knowledge with the publisher, the developer feels they might risk the project and the publisher might cancel the development or not approve the milestone. This might be true at the earlier stages of the project, however, this dynamic changes at the final stages. This is when the developer might actually reveal changes to the project and ask for more resources, knowing that they have more leverage over decision making compared to the publisher at this stage.

An interesting finding here is that the knowledge hiding and deception seem to empower the weaker party in the publisher-developer relationship and somehow this power dynamic becomes a productive force in the relationship, enabling the work between two seemingly unequal parties. According to Ben, they have to "use any tricks .... to keep [themselves] in business" (Ben – development studio head). Ken, a development producer, admits that they "often keep stuff under the radar [conceal stuff], purely so that [they] could still get paid". In other words, the developer suggests that they use knowledge practices and power games to secure themselves in the relationship.

While the prevalent rhetoric in the interviews and industry publications emphasises the existence of power inequalities between the developer and publisher, probing helped me generate another level of data that show "this is a myth that publishers are evil and developers are fluffy bunnies" (Paul – publisher producer). The interview data highlighted that the publisher-developer dynamic changes in the course of a project and developers gain more leverage in the relationship at the later stages of development.

6.5. Conclusion

This chapter focused on the power structures in the publisher-developer relationship. I explained that both parties attempted to portray a challenging and irreconcilable relationship ruled by a "natural tension" between the parties. The participants claimed that inherent differences in knowledge and skill sets made it difficult for different disciplines to work across boundaries. They also introduced disparate objectives and interests as the cause of conflicts, saying publishers were more rational and financially oriented, while developers were strongly emotional and product-driven. The dominant rhetoric within industry and the research depicted the publisher as an "evil monster", and the developer as

a "fluffy bunny", emphasising the power-inequality between these two. It was stated that these power inequalities were another source of conflict in the relationship and this resulted in the developer feeling victimised and mistreated.

It was concluded that the differences in knowledge and skill sets, as well as the disparate objectives might exist to some levels, but they might not be as strong or black and white as the participants try to depict. Despite what the publisher and developer claim, lack of understanding also might not be of paramount cause for the challenges. Instead, the second level of data implies that the partners start the relationship from a position of conflict and antagonism, where both use their positions of power to manage their conflicts, thus this lack of understanding with which they try to describe their relationship might not be as bold as they want it to be. The data show that the publisher and developer are involved in a power game where both have access to resources at different stages of the project, and this helps them maintain a working relationship, adding another side to the story of good versus bad that they (mostly the developers) attempt to portray.

Chapter Seven: Trust and Knowledge Sharing in the Publisher-Developer Cross-Boundary Work

This chapter presents the data to explain how the publisher and developer manage their cross-boundary work. I start with presenting the first level accounts, highlighting the role of trust, communication and honesty in facilitating the publisher-developer relationship. Moving to the second level of data (as presented in chapter four, section 4.4), I reveal the role of distrust in this cross-boundary collaboration. I should highlight here that I have not discussed the concept of distrust in my literature review chapter because this concept emerged as a key finding when I was generating and analysing my data. Here I introduce the concept of distrust, presenting the relevant data. However, it is in the discussion chapter that I define and develop the concept more in detail. In this chapter, I also show how the publisher and developer use knowledge hiding, collusion and deception in order to create a working relationship.

7.1. Trust, Communication and Honesty

According to the participants of the study, trust, open communication and honesty facilitate knowledge integration and lead to a successful relationship. The first level data highlight these elements as crucial for development both within the development studio and in the developer-publisher relationship. Angelo, a creative director from a development studio, explains:

> *When you have open and honest communications on open accounts, then the publisher can see what you are doing, that's the best way to work. Creativity is about full disclosure, face-to-face interaction and honesty with each other (Angelo – developer creative director).*

A publisher producer emphasises that transparency in the development process, decision-making, and sharing the knowledge between different disciplines are instrumental in the publisher-developer relationship. He puts it:

> *I advocate transparency as the main method of working, with acknowledgment that, you don't have to micro-manage every single different aspect of every single different discipline. The more transparent any group is with another, the better they're going to work together and the better the communication is going to be (Laurence – publisher executive).*

Matt, another publisher executive, suggests:

> *When we can communicate clearly, regularly and efficiently, and with as little friction as possible, the project is going to work. Being transparent and honest is all part of that too. Communication is really a big factor (Matt – publisher executive).*

Respondents claim that open communication will help build trust between partners, as another developer highlights that: "This [publisher-developer] relationship is just all about honesty and about trust" (Jordan – developer producer). Apparently, both the publisher and the developer regard communication, trust and honesty/transparency as critical factors in maintaining an efficient relationship. However, the data analysis reveals that this was in fact an idealised portrait of the publisher-developer collaboration. Although adamant that openness and honesty were key, in practice this was a significant challenge. A publisher producer confirms:

> *The key to the relationship is maintaining and creating that transparency, having consistent communication when priorities have changed and explaining to each other about those priorities. But keeping that communication line open and honest and transparent as possible is always a challenge (John – publisher producer).*

This suggests that this idealistic picture presents some challenges and what works between the publisher and developer is the opposite. The publisher producer explains above that the parties' priorities might change throughout the development process. In other words, he is implying that the creative process of development necessitates change, but communicating these changes with the other parties is not always possible. He calls it a challenge, but the

interview data show that it is not always beneficial to the parties to share all the information with each other.

In spite of this ubiquitous rhetoric that open communication, trust and transparency are instrumental in managing the cross-boundary work between the publisher and developer, the second-level data analysis reveals that the publisher and developer are, instead, engaged in a highly political and distrustful relationship (the relevant data is presented in the following section), where specific tactics other than open communication and transparency are being utilised to facilitate the collaboration and knowledge integration in the relationship. These tactics will be presented in the following sections of this chapter. But before addressing these tactics, the very next section elaborates on accounts of distrust in the publisher-developer relationship.

7.2. A Distrustful Relationship

The second level data analysis reveals that the partners actually begin their relationship with high levels of distrust and they sustain this distrustful relationship all throughout the process. The participants occasionally hint at how fearful they are of each other. They feel they might be abused or misled by the other party, which they think might result in great financial loss for them. In this section, I firstly present some data that portrays these general negative feelings of distrust on both sides and their roots before examining in detail the challenges of this collaboration.

Every respondent at the senior management level, including both developers and publishers, had something negative to say about people on the opposite side. A developer creative director explains that in the publisher-developer relationship “from the start, everything sounds incredibly negative. Right from the start, things are ‘we do it this way, you do it that way’” (Ken – developer executive producer). This developer emphasises that from the very beginning of the relationship, both parties do not trust each other; they are more focused on securing their own interests rather than integrating with each other and developing a common understanding. This is another indication of the "us and them" culture, discussed in chapter six, that seems to be prevalent in the publisher-developer relationship. Another developer highlights the general negativity of both parties towards each other in this statement: “We didn’t believe half the things the publisher said to us.

Publishers didn't believe half the things we said to them" (Jordan – developer producer). A publisher executive also expresses their lack of trust towards the developer by stressing that they are always "irritated" by the developer:

> *The publisher is always irritated because the developers are not delivering what they said they would. And it just continues like this and it's a vicious circle. There is a growing suspicion and fear that the developers are not going to deliver (Simon – publisher executive).*

Here, the publisher executive refers to their worries over the developer's performance. The publisher seems to be constantly anxious that the developer is overpromising, or they might not deliver the game with the quality and within the time frames agreed and expected by the publisher. In the next two sections, I elaborate on the sources for the developer and publisher's negativity towards each other, explaining that this feeling of negativity forms the distrust between the two parties in the relationship. This develops a better understanding of the intricacies of the publisher-developer collaboration and their distrustful relationship.

7.2.1. Sources of the Developer's Fears and Negativity Towards the Publisher

The data analysis shows that there are high levels of negativity and distrust among developers towards the publishers. While there is all this rhetoric about trust, at the same time the respondents conceptualise each other in a negative way. The data analysis shows that the developer's negativity is rooted in their fears that they might be let down or exploited by the publisher. Below, I discuss the sources of this fear and negativity, in order to elaborate on the lack of trust in the publisher-developer collaboration (see Table 10 on the next page).

Sources of the Developer's Fears and Negativity towards the Publisher	
Illustrative Quotes	**Key Themes**
1. Milestone Payments "I think what puts some strain between the two is always the fear from the developer that the publisher is not going to sign something, or pay when they're supposed to pay or change stuff" (Developer Director- 12PJ).	**1. The developer's financial dependence;** **2. The iterative and creative nature of developement;** **3. The subjectivity of assessment criteria**
2. Project Cancelation "If the publisher cancels the contract, then I've got these big staff overhead. I either have to keep all those people till I have the next project, or I have to pay at least a month of all of that salary out of my bank account. That's a lot of money and that can cause me to go out of business. So I'm scared, if they cancel the project, I am in big trouble" (Developer Executive- JA).	**1. The developer's financial dependence;** **2. The publisher's access to power resources;** **3. The developer's insufficient negotiation power.**
3. Budget "Whether we are successful or not is down to the publisher. Because they need to market the game and they need to have spotted a market niche that they wanted to fill and believe in that enough. If they don't keep their promise [and don't spend the budget they promised us], we would fail" (Studio Head- 5JB).	**1. The developer's financial dependence;** **2. The publisher's access to power resources;** **3. The developer's insufficient negotiation power.**
4. Making a Profit Disproportionate to their Input "The publishers seem to want a contract set up, so that if the game made the loss, the developer takes the loss. If the game made a profit, the publisher would keep the profit" (Studio Head- 6TB).	**1. The publisher's access to power resources;** **2. The developer's insufficient negotiation power.**

Table 10. Sources of the Developer's Fear and Negativity Towards the Publisher

Milestone Payments

The milestone payments are the developer's biggest concern. Milestone payments are the publisher's periodic payment to the developer that has been agreed upon in the contract. Each payment is contingent upon the developer's successful completion of contractual

milestone deliverables. At the end of each cycle, the publisher reviews the updated product and the progress of the work. However, the publisher completes the next payment only if they approve the developer's milestone deliverable for the previous phase. This means that every four to six weeks, the developer faces the risk of losing their payments or potentially losing the whole project. Andrew, a developer producer, explains:

> *I think what puts some strain between the two is always the fear from the developer that the publisher is not going to sign something, or pay when they're supposed to pay or change stuff (Andrew – developer producer).*

Here, the developer suggests how important it is for them that the publisher approves or as he puts it "signs" the milestone deliverables. The developer is constantly anxious about the approvals and the periodic payments, because the studio is financially dependent on these payments. However, due to the creative nature of the game development, the approval criteria are not always written or specified. Therefore, the approvals are often highly subjective, leaving the developer unsure and concerned whether they have met all the requirements, or if they have done enough to secure the next payment. A developer executive confirms: "The evaluations of milestones is always subjective on the publisher's side" (Ben – developer executive).

The publisher's assessment is considered subjective mainly because the publisher sometimes does not specify the exact criteria they are looking for – this is due to the fact that the publisher claims that they would like the game to be enjoyable but this aspect of the game is almost immeasurable, hard to define and completely subjective. Timothy, a publisher executive, confirms:

> *The game's got to be fun, but it's tricky, because it's incredibly subjective, because what somebody might find as fun, might not be fun for the other (Timothy – publisher executive).*

Ethan, a developer director, also explains how the subjectivity of the game assessment creates confusion and lack of certainty for the developer:

> *There are some grey areas that can't be measured properly, these are milestone criteria that are mainly subjective themes, and they are not black and white. The contract says this feature should be completed seventy per cent and the game should be fun. But how can you measure fun? We've been stuck in that kind of situation where you can have all of the logic and common sense and great ideas in the world but the guy who is on the other side is an idiot, he doesn't think it's fun. What do you do? (Ethan – developer director).*

This puts so much pressure on the developer, because they believe that the subjectivity of the milestone approval will give the publisher the opportunity to blame the developer, without providing any solid reasons for why they have cancelled the project. So the creative and iterative process of the game development, as well as the subjectivity of the publisher's assessment all lead to the developer's lack of trust and constant fear and uncertainty regarding crucial milestone payments.

Project Cancellation

Project cancellations can impact hugely on a development studio, leading to its demise, while it might only affect the publisher slightly, thus highlighting the developer's dependency on the publisher's funding. The publisher is generally the sole source of funding for the developer. In addition to covering the production costs, a publisher's periodic payments will run the developer's company costs and overheads. In other words, these payments keep the developer afloat. Recalling their experience with a publisher, a studio head complained that when the publisher decided to cancel their project, it resulted in the death of the company:

> *It really hurt us; they decided just to tear our clothes out. I have many examples of these cases (Ben – developer studio head).*

Here the developer uses the metaphor "tear our clothes out", to emphasise how destructive it was for the development studio when the publisher decided to cancel the project. The metaphor highlights the perceived cruelty and unfairness of this decision, which nearly led the company into administration.

The data show that the developer feels the threat of losing the project and feels anxious, by the same token, throughout the whole development process. Adam – a developer producer – confirms:

> *If the publisher cancels the contract, then I've got these big staff overhead. I either have to keep all those people till I have the next project, or I have to pay at least a month of all of that salary out of my bank account. That's a lot of money and that can cause me to go out of business. So I'm scared, if they cancel the project, I am in big trouble (Adam – developer producer).*

Nigel, another development studio head, complains that this is an on-going worry and the developer never feels secure in the relationship. He states that: "the publishers shouldn't be putting the project at risk every month" (Nigel – developer studio head).

Despite their massive investments, the publisher can cancel projects for various reasons. As I have shown, videogame development requires a significant investment, and the creative nature of development does not allow the publisher and developer to have a clear picture of the game with the exact specifications, budget and timelines formed at the very beginning of the project. The production cycle is an iterative process, in which game features and its requirements will evolve gradually (Chandler, 2009). As a result, this can be a highly risky investment for the publisher. Therefore, at any point in the production process if the publisher is confident that the project will not finish within the terms that are in line with company interests or if they feel the project might not return their investment, they may cancel the contract to prevent any further financial loss and in order to protect themselves. Below a publisher producer explains how they had to terminate their contract with the developer because, after spending nearly nine million pounds, they were still unhappy with the technical aspects of the game and thought the faults could not be easily fixed. At once, they decided to halt additional investment and terminated their collaboration with the developer:

> *It's always uncomfortable to cancel the projects. In our project, I knew well that we could never make the game that we've been describing, for three and a half million pounds, but my boss's attitude was, well let's just start making the game, and then*

> *if it is good we'll finish it, and if it's not good, we'll cancel it anyway. So they proceeded with the project and they spent about eight to nine million on it, but later they cancelled the project, because they weren't happy with the tech [technology]. It was terrible, they made the team redundant and the developer wasn't impressed of course (Paul – publisher producer).*

Simon, another publisher producer, delineates the rationale for the publisher's decisions to cancel projects:

> *The publisher wants more security and assurance that they are not wasting their money. So they are willing to spend forty per cent of the budget to de-risk that massive chunk of money that they are going to spend [secure their investment], because half way through the project, they know better what the game is going to be like (Simon – publisher producer).*

This producer confirms that even if the contract is signed and even half way through the development process, if they are not happy with the game and its progress, they will cancel it. As discussed earlier, for a large multinational organisation, it seems that discarding some investment and one project might not be a big deal. However, for a small development studio this can be the death of the company. In sum, my data reveal that the developer's financial dependence together with the publisher's financial power create insecurity, and with it fear and negativity on the part of developers.

Budget

The interview data revealed that the developer has uncertainties and worries about the project budget spent by the publisher. Before signing a contract, the production budget is estimated and approved by the two parties. The project is fully or sometimes partly funded by the publisher. However, in most cases the publisher also deducts parts of the budget for the areas they would contribute to the project, such as concept art, voice recording, marketing, etc. In these cases, the publisher accepts the responsibility to cover the costs of certain services. The developer argues that there is no guarantee for any of those promises made by the publisher, or that they might deliver the service but not with the quality they had promised. As a result, this adds to the developer's fear and distrust noted above.

The developer's biggest budget worry is allotted to marketing. The participants believe the marketing and PR budget has an important role in increasing the game sales. However, in a sizeable corporation with a big portfolio of projects with various developers, sometimes they reallocate their marketing budget and put more emphasis on the games that seem to be more profitable. So if the publisher decides to cut a game's marketing budget and re-invest it in another project that potentially offers greater reward, this could massively affect the game's and the studio's profitability – even their survival. The fact that the publisher does not always stick to marketing promises made at the outset is a cause of deep, on-going anxiety amongst the developer respondents. Worse still, they have no power to fight back or challenge the decision. Ethan, a developer executive, describes:

> *Whether we are successful or not is down to the publisher. Because they need to market the game and they need to have spotted a market niche that they wanted to fill and believe in that enough. If they don't keep their promise [and don't spend the budget they promised us], we would fail (Ethan – developer executive).*

In other words, the developer is never sure if the promised amount has been actually allocated to the marketing. This financial dependence and not having enough negotiation power creates high levels of distrust and fear for the developer towards the publisher.

Making a Profit Disproportionate to Their Input

The data show that another source of the developer respondents' distrust is rooted in their perception of their contract and how the royalties are split between them and the publisher. The developer often feels the publisher contract is unfair, and that the royalty they receive is not proportionate to their input. Here a developer director insists that the profit is split unfairly between the parties:

> *So you are never going to make any royalties. The problem is there's not much money in the pot to begin with because the retailer takes so much, the market is very competitive and the publisher takes a cut that allows the publisher to run. If you are very lucky, you have a ten per cent margin that will be split unfairly between you and the publisher (Mike – developer director).*

Similarly, all developers believe that the contract is designed only to benefit and protect the publisher. Here, a renowned development studio owner explains:

> *The publisher seems to want a contract set up, so that if the game made the loss, the developer takes the loss. If the game made a profit, the publisher would keep the profit (Todd – developer studio head).*

Leo, a publisher executive also indirectly confirms this lack of trust on the side of the developer by using the metaphor "crush", etc. to show his awareness of the developer's distrust towards the publisher. He says:

> *My biggest challenge with a developer is to convince them that we aren't about to screw them, and that we're trustworthy. The developer is a tiny team; we are a big entity, so I have to prove to them in a short period of time that we're not going to step on them and crush them (Leo – publisher executive).*

As highlighted above, there is a general negative perspective toward the publisher among the developer that the risk and the profit are both shared disproportionately between the parties, and that the developer feels more at risk, with little prospect of financial gains at the end of the project. Allan, a publisher executive, disputes this as below:

> *Ultimately the developer has the choice to sign the deal with the publisher or not? They can walk away, it is a democracy, they don't have to sign that contract if they are not happy with it (Allan – publisher executive).*

This publisher executive believes that the developer is completely aware of the contract's terms and conditions, and it is their decision to start the project with the publisher. However, the developer believes that most of the time they only have two options: "We either refuse to sign the contract and go out of business, or we sign the deal for a minimum profit" (Andrew – developer producer). The developer's financial dependencies seem to give them less negotiation power, where they yield to any terms only to secure a project. However, this will result in some resentment that resides all through the project.

7.2.2. Sources of the Publisher's Fears

The interview data reveal that the publisher likewise distrusts the developer. The publisher feels they might be let down by their partner and, as a result, incur a financial loss. Laurence, a publisher executive, asserts: "I just wonder how these two parties can trust each other in such a relationship? Well, they often don't. I don't know any publisher who trusts their developers" (Laurence – publisher executive). Table 11 and the following two sections elaborate on the areas where the publisher feels insecure and concerned about their collaboration with a development studio.

Sources of the Publisher's Fears and Negativity towards the Developer	
Illustrative Quotes	**Key Themes**
1.The Developer's Failure in Quality Delivery "Sometimes lack of proximity to the studio makes it difficult for [the publisher] to have full presence there, so [they] have to resort to videoconferencing and trust the developer to deliver what they promised. But sadly developer always fail to deliver" (Publisher Producer-BS).	**1. Risky investment;** **2. Creative and iterative process of video game development;** **3. Difficulty in maintaining full transparency.**
2. The Developer's Failure in Delivering the Game on Time and Budget "The publisher is always irritated because the developers are not delivering what they said they would. And it just continues like this and it's a vicious circle. There is a growing suspicion and fear that the developers are not going to deliver" (Publisher Executive- RL).	**1. Risky investment;** **2. Creative and iterative process of video game development;** **3. Difficulty in maintaining full transparency.**

Table 11. Sources of the Publisher's Fears and Negativity Towards the Developer

The Developer's Failure in Quality Delivery of the Game

Developers failing to deliver the game with the expected quality as agreed and approved by the publisher is one of the publisher's main worries in their collaboration with a development studio. This quality refers to the game features, concept, technology and the scope that the publisher expects the game to reflect. Since videogame development is a highly creative and iterative process, the game specifications will evolve gradually and it is almost impossible to determine the game features and scope at the outset of the contract. That is the reason why the publisher fears receiving a game that is different from what they expected. Here, a former publisher producer admits that changes in the game are unavoidable and an indispensable part of the creative process. He says:

> *It's quite difficult sometimes to nail people down on what the game is earlier on. The game evolves and gets even better, I don't think I ever started a game where I had a really clear idea of what it would be in the end and even if I did, it would have never been mapped and I think that's just because they're very complicated things – even with really simple games you want to evolve a little bit in time (Yousef – ex publisher producer).*

This lack of clarity on what the game is going to be like at the end of the project makes the publisher's investment highly risky. So in order to protect themselves the publisher expects to be involved in the production throughout design and development. However, the publisher's involvement differs from project to project, and from studio to studio, depending to a large extent on the publisher's level of investment. If the publisher has invested large sums into the project, they allocate more resources to monitor and supervise the project in order to secure a sound return. As a result, they will be more concerned about the quality delivery of the game. Therefore, the publisher's presence at the studio to monitor the project varies from weekly to monthly or sometimes quarterly.

The interview data show that the creative and iterative process of the game development, and as a result, the unpredictability of the game development makes the publisher's investment highly risky. Sometimes lack of proximity to the studio also makes it difficult for the publisher to have full transparency on the project. This makes the publisher extremely nervous for their investment. This issue is returned to in section 7.3. and 7.3.1

where I discuss knowledge hiding practices – these sections develop our understanding of the publisher's distrust and their lack of transparency over the project.

The Developer's Failure in Delivering the Game on Time and Budget

Timely delivery refers to the completion of the project within the timelines expected, agreed and approved by the publisher. The term "on budget" is frequently used by the participants referring to the completion of a project within the anticipated financial limits that are approved and paid by the publisher. For the publisher, it is critical that the game is delivered within the set timelines and budget. The data also suggest that one of the publisher's main concerns is the developer's failure to achieve this.

The publisher sometimes plans the game to be released concurrently with a movie or at a special time of the year when the sales are predicted to be the highest. This is another reason why the completion of the game within the projected timelines has paramount significance. The following statement by Jing, a publisher producer, provides an example of this case:

> *So it was a big deal for us, we really needed that game to come out on the day that the film came out, we needed it far more than anything else. We'd paid £110 million to company X for the licence [of the game], so that's a lot of money, so we really needed to recoup money on that investment. We had discussed [with the developer] that over the course of the project, changes could be made a little bit, but if we wouldn't get this game out in time, we were missing a massive opportunity to make millions (Jing – publisher producer).*

The game production budget sometimes reaches multi-million pounds. Since game development is an iterative and creative process, the changes incurred to the game sometimes require extra investment. The publisher does not welcome this additional investment. However, where they have already made a significant investment, they sometimes have to consent to the additional expenditure simply in order to get the project through to completion. Allan, a publisher executive, explains:

> *It is very tricky when the budget is so high, and literally if the studio [developer] doesn't deliver what they had promised, the company [the publisher] could go under (Allan – publisher executive).*

Here, the publisher is referring to the quality delivery, timely delivery or delivering the game "on budget".

The data suggest that finances play a big role in creating the tensions between the publisher and the developer. Any changes to the timelines and the budget inflicted on the game by the developer might affect the publisher financially; that is why the publisher is constantly concerned about these changes. While the publisher expects the developer's loyalty to the original plans and timelines, the developer justifies the changes by stressing how unpredictable the process of game development is and regards the changes as an "indispensable part of creative process" (Marcus – developer lead artist).

Although the unpredictable and iterative nature of videogame development plays a great part in the publisher's investment concerns, other factors also contribute to the publisher's lack of trust in the developer. Discussing his anxieties about quality and timeliness, a publisher producer hints at the fact that the developer might fail to deliver. He states:

> *The publisher is always irritated because the developers are not delivering what they said they would. And it just continues like this and it's a vicious circle. There is a growing suspicion and fear that the developers are not going to deliver (Chris – publisher producer).*

While depicting themselves as highly professional and collaborative, the publishers in the research often accuse the developer of treating them unfairly and acting unprofessionally. A publisher producer uses the word "abuse" in order to highlight his distrust: "There is an intrinsic fear [among publishers] that you are going to get abused [by the developer]. So you end up being guarded because you don't want to get hurt" (Rob – publisher producer). Allan, a publisher executive, adds:

The publisher doesn't trust their developers, because, I think a lot of developers are pretty badly behaving, and this is part of the tension between publisher and developer all the time (Allan – publisher executive).

In this quote, the publisher blames the developer for the tension in the relationship: he rather vaguely explains that the developer does not always act professionally and their actions have had consequences for the publisher. In his view, the consequence is mutual distrust.

This section has elaborated on the publisher-developer distrustful relationship, presenting the participants' perspectives on the sources for the tension between them. The "us and them" culture dominates the publisher-developer relationship, where both parties distrust each other from the outset and blame the other party for their conflicts and challenges. So participants from both sides talked about their fears in the relationship and explained that the creative and iterative process of videogame development, the risky investment, the developer's financial dependencies, as well as their uneven access to power resources were the main reasons behind their mutual distrust. The next two sections (7.3. and 7.4.) present a second level analysis, interpreting participants' sporadic and contradictory comments on the tensions and challenges of their collaboration and revealing that there is another layer to the story, which is opposite to the idealistic picture all participants attempted to depict at the beginning of their interview session. The second level analysis reveals that both the publisher and developer use some tactics other than open communication and transparency to protect their own interests and make the collaboration successful; this will shed more light on why both sides felt they were being abused or exploited.

7.3. Knowledge Hiding

I discussed earlier that both the publisher and the developer felt anxious in the relationship and didn't trust each other. In this section, I talk about the tactics the parties use to maintain a working relationship in their collaboration, thus clarifying why the parties feel they may be being exploited and abused.

I mentioned in section 7.1 that when I asked the participants how they could maintain a successful collaboration, they all unanimously emphasised transparency and knowledge sharing as the key to their relationship. However, at later points in their interviews both developers and publishers either directly or indirectly accused the other partner of not being transparent and open in the relationship. Olly, a publisher producer, confirms:

> *Transparency might make things easy. However, that's not always possible, and that is just the nature of business (Olly – publisher producer).*

The publisher asks for transparency from the developer over the quality, time and the budget required and spent on the project because they want to make sure the developer will deliver a game with the specifications and within the approved temporal and financial limits (see Table 11 for more explanation). On the other hand, the developer expects the publisher to be transparent in their decisions pertaining to the project cancellation or milestone failure (see Table 10 for more explanation). However, the data show that gaining transparency over the above areas is a challenge for the parties. In other words, not being transparent works better for the collaboration. As a result, both sides are involved in an on-going power struggle to gain knowledge over the project, as withholding knowledge and not being transparent can empower the partners in the relationship. The data show that the parties gain control over the project and can secure themselves by withholding some levels of information. This is Chris's perspective on transparency in the publisher-developer relationship:

> *I say a big challenge for us is simply visibility. Developers have become jaded because of previous experiences where they felt that the publisher has demanded too much visibility in terms of how they manage their projects. Developers deny access to the project and that is what a lot of them do (Chris – senior publisher producer).*

Yousef, an industry informant, explains that knowledge hiding is a common practice in the industry, but people refer to it as lack of "transparency" because they do not want to directly accuse each other of dishonesty or lying. He explains:

These days, people swap the word transparency with honesty. Saying someone has been dishonest seems to be a bit harsher than saying someone hasn't been transparent. But, the reality is that publishers are hiding things from developers, developers are hiding things from publishers. That's how it works (Yousef – developer director and ex publisher producer).

The interview data suggest that both the developer and publisher hide knowledge to some degree from each other in order to protect themselves and reduce the risks in their relationship. Table 12 outlines the areas that the developer and publisher are more likely to hide knowledge from each other. The following two sections also elaborate on Table 12.

The Developer's Knowledge Hiding	The Publisher's Knowledge Hiding
1. Game Specifications and its Scope "The publishers can't trust the developer, because the developers are not honest about things. So rather than invest time and resources in explaining the consequences of decisions [pertaining to the game] in a mature way, most of them hold information." (Publisher Producer- 15AE).	**1. Motives and Decisions** "The publisher had another agenda and that was why they wanted to kill our project. So they decided that they should be spending the money on something else than us. Then they tried to manufacture our failure, and that was a very unpleasant situation for the whole studio. I think it's incredibly common in the industry that publishers knock the studio down due to change of their plans" (Developer Producer - 1MK).
2. Need for Additional Resources "Some of the studios are not honest and conceal the truth. A lot of developers try to keep their cards close to their chest and our projects have run late because of it and because there wasn't honesty and early enough warning about things that had gone wrong or changed. When they conceal issues, things might fall apart." (Publisher Executive- 32RL).	**2. Budget** "Another very disappointing experience was when we ended up working with XX for Project A. They were charming and wonderful and promised the earth to us very early on in the relationship, but when it came to going to market, they just lost interest in the project entirely, because they had other things that were more important to them. When we asked them to give us numbers, they simply refused to answer. What could we do? We had no money to take them to court" (Studio Head-SE).

Table 12. Knowledge Hiding Based on the Second Level Analysis

7.3.1. The Developer's Knowledge Hiding

The interview data reveal that the developer sometimes withholds knowledge from the publisher mainly in the following areas:

Game Specifications and Its Scope

Due to the creative and iterative development process of videogame production, changes to the game concept and features are inevitable. But sometimes the developer intentionally

does not reveal the changes made to the game or existing problems in the development to the publisher. According to Adrian, an industry informant:

> *The publishers can't trust the developer, because the developers are not honest about things. So rather than invest time and resources in explaining the consequences of decisions [pertaining to the game] in a mature way, most of them hold information (Adrian – developer studio head).*

Thus the developer regularly ceases to share knowledge about the details of the game in order to prevent any creative clashes with the publishers. The developer fears that the publisher might not approve the new ideas or changes to the project, thus jeopardising their milestone payment. However, the publisher regards this as unprofessional. Matt, a publisher producer, complains:

> *Well it's terrible! They need to know that ultimately this is our [publisher's] money, this isn't their [developer's] money. They are making a project for us, and they need to behave professionally, but they don't and it's very hard when they don't want to (Matt – publisher producer).*

A development studio head admits that they often refuse to share some details about the game, especially the changes or new directions in the game with their publisher, because he believes this would make the publisher more anxious about the project. In other words, due to their risky investments and the risky market they are facing, the developer feels the publisher is already extremely nervous about the project. So they withhold this information from the publisher because they are worried that the publisher might panic and cancel the project or withdraw payments. Brian, a studio head, explains:

> *The publishers just make themselves more worried by knowing more. They want to dig in everything [know everything about the project], in individual teams but we always have to keep things at high levels [hide things from them] and keep their relationship at that level, but they are always insisting on digging deeper [the more information you give them, they want to know more]. We never exactly like that*

because this information could work against us. This is very complicated, but we always thought it was none of their business (Brian – developer studio head).

As indicated in the above quote, the developer is worried that if the publisher is aware of new directions or problems in the development, they might doubt the whole project and this might "work against" them, resulting in the cancellation of the project. The developer generally perceives this departure from the original idea, as an unavoidable and intrinsic part of the creative process. However, this iterative development process, with constant changes to the game specification creates continuous tension between the parties.

Need for Additional Resources

Since videogame development is an iterative process, the developer often realises, in the further stages of development, that because of changes made to the original concept, they might require additional resources, such as money and/or time. However, the developer is reluctant to communicate those needs to the publisher, especially in the early stages. A publisher executive explains:

A lot of developers wouldn't give you that information [project plans and timelines]. Todd [developer studio head] never gave us project plans or data with any details (Laurence – publisher executive).

The developer believes that although predicting what resources are required for a vague concept at the pre-production phase is difficult, they have to agree to some hypothetical plans to convince the publisher to invest. The publisher obviously does not welcome any changes to the timelines, budget and plans because these changes either mean the late release of the game, and/or increasing their already large investment. Simon, a publisher producer, explains that as a result of withholding knowledge, the developer is putting the project at risk:

Some of the studios are not honest and conceal the truth. A lot of developers try to keep their cards close to their chest and our projects have run late because of it and because there wasn't honesty and early enough warning about things that had

gone wrong or changed. When they conceal issues, things might fall apart (Simon – publisher producer).

The developer thinks the opposite: from the developer's perspective, knowledge sharing and open communication actually put the project at risk. They believe they are in a relationship with a partner who has more resources and power. They believe the publisher would use their financial leverage in order to pursue their own interests, whereas the developer has to work under the threat of losing the project at each milestone, as well as having a much smaller cut of the profit. The data show that knowledge hiding helps the developer maintain some control over this uneven relationship. Jacob, a developer director, talks about his frustrations:

You want to be as honest as possible with people. But it's really hard to say what a good strategy would be [to maintain a good relationship with a publisher], because often if you're honest you get exploited [they cancel the project or you end up with zero profit]. That's when you start to be careful and more guarded with what you reveal to people (Jacob – developer creative director).

The developer believes that the publisher has a big portfolio of projects and cancelling one project does not have much impact on the publisher. However, it could ruin the whole development studio. This is why the developer does everything in their power to protect themselves and secure the project. Allan, a publisher executive producer, confirms:

Developers deny access to the project and that is what a lot of them do. And they use it as a means of control so that the publisher can't influence the outcome of the projects (Allan – publisher executive producer).

Many developers believe that the publisher takes cancellation lightly, but they react differently when the project has progressed well and the development is at the later stages. The publisher shows more flexibility towards the developer's decisions and demands when they have already paid a large sum to the studio. Chris, another publisher producer, explains:

Things have become much trickier [for the publisher] because the budget is so high [these days] and literally the company [the publisher] could go under. The developers have become savvy, depending on how confident they are and how much other opportunities they've got [they might have lined up other contracts with other publishers]. [So they would say] if you don't want to pay us what we want, then we'll walk away. I know some developers who have done that successfully and then they won every single time because the publisher has to [submit to them] and do not sacrifice the budget [they have already spent on the project] unless essential (Chris – publisher producer).

A developer creative director confirms: "If you're open with them [about the changes or the problems you have in production], you run the risk of getting your product cancelled" (Mike – developer creative director). The problems in production can refer to the developer's realisation that they cannot finish the game within the timelines and the budget approved by the publisher. Or it means they have issues with the new technology, thus needing to hire experts to help them; hence more time and money will be required. A developer studio head explains that if they communicate their problems, and share with the publisher the knowledge over the issues they have, they could risk losing the project:

You don't want to fail; they can knock you down for it. It's hard to have a conversation about your fears for what might go wrong, or what you know is going wrong (Nigel – developer studio head).

The developer uses knowledge hiding to secure their milestone payments. A developer studio head states: "You use any tricks you know in order to just keep yourself in business; otherwise, you might lose the project and the whole studio" (Ben – developer studio head). As another developer adds, "We often keep stuff under the radar [conceal stuff], purely so that we could still get paid" (Ken – developer executive producer), highlighting how important it is for the developer to keep the publisher happy at all costs.

7.3.2. The Publisher's Knowledge Hiding

The publishers in this research accuse the developer of withholding knowledge and not being transparent. But from the developers' perspective, the publisher also hides

information, and this escalates the tension between the parties. A development studio head states, “Transparency on the publisher side is virtually none!!” (Francis – development studio head). But, the developer is not permitted to question the publisher’s knowledge hiding, and it seems this is due to their uneven access to resources and the developer’s limited power to negotiate. Finance plays a great role in the relationship, defining the boundaries, and as expressed in the above section, developers are always worried about losing the milestones or the project. In the following two sections I present the data on publisher knowledge hiding.

The Motives for Decisions

The developer complains that the publisher is not honest about the motives behind the decisions they make with regards to the project, thus leaving them with a feeling of impotence. As it was mentioned earlier, the milestones are the points in the publisher-developer relationship at which the project is assessed and approved, as a result of which the developer gets paid. There are some milestone criteria, but due to the iterative and creative nature of videogame development, this list is defined rather loosely, thus it can be difficult to predict if the game has met the criteria based on those plans and definitions at the outset of the project. The "fun factor", described in previous sections in this chapter, also adds to the subjectivity and ambiguity of the milestone assessment. This situation leaves the developer feeling vulnerable: that they can never do enough and constantly have to defend their position. The developer claims that the publisher benefits from this uncertainty because at any point in the relationship the publisher can pull the plug on the project with no legal obligation to explain why – apart from simply that the developer has not met the criteria. This puts a lot of pressure on the developer and contributes to their lack of trust in the publisher. Ben, a developer studio head, talks about one of his projects that was cancelled by the publisher, forcing them into administration. He recalls:

> *Out of blue, one day management in the US changed, they had a new management team now and they wanted to be out of contract with IP owned developers in the UK and they ended their contract with nine other UK studios, they moved to the movie licensing because apparently it was a more successful theme/business at that period. We referred to the contract but they said we had failed in our last*

submission [milestone], they came up with a very vague rejection criteria and we had to compromise due to our financial needs (Ben – developer studio head).

Below, another developer producer complains that the publisher lost interest in their game because they found other projects more profitable in the new market, so they cancelled the project without being honest about the reasons. Again the publisher referred to a spurious failure to meet criteria. They "manufactured" the developer's failure and blamed the developer for not delivering the promised quality:

The publisher had another agenda and that was why they wanted to kill our project. So they decided that they should be spending the money on something else than us. Then they tried to manufacture our failure, and that was a very unpleasant situation for the whole studio. I think it's incredibly common in the industry that publishers knock the studio down due to change of their plans (Jordan – developer producer).

The developer believes that the unpredictability of videogame development allows the publisher to "make excuses" for cancelling the project. However, this leaves the developer tremendously anxious all the way through the development process.

Budget

The budget is estimated and approved by both the developer and publisher. The publisher funds the project and pays the developer, based on the estimated budget. However, some parts of this budget stay with the publisher for the areas that the publisher is contributing to the project. These areas are mainly marketing, or other areas of expertise, such as concept art, animation, voice recording, etc. The interview data suggest that the developer does not trust the publisher to pay all these expenses. The developer also claims that the publisher refuses to share any details about the costs of the services they provide to the development studio. Brian, a studio head, explains:

I asked how much the concept art is going to cost, and they started laughing, they acted like, "You'll never know". And I said, "But you are cutting a budget for it from my budget". And then they were like, "Well this is how it's going to work". It's

like you get a builder to build your house and they go, "I can't tell you how much it's going to cost". That's insane. And it still causes me sleepless nights now. You shouldn't ask as a developer, because you never get the answer. I just don't understand it as a business model where they're giving you things but they won't tell you how much their services cost (Brian – studio head).

In this instance, the publisher's refusal to share details about the costs of their services leaves the developer feeling they might have been ripped off. The developer complains that his request for some information about their collaboration was blatantly denied.

Another developer director adds that there are some unwritten rules about the publisher-developer relationship and in order to have a working relationship with the publisher you should follow these rules without disputing them. He confirms that the publisher conceals some information, but the developer does not have the right to question these practices:

Occasionally they tell us things by accident. They told us the music budget and the voice talent budget, but normally that stuff isn't disclosed. That can be quite weird, but this is the bottom line with the publisher (Mike – developer creative director).

The most controversial part of the publisher's knowledge hiding is the marketing budget. As noted, the marketing budget for a game has a crucial role in raising the product awareness and increasing the sales. In the traditional publisher-developer collaboration, the publisher is responsible for bringing in the knowledge of the market for investing in marketing and PR for the game. At the outset of the contract, the publisher commits to x amount of budget on marketing and PR. This is done either verbally or it is written in the contract. This marketing budget works more like a carrot on a stick to encourage and inspire the developer, but in reality, it is difficult for the developer to hold the publisher accountable for their initial promises. The publisher also does not reveal documents that prove they have spent the amount they had promised they would spend to market the game. The developer believes that the publisher has a big portfolio of games and they tend to spend more on the projects that seem to sell more, at times leaving the rest of the projects with no marketing budget at all. Adam, a developer producer, describes:

> *Whether we are successful or not is down to the publisher to be honest. Because they need to market the game and they need to have spotted a market niche that they wanted to fill and believe in that enough. If they don't keep their promise, we would fail [to make any profit] (Adam – developer producer).*

In the following extract, a developer studio head explains how he was let down by the publisher, when they withheld any information with regards to their marketing budget and how this led to their project not making any profit.

> *Another very disappointing experience was when we ended up working with our publisher for the previous project. They were charming and wonderful and promised the earth to us very early on in the relationship, but when it came to going to market, they just lost interest in the project entirely, because they had other things that were more important to them. When we asked them to give us numbers, they simply refused to answer. What could we do? We had no money to take them to court (Nigel modeveloper studio head).*

As explained earlier, the developer's financial dependence gives them less negotiating power and they feel vulnerable and exposed in their collaboration with the publisher. From the publisher's point of view, the project is a significant and risky investment, so they are entitled to have full visibility over the project to protect their investment and secure a return for the corporation. The data reveal that in this highly creative, novel and political setting, knowledge hiding is the key driving force for maintaining positions of power. However, it seems knowledge hiding is not the only method to manage the relationship between the publishers and developers. The data also reveal that at points the developer uses deception and the publisher colludes with the developer in order to maintain a working relationship. The next section elaborates on how the developer's financial dependence, the creative nature of their cross-boundary work and the high levels of distrust can lead them to share misleading information with the publisher, while the publisher resorts to collusion to create a sustainable collaboration with the development studio.

7.4. Developer's Deception

I have argued that both the developer and publisher withhold knowledge from each other at different stages of their collaboration. However, the second level of analysis also reveals that developers resort to other tactics, such as deception, to make a profit. Although this apparently creates negativity and feelings of distrust in the publisher, it helps the developer to reduce the risks of their collaboration. The developer's strategic use of deception is examined in the following sections.

7.4.1. Making a Profit on the "Man-Month Rate"

The developer can deceive the publisher on their "man-month rate" and make a profit. As described in the previous sections of this chapter, the publisher funds the full budget for production and pays it to the developer by instalment. The budget is estimated and approved by both the developer and publisher at the outset of the collaboration based on a "man-month rate". The "man-month rate" is the amount required for a certain number of staff for a certain number of months. For example, the developer announces to the publisher that they can complete the game with five members of staff in twenty four months. There is an average rate for an average workforce for each month, such as £3,000. So the budget is estimated by this average amount for five members of staff, multiplied by twenty four months. This amount is reviewed and approved by the publisher. However, the data show that the developer sometimes fakes and manufactures documents to convince the publisher to approve a larger budget than they need, and in reality they use fewer people than they have specified in their contract. As a result of this, they spend less of the budget and save up some profit. This practice is described in the following quote from Adam, a developer producer. Interestingly, he does not admit that this is a dishonest tactic, and he insists this is the only way the developer can secure his business. He says:

> *There is a margin on every man-month. You hide your profit margins as much as possible as a developer. You can quote a man-month rate to charge [the publisher], but you will hire cheap people. Most of the cost is salary and that's where you can get the most obvious margin. You can also reduce costs by outsourcing things [so you end up paying less money for the workforce], but you can still charge the publisher full man-months (Adam – developer producer).*

When asked about the man-month rate, another developer executive tries to justify the developer's deceptive tactics by referring to the fact that the developer is not making a profit proportionate to their input, thus implying that the publisher gets the most profit from sales. He states:

> *The temptation is enormous; the developer doesn't make any profit. The developer feels the need to bump up these man-months cost because they also got ripped off last time [by the publisher]. Then on the publisher's side, they are aware of it and then it becomes an escalating distrust. Because everyone knows everyone's trying to cheat (Ben – developer executive).*

The respondent suggests that the publisher is aware of the developer's dishonesty and deception. According to a publisher executive, "What frustrates the publisher the most is when the developer doesn't have total transparency about the amount of money the publisher spends" (Laurence – publisher executive). This statement refers again to the fact that while the publisher demands the developer to submit all the details about the production, including resources, plans and timelines regularly throughout the development, the developer still fakes documents and information to conceal the actual costs of their production in order to generate some profit for the studio. In line with this, a publisher producer expresses:

> *I say a big challenge for us is simply visibility [over the project], that's why I would always want my producer on-site with the developer and I have it in the contract. I would try to get a desk in their office somewhere, anywhere. It's partly to see, literally to see, for example, how many people we are paying for, because some developers are sneaky. Sometimes you are paying for twenty, but you'd find out actually you are only getting ten [people working on your project]. Our full-time presence at the studio will make it quite hard for them to lie and to be dishonest (Matt – publisher producer).*

Another example of developer deception can be found in the following quote:

The studio head would ship people in from a different studio just to sit in the studio when publishers came to visit. So you see this big team working on your game and you think "oh, it's great". But then, of course, when the publisher leaves, they all go back to the other studio. That sort of thing creates deep distrust (Allan – publisher executive producer).

This quote is another indication of the developer faking the number of people working on their project.

7.4.2. Asking for More Resources Later in Production

The data suggest that the developer can also regularly deceive the publisher by asking for more resources, such as time and staff, particularly in the later stages of production, when the publisher has already invested a large sum and so is less likely to disagree or cancel the project. In this section, I show how the developer hides information about their need for more resources from the publisher at the beginning of the collaboration and reveals it to them at the later stages of development. In this case, the developer might genuinely be not aware of these needs at the time of the contract with the publisher and these needs might arise later in the production as the game evolves. This can be quite common in an iterative process of development. However, the developer acts deceptively when they inadvertently agree to some terms in the contract, such as the budget and time, knowing full well they cannot complete the game within those terms. So they only seek to secure a contract and the funding for their company, but later ask for more money to finish the game. Andrew, a developer producer, explains:

In this project, I knew well that we could never make the game that we had promised, for three and a half million pounds, but you know that kind of "developer trick" – that, "Keep quiet and let's see what we can do" and then once we got well underway and we were proving [to the publisher] that the game was awesome, then we would worry about asking for the extra money (Andrew – developer producer).

The developer also actively deceives the publisher by asking for more money to make a profit, and they demand extra investment when the publisher is less likely to pull out of the contract. In addition, they fake documents to prove they need this money to finish the

project and that without it they cannot complete the game. Todd, a development studio head, admits:

> *If the game is good enough, then the publisher will be locked in the process and they will definitely pay for the project to the end and they might even pay for it more and the developer is aware of this, leading them to ask for more investment or more time. However, this is like a vicious circle that might lead to lack of trust (Todd – developer studio head).*

An experienced publisher executive confirms that as a project progresses, the developer is more able to convince the publisher to release more funds. At the later stages, the publisher is financially committed, and thus much more likely to agree to the developer's demands:

> *No one says, "That's a five million project, but please give us seven million dollars." They rather say, "No, the project needs five million dollars at the beginning", but they'll beg for extra two millions when we get to the end. It's just the universal truth and it's stupidity I know, but it's just the way it works (Simon – publisher executive).*

Some participants expressed their great dismay with and disapproval of knowledge hiding and collusion, while others believed that these practices would escalate distrust between the parties. However, it seems these practices are common in the industry, and some respondents even consider them normal, or as the only way forward for the publisher-developer relationship. As stated in the quote above, "*it's just the way it works*" (Simon – publisher executive). In the next section, I discuss the publisher's reaction to the developer's deceptive behaviour and knowledge hiding.

7.5. Publisher's Collusion

In the previous sections, I highlighted that the developer sometimes engages in deceptive behaviour and hides knowledge from the publisher in order to secure their business and make some profit. As noted, for some developers these activities are perceived to be "the only way forward", a way of securing themselves in the collaboration in order to survive. But it is important to appreciate what the publisher's perspective is with regards to the

developer's deception and knowledge hiding. Some publishers condemn the developer's deceptive behaviour and call it forgery. Laurence, a publisher executive, says: "We signed the contract for fifteen people and they put ten on it. That's kind of forgery unfortunately" (Laurence – publisher executive). However, the data suggest that not all publishers have the same attitude towards the developer's deceptive tactics, and the publisher might even collude with the developer in these activities. John, a publisher producer, states:

> *I think everyone knows this. Publishers know this; developers know this. It's completely okay to charge a man-month rate, a man-month rate necessarily higher than they used to be because there's a profit margin built into that [for the developer] (John – publisher producer).*

In the statement below, a publisher producer admits that they often turn a blind eye to the developer's deception/knowledge hiding because in some cases (particularly at the later stages) cancelling the project will result in financial loss. So it makes economic sense for the publisher to ignore the ill-doings for the sake of the project and their multi-million investment. Matt expounds:

> *What they do is forgery, now obviously I have to make a call of it [make a decision], do I want to cancel the project and lose? Or does the project want to go on? (Matt – publisher producer).*

Here Jing, another publisher producer, also explains that they have learnt from past experiences that they might be given wrong figures, dates and numbers, and therefore they build some contingencies in their calculations for the project budget and schedules, just to protect themselves. He puts it:

> *Although it's assumed, it's not always the case. But the publisher actually set aside X million dollars extra for when they are running late, even though no one is saying they're running late, and the contract has a fixed schedule but still the publisher always tuck away a little bit, so I know I have three more months. The developer doesn't know this but I know this. But this is the general rule of thumb, which is the*

budget and time required plus twenty per cent give or take (Jing – publisher producer).

This publisher's decision to ignore the developer's behaviour seems to be purely to secure the investment. Other publisher participants in the research believe that by turning a blind eye to these activities, they provide the developer with a degree of security, thus contributing to their survival. Allan, a high-ranking publisher executive, justifies their leniency towards the developer in the following statement:

We are a little bit more lenient on the profit or the shares. At the end of the day, they have to have some sense of stability, and I totally understand why they are like scratching away at the door, like a wolf trying to keep his family alive. It's their livelihoods. They have to have some sense of stability. There has to be some tolerance (Allan – publisher executive).

Knowing they might be charged extra later on, the publisher prepares themselves by adding a twenty to thirty per cent contingency to their budget in order to help the developer and their collaboration work. Leo, another publisher executive, reveals:

Publishers kind of accept the fact that they need to have a contingency built into a development budget. Because there's a studio of 120 people, and they need to have some contingency. I get it and we want the studio to stay open, so we can finish the game. I mean, if the studio goes bust, we spend $10 million and it just disappears (Leo – publisher executive).

This developer thinks collusion and knowledge hiding are "the only way forward" for the traditional publisher-developer collaboration, while the publisher below also regards these methods as "the most common way″ to finish the project. Timothy, a publisher senior executive, highlights:

I think the developers have become more savvy these days. You need to make profit on your man-month rate, so it's the most common way to cross the project. If I were a developer, I would build a profit into my man-month rate and I'll be more

generous in sharing the back end, royalty and the profits. If I can build a fifty per cent profit into my man-month rate, well if the project's twelve months, that means I can keep going for another twelve months after that project to make another project (Timothy – publisher senior executive).

Laurence, a publisher executive, explains that the publisher-developer conflicts sometimes can't be resolved easily and they have to find ways to help the relationship work:

When there is just a breakdown in the relationship that you can no longer correct, you just try to bandage things and get the product out to the market. It's like someone with a broken leg; you just splint it, wrap a bandage around it. Well, this is the best we can do, because at some points, you recognise the distrust is so bad that you won't be able to resolve it (Laurence – publisher executive).

Adrian, a developer studio head, adds that they navigate round the problems, rather than address those issues:

You have to navigate around problems because you know you can't solve them. When you start to navigate around things, you know that you are not working in an ideal collaborative way, you're just trying to move stuff out of the way, so that you can get the game into the market. It's not the best style for anyone, but this is how it works in this industry" (Adrian – developer studio head).

The data reveal that the publisher often colludes with the developer in hiding knowledge and deceiving. Although some publishers complain about these deceptive activities, they also think that making a profit on the production budget would help the developer to have some stability. For some publishers this is important for its own sake, while for others it secures the successful completion of the project, and ultimately contributes to their own bottom line.

7.6. Conclusion

This chapter presented the data on how the developer and the publisher manage their knowledge practices and cross-boundary work. The videogame development was found to

be an iterative, unpredictable and risky process that required complex and interdependent tasks. I also highlighted the tactics the developer and publisher resorted to in order to manage this complex and risky relationship. The analysis included two levels: the first level portrayed respondents' superficial and cliché responses to my questions, and the second level data represented more detailed and contradictory information that the participants revealed after I probed them.

The participants initially emphasised that trust, communication and transparency were conducive to a successful collaboration with their partner. However, the data revealed that there were high levels of distrust between the parties. This was due to the complex, iterative and unpredictable nature of videogame development, the partners' inter-dependencies, as well as their divergent interests. I discussed that both partners had fears that they might be exploited or abused by the other party. I outlined the sources of these fears. The high levels of dependencies and novelty, as well as their seemingly uneven access to power resources at different stages of their collaboration were found to be the sources of both partners' fears and distrust. The second level data analysis revealed that both the publisher and developer used knowledge hiding to pursue their own interests. The data also showed that the developer sometimes acted deceptively in order to create stability for themselves. However, surprisingly the publisher wittingly colluded with the developer in their deceptive activities in order to secure their investment and also make the relationship work.

On the surface, the relationship had high levels of distrust, but both parties combined and coordinated together in knowledge hiding and deception in order to maintain a functional relationship. Given the dependencies and the ambiguities of videogame development, the data revealed that the publisher and developer have learnt how to navigate round the problems, tension and the distrust between them. So rather than address their conflicts, they have worked out that through knowledge hiding, deception and collusion they can manage their complicated cross-boundary work.

Chapter Eight: Discussion

This research aimed to examine knowledge processes across organisational boundaries in the videogame industry, where the companies had to face the challenges of innovation and deal with the conflicts resulting from their discrepancies and dependencies. In order to do this, I focused on the role of boundary objects, trust and power dynamics in knowledge processes. This was to understand how these factors influenced the processes of knowledge formation, sharing and integration, and as a result facilitated collaboration across boundaries.

In this chapter I proceed to discuss and analyse the findings presented previously. This is organised into three consecutive sections each addressing one of my research questions. Section 8.1 discusses how boundary objects facilitate or obstruct knowledge processes and collaboration in the publisher-developer relationship, also describing how these objects evolve over the course of a project. Section 8.2 elaborates on the role of power relations in facilitating knowledge processes and collaboration. This is followed by section 8.3 that examines the role of trust and knowledge sharing in the publisher-developer work context. I finally conclude this chapter with a short summary that links all the findings and addresses the three research questions.

8.1. The Shifting and Relational Role of Boundary Objects

This research studied the role of boundary objects, aiming to understand how these objects facilitated collaboration across organisational boundaries in the context of videogame development. The study identified two types of boundary objects that had a critical role in managing knowledge and collaboration in the publisher-developer relationship: (1) static boundary objects and (2) dynamic boundary objects (see sections 5.1 and 5.2). The study shows that the effectiveness of these boundary objects did not remain the same during the course of the project, but changed and evolved as the development progressed. Although these boundary objects were found to have a shifting role – ranging from effective to obstructive – I argue that a combination of both static and dynamic boundary objects were conducive to effective cross-boundary work between organisations. In addition to highlighting their obstructive and dynamic roles, the analysis reveals the relational and

social dimensions of boundary objects. The study provides insights into these dimensions by discussing how boundary objects were embedded in social practices and power relations, and stressing the critical role of brokers in mobilising boundary objects and facilitating knowledge integration across organisational boundaries (for the role of brokers see section 5.3). In the following three sections, I elaborate on the two types of boundary objects – static and dynamic – and explain the three different dimensions I have identified for these objects: (1) obstructive; (2) dynamic and enabling; (3) relational and social.

8.1.1. Evolving Role and Effectiveness of Static Boundary Objects

Contrary to what the literature suggests in chapter two, this research finds static boundary objects useful in facilitating the complex and political collaboration between the publisher and the developer at the earlier stages of development. The literature argues that static boundary objects are difficult to adapt for specialised use in different boundaries, due to their rigidly structured nature (Barrett & Oborn, 2010; Carlile, 2002; Cetina, 1997). As a result, the scholars suggest that static boundary objects might not facilitate knowledge integration and collaboration across boundaries (Barrett & Oborn, 2010; Levina & Vaast, 2006; Vaast & Levina, 2006). Instead, Carlile, (2002, 2004) discusses that these fixed boundary objects can be effective in managing collaboration across syntactic boundaries, when partners are aware of their differences and dependencies, and the relationship is not as complex. Conversely, I found that static boundary objects were useful at the initial stages of videogame development, despite the high levels of differences, dependencies and novelty in the publisher-developer relationship. This was because using these static boundary objects created a sense of stability, security and predictability, leading to low levels of trust and understanding between the partners. As a result, the publisher and developer could form a working relationship with each other, regardless of any discrepancies and divergent interests.

At the beginning of a project static boundary objects were useful to both parties. In order to convince the publisher to invest in multi-million pound projects, the developer had to generate strong and clear design and planning documents and yield to contracts that included detailed game specifications and planning outlines. The publisher enforced the use of contracts, design documents and milestone schedules because these static and fixed boundary objects created a sense of stability and predictability for the project. In return for

their hefty investments, the publisher could use these static boundary objects to hold the developer accountable for the effective delivery of the game, and reduce their investment risks.

Although static boundary objects were useful at the outset of projects, to establish the relationship, the study revealed that the effectiveness of these objects gradually diminished as a project progressed, and their role transitioned from being productive to becoming obstructive to working relationships. Whilst the literature suggests that boundary objects can sometimes trigger conflicts and clashes when they are not used in the appropriate context (Barrett & Oborn, 2010; Carlile, 2002, 2004), these existing studies fail to elaborate on how boundary objects can obstruct, nor do they provide an explanation for how boundary objects evolve during the course of a project (Nicolini, et al., 2012).

The main reason I have defined some of these boundary objects, such as contracts and design documents, as being static is the publisher's and the developer's failure in reviewing and updating them during the course of a project. Given the iterative nature of videogame development, all design documents and the project plans should evolve as a project proceeds. But due to the financial and temporal pressures of production, the study shows that these documents were generally not often updated or upgraded by developers. This was also true of contracts, which are not inherently static, but in the context of games development and in the three networks under investigation in this study, were not usually revised or updated by the publisher. The contract, the game specifications and project plans agreed and approved by the two partners provided security and trust for the publisher. Reviewing and updating the contract sometimes did not align with the publisher's agenda or their shareholder's interests. For instance, the game concept and the vision should stay unchanged because the publisher's strategy was to deliver a game that accorded with their other products they were releasing at the same time, such as a movie. As a result, the publisher sometimes challenged the developer's diversion from the initial vision and specification of the game. That was the main reason that in most cases the publisher was persistent in following the original contract and refused to discuss any changes to the terms and conditions of this document.

The study shows that over time these static boundary objects disrupted the developer's creativity, creating tensions and dissension, thus leading to distrust between partners later in the project (see section 5.1). The developer found it difficult to conform to the pre-determined designs and game specifications, as approved in their design documents and contract. They described the inflexibility of these drafts as a hurdle to their creativity, while the publisher on the other hand sometimes pressured the developer to commit to the agreed vision and design. While this rigidity would ensure some security for the publisher, reducing the risks for their investment, the developer viewed this as restricting their freedom and creativity. In order to try out new ideas in the game, the developer often required either reallocating or extending their resources. This meant revising the contract or the project plans, which would often not be welcomed by the publisher, thus leading to disagreements and high levels of distrust. These were the reasons why developers were typically unwilling to update these boundary objects, and which meant that the objects diverged from the work developers were actually doing, with these original documents thus potentially inhibiting their ability to adapt their projects and complete projects.

8.1.2. The Evolving Role and Effectiveness of Dynamic Boundary Objects

I explained in the previous section how static boundary objects transitioned through the course of the project from a productive force to an obstructive one in the publisher-developer relationship. The study revealed that the partners replaced or complemented the static objects with dynamic boundary objects in order to address the inadequacies of static boundary objects (see section 5.2). This facilitated a more effective knowledge integration and collaboration between them.

The literature underlines the open-ended and flexible nature of dynamic boundary objects, explaining that these objects can be adapted for use in specialised domains, while simultaneously being able to create a common boundary across different functions (Barrett & Oborn, 2010; Ewenstein & Whyte, 2009; Knorr Cetina, 1999; McGivern & Dopson, 2010; Nicolini et al., 2012; Scarbrough et al., 2015). Scholars have highlighted that dynamic boundary objects need to be subjected to continuous tailoring in order to be effective (Engestrom & Blackler, 2005; Star, 2010), but they have mainly focused on the relationship between different boundary objects rather than explaining and displaying the dynamic characteristics of these objects; there are relatively few empirical research studies

that describe how boundary objects might develop and evolve (Nicolini, et. al., 2012; Scarbrough et al., 2015).

In this research, I address the limitations in the literature and highlight the dynamic characteristics of a number of boundary objects, explaining the relationship between these objects and how their effectiveness increases as projects progress. The game prototype, review meetings and iterative project planning methods were the three dynamic boundary objects that were identified as having a critical role in facilitating knowledge integration and collaboration between the publishers and developers.

The flexible and open-ended nature of dynamic objects allowed them to be open to constant review and tailoring, which was compatible with the incremental and iterative nature of the videogame development process. In the three networks I studied, the development team started with a vision that was gradually reformed and developed. The participants reported that this creative process required flexibility and iterations, through which the ideas were continuously reviewed, modified and evolved. The study showed that static boundary objects – such as pre-defined design books and strict planning, determining the timelines and required resources – were not deemed to be appropriate for this process. Instead, a set of dynamic boundary objects, such as prototypes, iterative project planning and meetings were found to be useful for this creative process.

The study reveals that the relations between dynamic boundary objects had a significant role in facilitating knowledge processes. This notion reinforces the relational dimension of boundary objects, and it is in line with the recent research emphasising the importance of the relations between different objects. This stream of research highlights that the relations, not the objects individually, can enable communication and collaboration (Leonardi et al., 2012; Nicolini et al., 2012; Scarbrough et al., 2015). For example, iterative project planning methods facilitated dynamic planning practices, through mechanisms such as meetings and the game prototype that were both integral and indispensable parts of this method. Project review meetings provided an opportunity to review the project and develop a common understanding of current issues. The game prototype also created a point of reference and discussion in the meetings and interactions, through which the partners could have a better understanding of their dependencies and the development

requirements. The prototype complemented the diminishing role of design documents, so rather than invest time and resources in updating the design documents as projects evolved, the developer put more emphasis on creating a prototype that allowed the partners to have a clearer overall view of the game and its requirements. The prototype also helped the iterative planning for the game, by creating a less ambiguous panorama of development and resources required. At the same time, regular meetings also supported the use of prototypes, providing an opportunity for the partners to increase their understanding of the prototype.

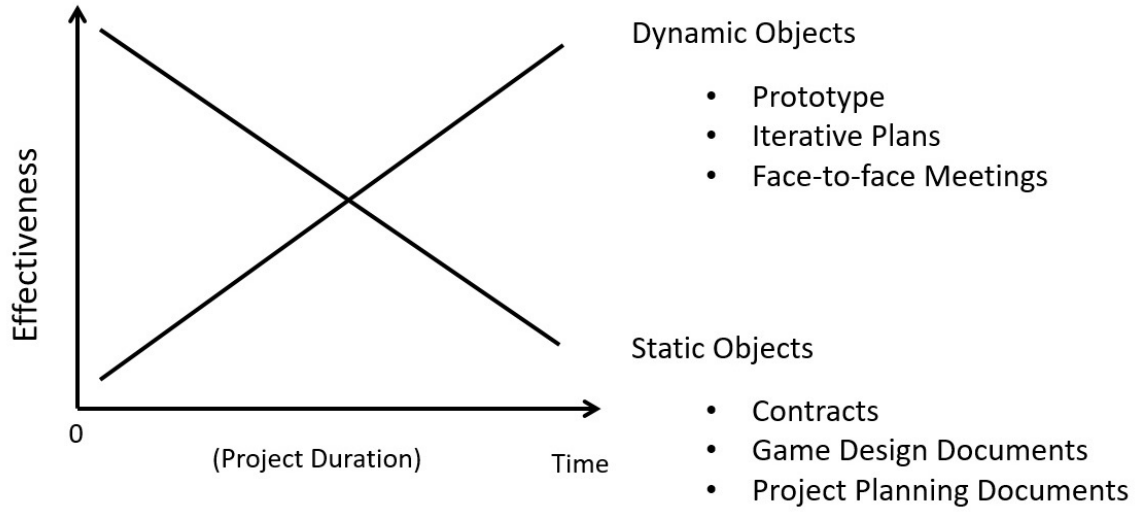


Figure 3. The Evolving Effectiveness of Boundary Objects

One of the most important findings of this research is the shifting role of the boundary objects and how both types of these objects – static and dynamic – were effective in facilitating the knowledge work at different stages of the project. The data demonstrated that static and dynamic objects were interrelated, complementing and mutually constitutive, therefore a combination of both contributed to effective knowledge work and creating a functional relationship between two organisations. Figure 3 displays how these boundary objects changed as the development process and the publisher-developer relationship progressed. This challenges Carlile's idea (2002, 2004), that a single type of boundary object is most effective for managing collaboration across each type of boundary. While the type of boundary being spanned in videogame development can be conceptualised as pragmatic, an evolving combination of static and dynamics boundary

objects facilitates collaboration, with the effectiveness of each type of boundary objet being shaped by the stage of the collaboration being undertaken.

8.1.3. The Brokers and the Social Dimension of Boundary Objects

Applying a practice-based view, the study underlines the social and relational dimension of boundary objects by revealing the integral role of brokers/producers in managing and interpreting the use of these boundary objects in the publisher-developer collaboration (see section 5.3). The study reveals that brokers mobilised knowledge processes and created a working relationship between the publisher and developer by manipulating the dynamic and relational dimensions of boundary objects (Barnett, 2003; Kramer & Wells, 2005; Sverrisson, 2001; Swan et al., 2007).

This study highlights that brokers acted as intermediaries between their two companies and had the responsibility of translating and interpreting for the two parties when/where possible. The analysis confirmed that utilising boundary objects, such as meetings, prototypes and flexible planning documents had a key role in enabling the brokers to facilitate knowledge integration and collaboration between the two companies. This finding reinforces the role of boundary objects as being embedded in social interactions and processes, constantly evolving and therefore enabling work across boundaries (Briers & Chua, 2001; Engestrom & Blackler, 2005; Huang & Huang, 2011; Koskinen & Makinen, 2009; Lee, 2007; Mork et al., 2012; Nicolini, 2011; Orlikowski, 2007; Osterlund & Carlile, 2003; Swan et al., 2007; Thompson, 2005). Informed by this view of boundary objects as social constructs, I suggest that brokers are required to reinforce the effectiveness of boundary objects. From the practical point of view of management, dynamic and social boundary objects are integral to the role brokers play in facilitating the work across boundaries.

The study stresses the relational dimension of boundary objects, by showing how power dynamics – managed by brokers – mobilised boundary objects and facilitated the publisher-developer political relationship. While the role of brokers is described by scholars as creating mutual understanding, resolving discrepancies and ultimately mediating the knowledge flow between the partners (Allen, 1977; Bechky, 2003; Carlile, 2004; Kramer & Wells, 2005; Levina and Vaast, 2005; Swan et al., 2007), I argue that

creating mutual understanding and resolving the differences and discrepancies were inadequate practices for facilitating the complicated and political collaboration of the publishers and developers. Brokers were aware of the differences and dependencies between the publisher and developer and they utilised this knowledge to be selective in their knowledge sharing practices. They would share knowledge when and where appropriate and also hid knowledge to protect and secure the stakeholders' interests (in section 8.3.1., I discuss in detail that the publisher and developer use knowledge hiding as a positive practice, to avoid escalating differences and disagreements, allowing their collaboration to continue). I would like to highlight that these power dynamics were activated and mobilised through the use of dynamic boundary objects. For instance, by using dynamic boundary objects, the publisher producer provided the developer with some levels of flexibility in their development process. This allowed the developer to be more creative and incur some changes to the designs or timelines if needed. The meetings also gave the partners the opportunity to engage in conversations with each other, weighing up the circumstances and sharing the levels of information that were necessary, without risking their interests.

Boundary objects are viewed as being embedded in the "political interplay" of relations across boundaries (Kimble, et al., 2010, p.442). The literature also highlights the impact of power dynamics on knowledge integration and collaboration through shaping and forming boundary objects (Hawkins, et al., 2016; Huvila, 2011). Despite this emphasis on the relational and politicised dimensions of boundary objects, the literature does not explain how social interactions actually influence the boundary objects and their effectiveness (Lainer-Vos, 2013; Zeiss & Groenewegen, 2009). This thesis contributes to this discussion by explaining that the brokers were the key factors in manipulating the social and relational aspects of boundary objects, creating a functional relationship between the developer and publisher. The fluid and vague nature of dynamic boundary objects (Garud et al., 2008) accommodated the broker's selective knowledge sharing between the publisher and the developer and enabled the broker to secure the partners' interests and reduce the risks. This dynamic between the boundary objects and broker highlights the social and relational dimension of boundary objects, reinforcing that these objects are embedded in and influenced by social and power practices. I discuss the impact of power dynamics on boundary objects in the next section.

8.2. Power Dynamics and Knowledge Processes

This research has found that knowledge processes in the publisher-developer collaboration were politicised. In contrast to the literature that emphasises the negative role of power relations, perceiving them as obstructing communication and knowledge integration, this study emphasises the productive force of power dynamics in mobilising knowledge integration. The analysis showed that power relations facilitated knowledge processes and created a functional relationship between two seemingly divergent and competing organisations.

8.2.1. The Publisher-Developer's Political Relationship

The research revealed that the publisher-developer relations were highly political, dominated by an "us and them" and "blame" culture. Through mechanisms of discursive positioning, both parties highlighted their differences and dependencies, insisting that they were two separate and incompatible entities. They emphasised that they were involved in an asymmetrical collaboration with irreconcilable differences and divergent interests. Many scholars have underlined that boundaries cannot be viewed as power-neutral (Carlile, 2002; Huvila, 2011; Kimble et al., 2010). While they interpret discursive positioning of partners as a method to constitute one's voice and identity (Butler, 1997), they add that this can signify the political dimension of a relationship (Gherardi & Nicolini, 2002).

This analysis revealed that the publisher-developer relationship was laden with conflicts. All participants insisted that their discrepancies led to a lack of understanding between the parties and this, as a result, hindered their communication and collaboration. They blamed the other party for the problems concerned with the project. While viewing the other party as being responsible for the disagreements and conflicts, the participants expressed high levels of negativity and criticism towards their partners. Thus developers criticised the publisher's lack of appreciation and understanding of the creative process, while the publisher accused the developer for their lack of knowledge of the financial demands of development. According to Butler (1997), the partners' tendency to challenge the legitimacy of the other and to demean the other partner by positioning them as less

knowledgeable or less credible is also an indication of a politicised relationship.

8.2.2. Power Inequalities Vs. Power Dynamics

The ubiquitous rhetoric within the industry highlighted the existence of power inequalities in the publisher-developer relationship, depicting the publisher as the dominant partner and the developer as being much less powerful (see section 6.3). Due to their financial investment in the project and their power to terminate the project, the publisher seemed to be the partner with more access to power resources. The developer was portrayed as the weaker party in the relationship because of their reliance on the publisher's funding to run the business, as well as their seeming lack of control over the publisher's decision-making.

However, the findings of the research revealed that power wasn't a resource available to only the publisher (see section 6.4). Both partners faced challenges over managing/sharing knowledge and showed resistance to each other. This implied that the developer also had some leverage during the project, and rather than power inequalities, power dynamics dominated the relationship. I elaborate on this further in this section, using Figure 4 below:

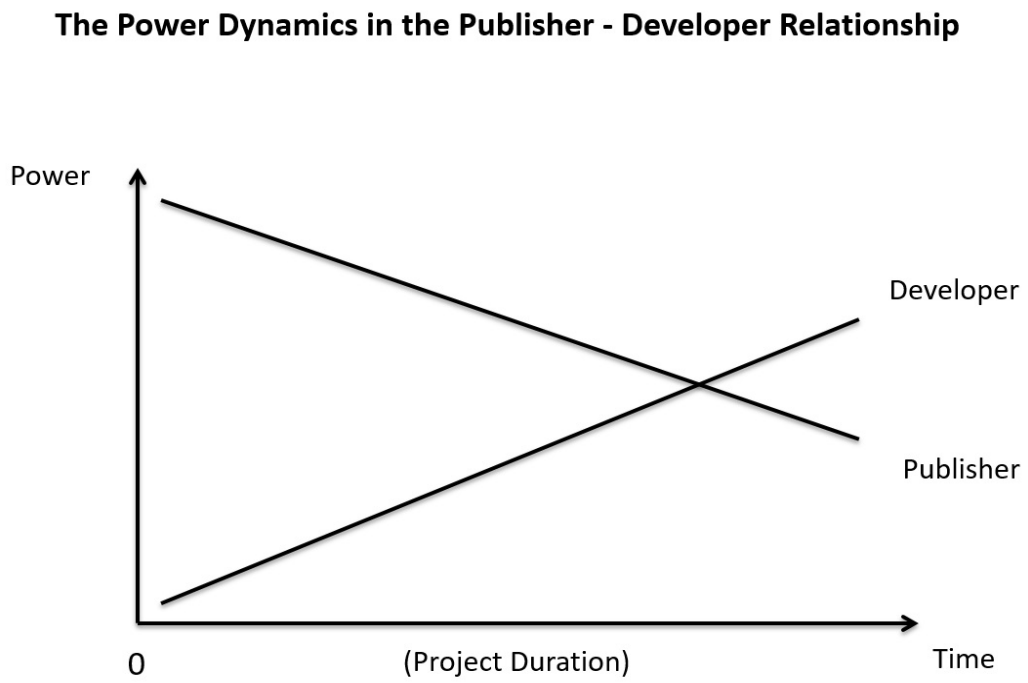


Figure 4. The Power Dynamics in the Publisher-Developer Relationship

As shown in Figure 4, at the beginning of the project and due to the developer's financial

needs and instability, the publisher had more power in the relationship. In order to secure a project and funding for their company, the developer was likely to submit entirely to the publisher's demands and wishes. This meant that the developer agreed to the publisher's decisions in terms of the game specifications, the resources required for the project and the timelines. The developer would do this, regardless of their abilities and potentials, in order to secure a project and funding.

However, as projects progressed and to the same proportion the publisher's investment increased, this power dynamic changed. The analysis revealed that at the later stages of production – despite their financial dependencies and instabilities – the developer had more leverage in the relationship. This was indicated by (1) the developer's attempts to challenge the contract and the publisher's decisions/requests for changes to the game specifications, and (2) the publisher's frustration due to their lack of control over the project at the later stages of their collaboration. The publisher's payments were completed gradually after the developer achieved each milestone. The research showed that when the publisher had already invested large sums in the project, the developer felt more in control over the relationship (see section 6.4). This was because the developer felt more secure and viewed the completion of the project as a priority for the publisher, perceiving them to be unwilling to cancel a project at a late stage when significant financial resources have been invested. It was at this stage that the developer felt more comfortable to announce the changes they had made to the project, or reveal the development problems and delays, thus asking the publisher to allocate more resources to the project.

8.2.3. The Foucauldian Perspective on Power/Knowledge

The Foucauldian perspective has informed this study with three implications, helping me develop my understanding of the knowledge processes in the publisher-developer relationship. First, this perspective supports the dynamic dimension of power relations. The research showed that the partners' positions in the power play did not remain static, but changed throughout the development process. In contrast to what the participants attempted to describe, their contradictory statements revealed that the publisher's dominant position was contested, and the developer also had access to power resources at later stages of development. Foucauldian perspective argues that power/knowledge claims are dynamic, embedded and constantly contested (Foucault, 1979; Heizmann, 2011; Roberts,

2006; Sewell, 2005). Informed by this perspective, the analysis highlighted that social relationships and interactions had a critical role in forming knowledge processes and power dynamics. Through knowledge processes, such as knowledge hiding processes and deceptive practices, the developer challenged and contested the publisher. This empowered the developer and gave them some leverage in the relationship. In doing this, the brokers and dynamic boundary objects, such as meetings, the iterative planning documents and the prototype, facilitated knowledge/power games, and allowed the parties to be able to hide some levels of knowledge and share knowledge when it was appropriate. This interplay of knowledge, power and resistance formed the dynamic between these two partners and facilitated their collaboration (Blackler, 1995; Fox, 2000; Hardy, 1996; Marshall & Rollinson, 2004; Swan & Scarbrough, 2005).

The second significant implication of a Foucauldian view on the power/knowledge dynamic for this research is that it supports the notion that the seemingly weaker party in the relationship can also have access to power and knowledge. In other words, power/knowledge claims are not regarded as a property only exclusive to the dominant (Gergen, 1992; Handy, 1985; Linstead et al., 2009), instead they are seen as dispersed, moving between parties. This research showed that power was not a privilege only in the publisher's possession, but the relationship consisted of "a network of relations, constantly in tension, in activity" (Foucault, 1979, p.26–27). In fact, despite the widespread depiction of developers as victims across the industry, it was the developer's wielding of power at different stages of the relationship that helped them manage the dynamic between the two.

The third implication of the Foucauldian perspective for this research is the productive role of power/knowledge dynamics. The prevalent rhetoric within the industry attempts to depict the publisher-developer relationship as collaboration between two separate and irreconcilable entities. In contrast to these claims, this research found that the power dynamics were a positive and "productive force" that provided all parties with the opportunity to enter power relations (Swan & Scarbrough, 2005, p.920). Power dynamics ultimately enabled the seemingly unequal partners to create a functional relationship, which typically resulted in the development of a completed game. The power dynamics and social interactions mobilised knowledge processes. Using knowledge hiding and deceptive practices the publisher and developer navigated round the problems, reduced the

risks of the project and secured their interests. The brokers and a combination of static and dynamic boundary objects facilitated knowledge/power dynamics, thus enabling collaboration.

8.3. A Distrustful Relationship

One of the main and unexpected findings of this research is the high level of distrust in the publisher-developer collaboration, as shown in section 7.2. in chapter seven. Although the interviewees attempted to depict an idealistic picture where trust, communication and transparency led to knowledge sharing and collaboration, their contradictory statements revealed that the partners started their relationship with high levels of distrust, and maintained this distrustful relationship all throughout the project. I have not discussed the concept of distrust in my literature review chapter because this concept emerged as a key finding. I reviewed the literature to understand how knowledge processes could be facilitated across boundaries. Since scholars highlighted the development of trust as being an integral factor in mobilising knowledge processes and collaboration, I concentrated on the definition of trust and the trust-knowledge relationship in my literature review chapter. However, here in this section of my discussion chapter, I address and develop the concept of distrust, as a theme that has emerged from my data analysis.

There is a burgeoning literature on distrust that defines this concept as a lack of trust or low trust (McKnight et al., 2004; Saunders, et al., 2014; Saunders & Thornhill, 2004). As Rousseau et al. (1998) explain, trust is a “willingness to render oneself vulnerable” to the actions of another party (p.395). On the other hand, distrust is viewed as “the expectation that others will not act in one’s best interests, even engaging in potentially injurious behaviour” (Lewicki et al., 1998, p.439) therefore distrust is viewed as instilling "fear" (McKnight et al., 2004, p.37). The data analysis showed that in the publisher-developer relationship there was a dominant "us and them" culture, where both partners blamed one another for the problems they faced in the project. Giving trust was a risk-laden act for these partners – they feared that revealing too much to the other party would jeopardise their business and ultimately lead to a substantial financial loss for the company.

The analysis identified three key factors that led to high levels of distrust in the relationship, including: (1) the creative and unpredictable nature of the videogame

development process, (2) the dependencies of the partners, and (3) divergent interests. The creative and iterative development process made systematic planning and predicting for the project quite challenging. This was because the development process composed of multiple dependent tasks and needed continuous assessment, revision and updating. This resulted in high levels of uncertainty in the development process, making it was difficult to predict and reduce the risks of the project, especially at the earlier stages of production. The large financial investments required for videogame development also added to the uncertainties and risk of the production, especially for the publisher who was the sole investor in all three networks I studied. In addition to all of this, the divergent interests and the partners' financial dependence complicated the relationship. The developer was highly reliant on the publisher's investment to run their business, but the publisher was also found to be reliant on the developer's performance for the return of their investment. Therefore trusting one another was viewed as putting both parties at risk.

Despite the existence of high levels of distrust and negativity, the research recognised that there were practices and processes in place in the publisher-developer relationship whose purpose was to create stability and trust between the partners. Static and dynamic boundary objects were utilised with the aim being to develop structural and social trust, hence instigating collaboration. Structural and social trust were found to be mutually constitutive in the publisher-developer relationship. Firstly, forms and clearly defined structures, such as contracts, design documents and project planning documents (static boundary objects) were used at the earlier stages of the development in order to form the relationship and potentially develop trust between two seemingly divergent parties. This use of static boundary objects can be interpreted as developing structural trust, which is through using protective mechanisms, such as forms and standards to develop trust between people (Bradach & Eccles, 1989; Dyer & Chu, 2003; McEvily, et al., 2003; Mouzas et al., 2007).

Later in the project the publisher and developer attempted to facilitate knowledge integration and collaboration through social trust. The use of social interactions in this publisher-developer relationship can be defined as social trust, which is defined as utilising social interactions to foster people's confidence in each other's goodwill and integrity (Adler, 2001; Argote et al., 2003; Dyer & Chu, 2003; Jonsson & Kalling, 2007; Lee et al., 2010; Madhok, 1995; McEvily et al., 2003; Mooradian et al., 2006; Narayandas & Rangan,

2004; Newell et al., 2007; Roberts, 2000; van Wijk et al., 2008; Zaheer et al., 1998). In the publisher-developer relationship, social interactions, meetings and the producers/brokers replaced static boundary objects at later stages of the project. These social practices were used to help knowledge integration and effective work across organisational boundaries.

8.3.1. The Trust-Distrust Dynamic and Knowledge Processes

While recognising the practices and processes that were used to develop structural and social trust in the relationship, I argue that these resulted in "an arduous relationship" (Szulanski, 1996), a state of essential distrust or illusions of trust and stability. In other words, the analysis showed that there was a trust-distrust dynamic in the publisher-developer collaboration, where partners displayed high level distrust with sufficient trust to function as collaborators. In this thesis, I define trust and distrust as mutually constitutive in the political relationship between the publisher and developer, highlighting the existence of both concepts of trust and distrust at the same time. The relationship was distrustful because all throughout the project the partners feared that the other party would jeopardise their interests. But in order to enable work across their boundaries, they needed to instil some levels of trust between them. That was why they used skilful producers/brokers and a combination of static and dynamic boundary objects to facilitate their collaboration. Maintaining this, however, was found to be difficult and resulted in low levels of trust.

Some scholars perceive trust and distrust as mutually exclusive concepts at either end of a continuum (Bigley & Pearce, 1998; Schoorman et al., 2007). In contrast, I argue that in the publisher-developer relationship, high levels of distrust cannot be avoided due to the creative and unpredictable nature of the videogame development process, the partners' dependencies, and their divergent interests. Similarly, Szulanski (1996) refers to the arduous relationship as a barrier for knowledge sharing and collaboration internally between the sender and the recipient. In this research, I found that the practices and processes were utilised with the hope to overcome this "arduous relationship" and create some stability and trust for the relationship to work (Szulanski, 1996). This is in line with a stream of research that recognises the existence of a dynamic between trust and distrust, supporting the co-existence of trust and distrust (Fox, 1974; Lewicki et al., 1998). These scholars state that the constructs of trust and distrust could occur simultaneously on a continuum, where a balance can be struck between them (Lewicki et al., 1998; McKnight

& Chervany, 2001; Poppo & Zenger, 2002; Stratling et al., 2011). In support of Lewicki et al.'s (1998) discussions, this study also reveals that the publisher and developer created a balance or "equilibrium" between positions of trust and distrust in order to form a working relationship (p.444). Static and dynamic boundary objects, especially brokers/producers had a crucial role in mobilising this trust-distrust dynamic.

In terms of the relationship between distrust and knowledge processes, there is a limited understanding of how knowledge is integrated when there are high levels of distrust in a highly risky and uncertain work setting. The literature gives a lot of attention to the relationship between trust and knowledge sharing (Abrams et al., 2003; Adler, 2001; Andrews & Delahaye, 2000; Ardichvili et al., 2003; Davenport & Prusak, 1998; Dyer & Chu, 2003; Holste & Fields, 2010; Jonsson & Kalling, 2007; Ko, 2010; Levin & Cross, 2004; McEvily et al., 2003; Mooradian et al., 2006; Newell et al., 2007; Yusof & Ismail, 2010). While trust is considered as supporting knowledge sharing practices (Bijlsma & Koopman, 2003), distrust is viewed as counterproductive and having a negative impact on social interactions and integration (Bies and Tripp, 1996; Holten et al., 2016).

The analysis reveals that sharing knowledge had the potential to put the partners at risk and in a vulnerable position in the publisher-developer relationship, (Clegg, 1989; Kim & Mauborgne, 1998; McEvily et al., 2003; Mooradian et al., 2006; Szulanski, 1996). For instance, the developer was found to be reluctant to share knowledge with the publisher producer when a project was behind schedule, or over budget. This was due to concerns about how the publisher producer would respond or whether the publisher would terminate the project because of these problems. That was why the partners were found to be reluctant to share knowledge incautiously, and instead were selective in their knowledge sharing practices. This meant that they shared knowledge when it was appropriate and when they perceived it as unthreatening to their project. In contrast to this finding, the literature recognises trust as a key factor in facilitating knowledge sharing, innovation and cross-boundary collaborations (Abrams et al., 2003; Levin & Cross, 2004; Nandhakumar, 1999; Newell & Swan, 2000; Newell et al., 2007; Palmatier et al., 2007; Poppo et al., 2008; Ring & Van de Ven, 1992; Yusof & Ismail, 2010). Scholars believe that development of trust mitigates the perceptions of risk, thus encouraging knowledge sharing (Das & Teng, 2001; Luhmann, 1988; Nonaka & Takeuchi, 1995; Quigley et al., 2007;

Rodriguez & Wilson, 2002). Conversely, I argue that the risk of the project was high, the trust was low (the level of distrust was high), but the partners still shared knowledge and completed their project. However these partners shared knowledge selectively and cautiously in order to secure their interests and maintain a working relationship. I elaborate on the knowledge processes and practices they used in the next section.

8.3.2. Knowledge Hiding, Deception and Collusion

While the literature stresses the complexity of collaboration and knowledge integration across boundaries (Tschang, 2007; Scarbrough et al., 2015; Scott 2003; Tschang & Szczypula, 2006; Zackariasson, et al., 2006), it proposes that management's main focus should be on overcoming the differences and creating mutual understanding between individuals, teams or groups working together (Bechky, 2003b; Boland & Tenkasi, 1995; Carlile, 2004; Cook & Brown, 2000; Dougherty, 1992; Gherardi & Nicolini, 2002; Hargadon & Bechky, 2006; Mork et al., 2012; Nonaka, 1994; Tsoukas, 2009). These scholars suggest that management should use extensive dialogue and negotiation to identify, elaborate, and then confront their differences and conflicts (see section 2.2.2). By doing this, they can create common understanding between different parties, so that knowledge integration and collaboration can be facilitated (Majchrzak, et al., 2012).

Similarly, Carlile (2002, 2004) recommends creating mutual understanding and resolving the negative consequences to facilitate the collaboration between divergent partners. In his Integrated Framework, he suggests negotiation and knowledge transformation to achieve shared meaning and to deal with challenges in the relationship. However, at the same time, he emphasises that the level of differences, dependencies and novelty between individuals, teams and functions involved lead to different types of boundaries and challenges to collaboration. As a result of this, he proposes using distinct knowledge practices and strategies to facilitate collaboration and knowledge integration for different types of boundaries, depending on the level of complexity in the relationship. Carlile's argument highlights the importance of the context and the boundary, suggesting that the level of complexity, differences, dependencies and novelty specifies the strategies to manage knowledge and encourage collaboration.

In contrast to this literature, the analysis shows that addressing the differences, creating mutual understanding and using extensive dialogues were impractical and ineffective practices in the publisher-developer collaboration. While both publishers and developers maintained an arm's-length, low trust relationship, they ignored their problems and disagreements in order to be able to continue working together. This finding is in line with the small stream of research that showed how dialogic practices were ineffective in creating a collaborative work environment between distinct disciplines, especially when the relationship was temporary (Cronin & Weingart, 2007; Dammann & Kieser, 2010; Dougherty, 1992; Faraj & Xiao, 2006; Kellogg et al., 2006; Ewenstein & Whyte, 2009; Nembhard & Edmondson, 2006; Schmickl & Kieser, 2008; Van der Vegt & Bunderson, 2005). Given the complex, ambiguous and high-risk nature of videogame development, as well as the discrepancies and dependencies between the publisher and developer, the partners refused to address their problems, tension and distrust, but navigated round these issues to create stability and secure their interests. This was because engaging in extensive dialogue seemed to expose differences and conflicts, thus potentially creating more challenges and disagreements between the parties involved (Dammann & Kieser, 2010; Dougherty, 1992; Edmondson & Nembhard, 2009; Ewenstein & Whyte, 2009; Nembhard & Edmondson, 2006; Schmickl & Kieser, 2008; Van der Vegt & Bunderson, 2005).

Despite high levels of risk and distrust in the publisher-developer relationship, the partners created and maintained a functional cross-boundary working relationship. They facilitated knowledge integration and collaboration through practices such as knowledge hiding, deception and collusion (see sections 7.3, 7.4 and 7.5 in chapter seven). Rather than discussing pertinent issues, both partners hid some levels of information at different stages of the project in order to prevent clashes, reduce the risks of the project, protect themselves and ultimately pursue their financial interests. For example, although the developer was aware of inadequate resources for the project, they typically hid this information and faked documents until the later stages of the production, because the publisher could potentially terminate the project if they had known the existing issues. Through withholding knowledge and not providing enough transparency, the developer gained control over the project and secured themselves financially until further stages of the project. The research also identified that the publisher colluded with the developer in knowledge hiding and deception, turning a blind eye to such practices in order to secure their hefty investments

and provide the developer with a degree of security, hence securing the completion of the project.

Knowledge hiding and knowledge hoarding are the two constructs that have sometimes been used interchangeably in the literature in order to refer to the act of not sharing knowledge. Connelly et al. (2012), however, distinguish between these two terms, referring to knowledge hiding as "an intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person" (Connelly et al., 2012, p.65). On the other hand, they refer to knowledge hoarding as the act of withholding knowledge that is not requested by any specific individual (Webster et al., 2008). The existing studies on knowledge hiding have found that employees withhold knowledge to increase their self-interest (Haas & Park, 2010; Steinel et al., 2010; Webster et al., 2008), or to secure themselves from losing power and status (Hislop, 2013). But from the management's point of view this is a negative, dishonest and unethical act that may lead to difficult relationships (Szulanski, 1996), or unproductive organisational outcomes (Holten et al., 2016; Evans et al., 2015; Steinel et al., 2010). As a result of this perspective, organisations use methods and strategies to counter and discourage knowledge hiding and instead facilitate knowledge sharing between their employees.

I define knowledge hiding as the strategic act of withholding knowledge or information that is encouraged by organisations to protect the interests of the company, reduce the risks and maintain a functional relationship when they are involved in risky and political cross-boundary work. This is in contrast to the previous definitions that have solely focused on knowledge hiding as a negative and unproductive employee behaviour, counteracted by the management and organisational strategies. Although the existing literature has identified knowledge hiding as an area that needs further research (Connelly, et al., 2012; Schein, 2004; Webster et al., 2008), relatively few studies have highlighted knowledge hiding as a productive practice (Evans et al., 2015; Haas & Park, 2010). Importantly, the context in which knowledge hiding is practised has received scanty research attention (Hansen et al., 2005; Mors, 2010; Szulanski, 1996, 2000).

As I discussed earlier in this section, the research findings revealed that Carlile's pragmatic boundary was not relevant in the context of publisher-developer collaboration. The

knowledge processes Carlile (2002, 2004) has suggested to address the challenges in this boundary were inadequate to manage the collaboration and knowledge integration. The politics of the publisher-developer relationship were more complicated and knowledge integration needed practices other than those of knowledge transfer, translation and transformation as proposed by Carlile (2002, 2004).

Based on these findings, I add a complementary level to Carlile's Integrated Framework to explain work across organisational boundaries (see Figure 5). I propose a political view of knowledge and boundaries that revisits the challenges and integration of knowledge discussed in the literature. Santos and Eisenhardt (2005) define organisational boundaries as being political. Likewise, Edmondson and Nembhard (2009) confirm that conflicts and disagreements are the natural outcomes of boundary work across divergent groups, especially in novel settings. They argue that "the competing viewpoints that promote creative new ideas ... lead naturally to conflicts [and] erode team relationships" (p.124). The data analysis highlighted that the complexities, dependencies and unpredictability of videogame development created conflicts and disagreements in the publisher-developer relationship. Under these circumstances, the participants found communication and dialogue exposing their conflicts and putting both parties at risk (Dammann & Kieser, 2010; Dougherty, 1992; Ewenstein & Whyte, 2009; Schmickl & Kieser, 2008; Van der Vegt & Bunderson, 2005). This influenced the willingness of the partners to share and negotiate knowledge. The data analysis revealed that both parties were involved in a power game, through which their positions of power changed during the project. Informed by these findings, I suggest a political approach to managing boundaries and knowledge when extreme conditions of difference, dependency and novelty are all present. This approach is concerned with the role power and power games play in creating effective knowledge integration and collaboration across boundaries.

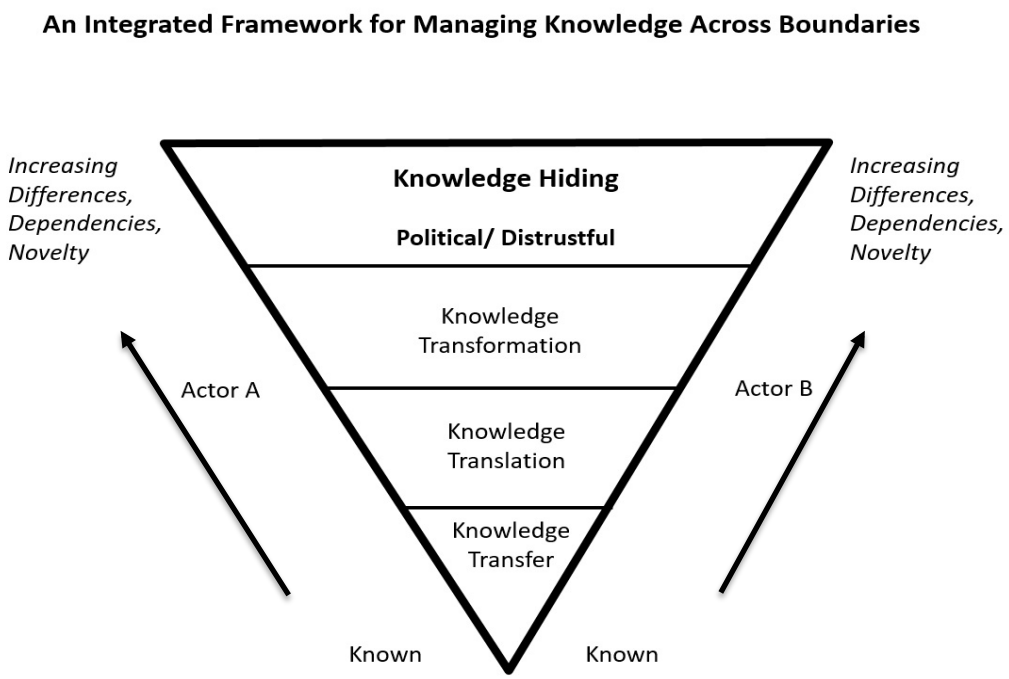


Figure 5. Revised Framework for Managing Knowledge Across Boundaries

The political approach to knowledge management highlights that the cross-boundary challenge is not just that maintaining transparency and communication is difficult. This approach suggests that managing cross-boundary work requires significant political efforts and power games (Orlikowski, 2002). Therefore, rather than communication and knowledge sharing, partners choose to resort to opportunistic practices, such as knowledge hiding, deception and collusion when necessary. Through these practices these partners can secure their interests and reduce the risks of their collaboration. In addition to what Carlile (2002, 2004) explains in his framework, not only do the partners represent, learn, negotiate and alter knowledge, they also hide knowledge and create fake knowledge (when it is necessary) to manage their collaboration and knowledge integration. A Foucauldian perspective confirms this relationship between knowledge and power, highlighting that the nature of power/knowledge is contested and politicised (Foucault, 1979; Heizmann, 2011; Roberts, 2006; Swan & Scarbrough, 2005). In line with this discussion, the data analysis revealed that knowledge practices in the political setting of the publisher-developer relationship were influenced and mobilised by power dynamics and power games (section 8.3.3).

This political framing of knowledge outlines that knowledge integration in a political

boundary is not simply a question of establishing mutual understanding and shared interests, as some studies suggest (Carlile, 2004; Inkpen & Tsand, 2005). I argue that the partners involved in a political boundary refuse to address their differences and conflicts. The data analysis showed that these partners navigate round the problems, or sometimes turn a blind eye in order to create a working relationship with their partner. Carlile (2002, 2004) examines cross-boundary work in an intra-organisational context, where the level of differences, dependencies and novelty is expected to be much lower than an inter-organisational context that might offer extreme challenges, divergent interests and high levels of dependencies. This might explain why knowledge transformation and negotiation as suggested by Carlile (2002, 2004) were found to be inadequate to facilitate the publisher-developer relationship. While Carlile's framework highlights the significance of context, it simultaneously proves to be insufficient to explain the conflicting and political work across organisational boundaries. Therefore, by adding a complementary level to Carlile's Integrated framework, this study contributes to the literature, explaining how knowledge can be integrated across organisational boundaries where partners might experience extreme challenges and competing interests. I highlight that when the partners engage in a distrustful and political relationship, opportunistic practices such as knowledge hiding, deception and collusion facilitate selective knowledge sharing, thus enabling knowledge integration and collaboration.

One of the most significant findings of this research is recognising the productive and positive dimension of knowledge hiding, deception and collusion in facilitating knowledge integration and collaboration. Through these opportunistic practices the partners could protect their interests in a highly political and distrustful collaboration, thus completing the project regardless of their conflicts and differences. Although the relationship had high levels of distrust, both parties combined and coordinated together in knowledge hiding and deception in order to maintain a functional relationship. This means that, due to the political nature of their relationship, the partners weighed up whether knowledge sharing would risk their interests and they cautiously used opportunistic practices in order to share and hide knowledge where and when it was appropriate in the project (Haas & Park, 2010).

This discussion is in line with the studies that introduce knowledge hiding as bringing positive outcomes (Connelly et al., 2012; Evans et al., 2015; Saxe, 1991; Takala &

Urpilainen, 1999). In the context of the publisher-developer collaboration, while knowledge sharing and transparency could put the project and collaboration at risk, knowledge hiding, deception and collusion put both partners on a level playing field, empowered the partners and secured their partnership. Through these practices, the developer – who was seemingly the weaker partner, with minimum resources and less negotiation power – could protect themselves and secure the project. These practices helped them gain more control and increase their bargaining power in the relationship, thus assisting them in creating a working relationship (Evans et al., 2015). According to the publisher, this might not have benefited them temporarily, but might result in more stability for the development studios and the industry. The analysis revealed that knowledge hiding, deception and collusion were considered as common practices and labelled as "the only way forward" for the distrustful and political relationship between the publisher and developer – that is characterised by high levels of differences, dependencies and novelty in the industry.

8.4. Conclusion

I presented and discussed the findings of my study in this chapter, addressing the three research questions that were initially posed to understand how knowledge is integrated across organisational boundaries when there are high levels of differences, dependencies and novelty. I examined the role of boundary objects, power relations and trust in facilitating knowledge processes and collaboration in the publisher-developer relationship. The analysis highlighted the political and conflicting nature of the publisher-developer collaboration, adding that the creativity and unpredictability of the videogame development process, the dependencies of the partners, and their divergent interests resulted in a highly distrustful relationship, where partners felt at risk and fearful that the other party might jeopardise their interests. However the study revealed that despite the high levels of distrust, these two partners created a functional relationship and completed their projects. This was achieved through certain tactics and strategies:

1. A combination of static and dynamic boundary objects, accompanied by a mediating role of brokers, mobilised knowledge and power dynamics. This finding highlighted the shifting role of boundary objects ranging from

obstructive to dynamic, and the relational and social dimension of boundary objects.

2. Power relations were found to be dynamic and moving between partners, rather than being the possession of one party, hence their enabling and productive role in facilitating knowledge processes and collaboration.
3. In this distrustful relationship, knowledge hiding, deception and collusion were found to empower the partners and secure their interests. This helped them to share knowledge selectively and cautiously when it did not put the project or their interests at risk.

In the next chapter, I outline how these findings contribute to theory and practice.

Chapter Nine: Conclusion

In this final chapter I start with a summary of the thesis, highlighting the steps I have taken to complete this research (section 9.1.). Next I explain the gaps I have addressed and present my thesis contributions (section 9.2.). Then, I reflect on the limitations of my research and provide some suggestions for future research (section 9.3.). I finalise this thesis with some concluding remarks.

9.1. Thesis Summary

I started the research by reviewing the existing literature, and identified three key factors that seemed to facilitate knowledge processes in cross-boundary work, including boundary objects, trust and power (chapter two). This review also revealed that there were areas in the extant research in which knowledge was limited. Therefore further study was required to explain how these factors influenced knowledge processes across organisational boundaries (see section 2.4. for more details). Once I identified the limitations of extant literature, I formed three research questions that each addressed one of these factors consecutively, including boundary objects, trust and power (as detailed in section 2.5.). These research questions became a basis for my three data analysis chapters, each of which interrogated one of the questions in light of the data.

In chapter five, I addressed the first research question and explained how boundary objects facilitated/hindered knowledge processes in the publisher-developer collaboration (chapter 5). First I identified the shifting role of boundary objects during the course of a project. I argued that while static boundary objects could be obstructive at later stages of the project, they were essential in forming relationships between two divergent organisations, because they created an illusion of stability, trust and security. Facing the inadequacies of static boundary objects, these companies used dynamic boundary objects to reconcile the challenges, complexities and ambiguities of the co-production and relationship. Therefore, a combination of both static and dynamic boundary objects was required to facilitate the complex collaboration of developers and publishers. The thesis also recognised the relational dimension of boundary objects by revealing the critical role of brokers in

manipulating and mobilising boundary objects in order to pursue the company goals and interests, while facilitating work across organisational boundaries (chapter 8, section 8.1).

In chapter six, I addressed the second research question and provided an account of the interview data that elucidated power dynamics and their impact on knowledge integration in the publisher-developer collaboration. Rather than power inequalities, this thesis recognised power dynamics between the parties. Contrary to the dominant rhetoric in the industry, both companies had access to power resources at different stages of the collaboration. Informed by a Foucauldian/relational perspective, I argued that the nature of power/knowledge is contested and politicised. The parties used opportunistic practices, such as knowledge hiding, deception and collusion to contest knowledge and power. The thesis demonstrated that the seemingly weaker party had more power at later stages of development process. While confirming power games between the actors, the thesis stresses the productive and positive aspect of these power games and practices, showing that in a complex relationship where the parties have discrepancies and competition, these practices mobilise knowledge integration and collaboration (section 8.2.).

Chapter seven used the interview data to address the third research question that examines the role of trust in the publisher-developer relationship. Despite the significant emphasis on the trust-knowledge relationship, the literature fails to explain how trust can be developed in highly risky and unpredictable relationships, where knowledge sharing can be viewed as a risk-taking act that might leave partners vulnerable to each other (Mooradian et al., 2006; Rousseau et al., 1998). In this thesis, I showed that there were high levels of distrust in the political collaboration between developers and publishers. However, I argued that despite the distrustful relationship, the parties managed to create a working relationship by resorting to opportunistic practices, such as knowledge hiding, deception and collusion. In this section, I added a complementary level to Carlile's Integrated Framework that I believe contributes to the theory. This complementary level explains knowledge processes in highly politicised and complex relationships, where there are high levels of differences, dependencies and novelty between the two parties (for more detailed discussions see section 8.3.2).

In chapter eight, I developed my discussions and further described that understanding the power dynamics in the publisher-developer relationship is the pre-requisite to explain how knowledge is managed across organisational boundaries during the course of a project. The research reveals that these two companies have epistemic and social differences, and this coupled with the challenges of innovation processes, such as complexity, inter-dependency and unpredictability make the work across these organisational boundaries highly complex, distrustful and political. While the research highlights the political/distrustful aspect of the relationship, it recognises the positive aspect of power dynamics in this relationship by applying a relational/Foucauldian perspective (Mintzberg, 1983; Swan & Scarbrough, 2005). This perspective helps to explain the enabling role of power dynamics in shaping the relationship between two parties. Through these power dynamics, the partners manage to create a working relationship for the duration of the project.

9.2. Thesis Contributions

My thesis makes four contributions to the study of knowledge processes across organisational boundaries. Effectively managing work across diverse boundaries, such as organisational, functional, etc., matters because organisations with high levels of innovation and competition are dependent on the knowledge that diverse individuals, teams and groups bring to a collaboration. However, managing the collaboration between diverse domains and maintaining fluid knowledge processes across these is complex. While scholars working in the field advocate the use of different methods and strategies to facilitate the work across different boundaries, there were areas in the research that required further study and explanation. My thesis addresses these gaps in the knowledge and makes four main contributions to the theory as below.

The first contribution is to the literature on boundary objects. The thesis identifies the shifting and relational role of these objects, and explains how boundary objects facilitated and hindered knowledge processes during the course of a project in the publisher-developer cross-boundary work. Whilst the literature highlights the critical role of boundary objects in facilitating work across boundaries, and recognises the dynamic and multi-dimensional aspect of boundary objects, it also suggests that there is limited understanding of how these objects evolve during the course of a project (Nicolini, 2011;

Nicolini et al., 2012; Scarbrough et al., 2015; Star, 2010). The current studies also recommend that further research is required to address the impact of social processes and interactions on the effectiveness of boundary objects and knowledge processes (Lainer-Vos, 2013; Zeiss & Groenewegen, 2009).

This thesis addresses these limitations in the boundary object literature and makes a contribution by firstly identifying boundary objects as evolving during the course of a videogame development project. I argue that while static boundary objects can be obstructive at later stages of the project, at the outset they are essential in forming relationships between two divergent organisations, because they create a degree of stability, trust and security. Facing the inadequacies of static boundary objects and their obstructive impact on collaboration at the later stages of the project, these companies used dynamic boundary objects to reconcile the challenges, complexities and ambiguities of their creative co-production. Therefore, a combination of static and boundary objects was required to facilitate the complicated and political relationship between the publisher and developer. My second contribution to the study of boundary objects is recognising the politicised and relational dimension of boundary objects. I do this by revealing the vital role of brokers in manipulating and mobilising boundary objects in order to pursue the company goals and interests, while facilitating work across organisational boundaries.

Thirdly, I make a contribution to the body of knowledge that links trust and knowledge integration, showing that companies still formed and shared knowledge, and worked together, despite high levels of distrust between them. This is in contrast to the existing literature that sees the development of trust as a key factor in facilitating knowledge and cross-boundary work (Adler, 2001; Argote et al., 2003; Dyer & Chu, 2003; Jonsson & Kalling, 2007; Narayandas & Rangan, 2004; Newell et al., 2007; van Wijk et al., 2008). Although the scholars stress that development of trust in highly risky and uncertain work environments can be difficult and complicated (Currall & Inkpen, 2006; Hislop, 2013; Janowics-Panjaitan & Noorderhaven, 2009; Mooradian et al., 2006; Rousseau et al., 1998) the literature fails to explain how knowledge can be integrated in these settings. Due to the complexities, dependencies and uncertainties of the publisher-developer relationship, trust and knowledge sharing were observed as risk-taking acts that could jeopardise both partners' businesses. However, the parties involved in the relationship resorted to

opportunistic practices in order to create illusions of trust and stability and thus to maintain a working relationship. The thesis showcases a trust-distrust dynamic, where on the contrary to what the literature offers, trust and distrust are not mutually exclusive.

As a result of this finding, I add a complementary level to Carlile's Integrated Framework, explaining knowledge processes across organisational boundaries. My intention here is not to criticise Carlile's framework, but to show that where there are high levels of differences, dependencies and novelty, knowledge sharing, knowledge translation and transformation do not seem to be adequate practices to reconcile the complexities and challenges of the relationship. In these circumstances, actors resort to practices such as knowledge hiding, deception and collusion to facilitate knowledge integration and maintain a functional collaboration. Carlile (2002, 2004) highlights the importance of context in defining the strategies and methods to facilitate knowledge sharing, adding that depending on the level of novelty, differences and dependencies between the partners, knowledge processes require different mechanisms and methods to be managed. However, he elaborates the challenges and strategies for knowledge integration in an intra-organisational setting and the literature does not address inter-organisational settings, where the relationship is expected to be political and more complex. My thesis addresses this limitation, by adding a level to Carlile's framework and explaining how knowledge is managed in these extreme contexts.

Finally, my thesis contributes to the theory that has called for empirical research to look at the role of power in knowledge processes, explaining how knowledge is integrated in political contexts (Karreman, 2010; Kimble et al., 2010; Knorr-Cetina, 1999; Carlile, 2002, 2004; Christensen et al., 2000; McGivern & Dopson, 2010; Oborn & Dawson, 2010). I draw upon a Foucauldian perspective on power and knowledge and argue that power is a productive force accessible to both partners in the relationship and the power games between these partners shaped knowledge processes. The contribution of this thesis is recognising power dynamics as a positive force that influenced boundary objects, trust and knowledge processes, thus brought positive outcomes and created a working relationship between the publishers and developers.

The contribution of this thesis to practice is the awareness it gives to managers about the sophisticated processes and practices in place to manage knowledge across publisher-developer boundaries. The dynamic, social and shifting role of boundary objects brings to the attention the transient dimension of some objects, hence this cautions managers about the resources they allocate to develop and maintain some of these objects, and that they might not be effective during all stages of the project. The thesis also values the role of dynamic boundary objects and employing hybrid brokers (producers) who are skilled and experienced individuals aware of both parties interests and internal politics. Being ignorant in these areas might lead to great financial loss and failures in work across boundaries.

9.3. Thesis Limitations and Suggestions for Future Research

One of the limitations of the study can be connected to my methodological design. Although the research was informed by the existing literature, the aim of the research was exploratory and I adopted an inductive approach to the research, which resulted in generating theories and contributing to the existing literature on knowledge processes across organisational boundaries. The convenience sample and not having many female participants in this sample can be other issues critics might point to in my methodological design. As elaborated in section 4.3.1., I faced lots of difficulties in gaining access and the selection of my participants. I am aware of the limitations of my methodology and recognise that my findings cannot be generalised. I confirm that the thesis provides an initial map to guide future research efforts to explore knowledge processes in much more detail, using a larger sample. As a result, I suggest applying alternative methodological perspectives for further research. This will provide an opportunity to examine the findings and will result in additional insights.

Developing an understanding of knowledge-power dynamic can be hard to achieve because the researcher needs to capture practices and interactions, and this can be one reason why the empirical research on power-knowledge relations is sparse in the extant literature. This thesis identifies the impact of power on knowledge processes and explains the dynamic between the two, through an in-depth analysis of participants' detailed accounts in three networks of publisher-developer collaborations. In order to increase the credibility of my discussions, I used cross-checking within and between these networks. I also validated my findings by asking some of the participants to read and comment on my

work. However, I suggest that further research might benefit from other methods, such as observation or participant observation in order to examine knowledge-power dynamics. As stated in chapter four, due to the sensitivity of the subject and the highly risky technology the companies were working with, gaining and maintaining access was a barrier to my research, and as a result, this limited my options in methods I could implement for my research. Perhaps, in future research, this problem can be overcome and therefore, the researcher can have a closer look at the power-knowledge dynamics by in-depth research methods, such as ethnography or non-participant observation.

This thesis focused on inter-organisational politics and interactions to understand how knowledge is integrated across organisational boundaries and how boundary objects, trust and power dynamics contributed to knowledge integration within these settings. One limitation of my empirical research has been our little understanding of these cross-disciplinary practices and interactions within the development studios. As noted in the study, development studios are made up of different teams and disciplines and this suggests a need for further research to bring into sharper focus the internal practices to examine (1) how boundary objects are utilised to facilitate knowledge sharing within the studios between different individuals/teams (2) how boundary objects evolve through the course of the project in this setting (3) how trust/distrust facilitate or hinder knowledge integration (4) how power dynamics impact knowledge integration in this process.

The relational view of knowledge and power has important implications for further research in this area. This thesis highlighted the social and contested nature of knowledge and confirmed that cross-boundary work requires specific practices and processes to manage knowledge that varies from context to another context. This is underlined by Carlile (2002, 2004) and a recent work by Lainer-Vos (2013) on the role of boundary objects in facilitating collaborations. This thesis offers an account that is limited to only the traditional publisher-developer collaboration in the UK videogames industry intended to produce AAA games that require large investments from the publisher and hence the risky and sensitive state of the relationship. Based on these insights it would be useful to look at other inter-organisational joint ventures within the UK videogames industry that employ different business models, such as less risky publisher-developer collaborations, in which the publisher invests a small amount compared to AAA projects and the development

studio self-publishes the product. In this context, the relationship is expected to be less intense and risky, therefore it is expected that the partners might adhere to less opportunistic behaviour in their knowledge practices.

Another area I see as being of particular interest for further and more detailed investigation is that of the collaboration between publishers and developers in other geographical settings, such as Japanese and German publishers or developers. Future work can bring into focus the role of culture in defining cross-boundary work and knowledge integration, as it was reinforced by recent work in the literature such as Liao et al. (2012) and Sanz-Valle et al. (2011). Given some similarities that can be found between the UK based collaboration and the other geographical loci, it would be insightful to compare and contrast the findings of this research with a study of inter-organisational work where for instance a Japanese, Chinese or German company is involved. This could provide valuable insight for both theory and practice, investigating the impact of culture on shaping knowledge practices and processes. As explained earlier, this study has analysed three different cases of the publisher-developer relationship, where all three projects were completed successfully. I would also recommend that further study be carried out to examine the publisher-developer relationship when the projects fail, forming an interesting comparative study with this research.

9.4. Concluding Remarks

Videogame development is a complex, unpredictable and iterative process that involves a series of interdependent, emergent and underspecified tasks and goals. A dominant business model in the videogame industry is the publisher-developer relationship that is formed based on temporary projects, and videogames are co-produced by the collaboration of these two seemingly different and divergent companies. Despite its significance and contribution to the industry, this relationship, however, has proven to be challenging and conflicting, due to the discrepancies and competition between the two organisations. This problem instigated my research and I aimed to explain how two different organisations with divergent interests, facing the challenges of innovation, are able to process and integrate knowledge whilst collaborating.

I studied the collaboration between the publishers and developers in the videogames industry, in which they worked on temporary projects, needing large sums of investment, big teams and knowledge integration between the parties involved. The thesis showed that although the two companies had divergent or competing interests, both benefited from completing the project. Therefore, irrespective of their conflicts and challenges, they found ways to navigate round their problems. Rather than address their disagreements, they resorted to opportunistic practices to facilitate knowledge integration and collaboration. There were high levels of distrust between these companies, and they used knowledge hiding, deception and collusion to facilitate their collaboration and knowledge integration. They shared knowledge selectively and, when it was necessary, they created fake knowledge. However, the other party often turned a blind eye to these practices. The study revealed that the power games between the two parties were a positive force, mobilising and enabling knowledge processes. In other words, power games and opportunistic practices enabled the two competing parties to reduce the risks and secure the completion of their project. The thesis highlighted that the parties utilised a combination of static and dynamic boundary objects, as well as skilled brokers to facilitate their practices and processes, and ultimately form and maintain a functional relationship.

The dominant rhetoric within the industry emphasises the power inequalities between the publisher and developer, portraying one as an exploiter and the other as a victim. However, this research highlights that rather than power inequalities, the relationship is formed and mobilised by power dynamics. Thus, rather than eradicate the publisher-developer relationship, the thesis suggests that policymakers or the senior management could find ways to empower and solidify the relationship within the videogames industry.

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Appendix A. Industry Proposal

Title of the Research:

Playing the Game: The Study of Knowledge Processes Across Organisational Boundaries in the Videogames Industry

Researcher:
Sara Turner, PhD Student,
School of Business and Economics
Loughborough University
Email: S.Turner@lboro.ac.uk
Tel: 07850472813

Supervisors:
Prof. Donald Hislop, D.Hislop@lboro.ac.uk
Prof. Laurie Cohen, L.Cohen@lboro.ac.uk

Aims and Objectives:

This study attempts to analyse how knowledge is shared, created and transformed in the collaborations between inter- and intra-organisational disciplines and teams in the context of a videogame development studio. Since knowledge creation and innovation form the basis of collaboration of the industry, understanding knowledge processes in this context will shed some light on what impedes and facilitates these collaborations. As a result, this study will address the following questions in the context of the development studio's multidisciplinary collaboration:

- What are the obstacles to knowledge creation/sharing within a development studio?
- What are the obstacles to knowledge creation/sharing in the developer- publisher collaboration?
- How knowledge is transferred/shared/transformed between disciplines within a development studio?

- How knowledge is transferred/shared/transformed in the developer-publisher collaborations?

Methods:

This study aims to conduct interviews with the studio directors and senior managers in both developers and publishers. This will form an understanding of the dynamic between different individuals/teams within development studios, as well as the interactions between the publishers and the developers. Each interview will take an hour and it will be either recorded or noted, upon the participant's approval.

Confidentiality and Anonymity:

The research will be carried out within the ethical framework set out by Loughborough University, as well as under the relevant non-disclosure agreement deemed necessary by the company/person involved. Confidentiality and anonymity will be taken seriously within this research; the provisions of the Data Protection Act 1998 and the University's Data Protection Policy will be complied with. The notes/recordings collected from the meetings will be encoded or anonymised and they will be kept in a safe and secure place. The participants will be assigned pseudonyms or codes and the data will be stored by these names or codes in a safe and protected file. The data will all be destroyed after the project is finished.

Conclusion:

This study will have both academic and practical contributions. It will extend the current academic literature and develop a conceptual framework, which explains knowledge management processes in the type of cross-community collaboration involved in game production.

In terms of practical contributions, the study will also provide the senior managers involved in these collaborations with:

- **Feedback of the most important factors facilitating and inhibiting effective collaborations.**

This feedback could contribute towards more effective end of project post-mortems, for both internal and joint reviews.

Appendix B. Interview Questions

Would you please talk about your experience in the videogame industry?

Which label/game did you enjoy making the most or were most proud of? Why (organisational/team and creative perspective)?

Being creative is an intrinsic part of game development – how is the creativity of developers facilitated and managed?

- Can you bring some illustrative examples?
- What challenges exist while trying to manage the creative process?

How are projects managed? **(RQ1)**

- What type of software/tools/processes do you use to manage projects?
- What are the biggest challenges involved in keeping projects to timescale and budget?
- What processes are put in place to manage the publisher relationship?

How do the publishers and developers interact during the concept/production/finaling stages of game development **(RQ1)**

- Do publishers and developers experience any conflict in the production process?
- How are such conflicts managed and resolved?
- What causes the dynamic between the pub./dev. to shift?
- What events trigger this?
- Failed milestones?
- Major changes demanded by pub./dev.?
- Lack of perceived progress / improvement in quality?
- Subjective judgements on project status?
- Pressure from other areas of the publisher business?

Who is in charge of finalising decisions in the above-mentioned stages of the product development? **(RQ 2 & 3)**

- What's the role/contribution of the publisher in the above processes?

How are decisions made in regards to each of the following? Who's the most influential/ least influential in the process? **(RQ 2 &3)**

- Underlying tech
- General engine features
- Platform-specific features
- In-game budgets
- Middleware to use
- Networking tech
- Experimental R&D
- Team structure
- Hierarchy
- Creative vision
- Creative direction
- Gameplay direction
- Gameplay innovation
- Project management
- Hiring plans
- Outsourcing requirements
- Development process
- Review processes
- Sign-off authorities
- Workgroups (scrums)

Appendix C. The Coding List

The Nature of Publisher-Developer Relationship

- Subjective
- Product Driven
- Iterative vs. Horizontal
- Collaborative
- Adversarial and Complex (Emergent code)

How They Manage Their Relationship

Boundary Objects **(RQ1)**

- Static
  - Contracts
  - Game Design Documents
  - Project Plan
- Dynamic
  - Producer
  - Milestone
  - Meetings
- A Combination of Objects (Emergent code)

Challenges and Power Inequalities **(RQ2)**

- Differences
  - Perception / Lack of Understanding
  - Objectives
  - Skill sets

- Developer Dependencies
- Publisher Dependencies (Emergent code)
- Decision Making (DM)
- Communication
- Power Games (Emergent code)
- Power Dynamics (Emergent code)

Trust & Distrust **(RQ3)** (Emergent codes)

- Credibility
- Bias
- Transparency
  - Man-Months
  - Money
  - Time
  - Deception
  - Knowledge Hiding

- Knowledge Hiding (Emergent code)
- Deception (Emergent code)
- Reaction To Knowledge Hiding & Deception (Emergent code)
  - Tolerance (Finding ways round it)
  - Control