Owner Dynamic Capabilities and Benefits Management in Public Information Systems Projects: A Qualitative Content Analysis

Research-in-Progress

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Abstract

In many IS change circumstances the importance of project management capabilities has been emphasised in classic analyses. However, most studies focus only on the project supplier's viewpoint, and there has still been a lack of research on how the project owner's management capabilities can lead to effective benefits management for IS projects. The aim of paper is to examine the concept of owner dynamic capability, and how their post-implementation benefits can be realised within the context of IS project and its continuously changeable transformation. Qualitative content analysis was adopted to investigate 15 government reports covering 31 IS projects in the UK public sector. Based on the empirical data, the findings demonstrate the significance of project back-end capabilities as one type of owner dynamic capability in managing post-implementation benefits from IS.

Keywords: Owner dynamic capabilities; project back-end; benefits management; information systems project; public sector; qualitative content analysis

Introduction

IS projects in the public sector still have underperformed due to their complexity and strategic ambiguity (El-Haddadeh et al., 2013; Ravishankar, 2013; Sandeep and Ravishankar, 2014). Public sector activities have clear differences when compared with private sector businesses (Borins, 2001; Ridder et al., 2005; Piening, 2013). Public businesses generally focus on organisational performance and satisfying reporting requirements, whilst the for-profit-strategy is the main approach in the private sector (Collins, 2005; Grimsley and Meehan, 2007; Piening, 2013). There are three main differences. First, the main objective of public sector business is to achieve certain social and political needs, not to maximise profit (Collins, 2005; Pablo et al., 2007). Second, the opportunities for accessing external resources are more limited than in a private business environment, and this leads to public organisations concentrating more on internal resources and potential areas of expertise (Pablo et al., 2007). Third, public projects are closely related to government policy and funding, and government strategies are the triggers for both generating projects and a significant amount of strategic change activities (Boyne, 2002; Piening, 2013). Our aim in this paper is to contribute to a deeper understanding of why public sector IS projects are so challenging. We will do this theoretically by introducing the concept of 'owner dynamic capabilities', and empirically by reviewing the experience of 31 UK central government IS projects. We will bring these two contributions together by showing the importance of benefits management as a distinctive project 'back-end' owner dynamic capability.

In the literature, diverse studies have been carried out examining techniques and methodologies to contribute to the efficiency of project management (Cicmil et al., 2006; Kolltveit et al., 2007; Kurbel, 2008; OGC, 2009; PMI, 2013). In particular, much research has been published regarding "project capabilities" (Feeny and Willcocks, 1998; Davies and Brady, 2000; Brady and Davies, 2004; Crawford, 2005; Davies and Hobday, 2005; Ethiraj, 2005; Zwikael et al., 2005; Müller and Turner, 2007). However, it is generally acknowledged that the rate of project success and its benefits realisation are still far from satisfactory (Ward et al., 1996; Pan et al., 2006; Ashurst et al., 2008; Standish Group, 2009; Eveleens and Verhoef, 2010; Doherty et al., 2012; Petter et al., 2012; Sandeep and Ravishankar, 2014). Moreover, most studies of project capabilities focus only on the project supplier viewpoint (Hislop, 2002; Flowers, 2007; Winch, 2014). The owner's project capabilities have received relatively little attention (Winch and Leiringer, in press).

The business aim of suppliers is to make the project a success: to schedule, to budget and to the required specification as defined in their contract with the owner. But the owner may have a different perspective (Brusoni et al., 2001; Bryde and Robinson, 2005; Flower, 2007). The successful delivery of system as specified is, needless to say, also an important goal for the owner (Wateridge, 1998; Thomas and Fernández, 2008; Chen et al., 2009; Flyvbjerg and Budzier, 2011), but this does not guarantee that meaningful business benefits are realised (Ashurst et al., 2008; Melton et al., 2011). Yet it is these business benefits which are at the core of the business case which justified the IS investment in the first place. Thus, a successful project is not a sufficient condition but only a necessary condition for the business success of the investment. It is for this reason that we use the term "owner" rather than "client" to denote this larger business responsibility rather than focusing on the contractual relationship for project delivery with the supplier which the word "client" implies (Winch, 2014).

The project management literature has developed the concept of project capabilities (Brady and Davies, 2004), where capabilities are the organisational ability to mobilise resources towards strategic objectives. However, this formulation of project capabilities does not distinguish between dynamic capabilities and operational capabilities (Winter, 2003; Helfat et al., 2007). We will develop a more nuanced perspective on project capabilities by distinguishing between the dynamic capabilities of owners from the operational capabilities of suppliers (Winch, 2014) by developing the concept of *owner dynamic capabilities*. We will then show how important benefits management is as an owner dynamic capability.

Thus our paper makes two main contributions to theory in information systems management. We will first draw on a unique data base of major public sector IS projects to identify benefits management at the back-end of projects as a distinctive dynamic capability which owners require to move their IS investment from practical completion (the system works as expected) to beneficial use (the system delivers the expected business benefits). Second, we theorise benefits management as a crucial owner dynamic

capability for investors in information systems. The paper proceeds as follows. First, we review the relevant literature including project capabilities, dynamic capabilities, benefits management, and IS projects in the public sector. Then, the methodology and the source of data will be explained; a qualitative content analysis method was adopted, and the 10-year data of UK government reports covering 31 IS projects was analysed. This is followed by initial results and analysis to identify owner dynamic capabilities and their impact on post-implementation benefits realisation. As concluding remarks, the summary and original contributions will be provided.

From Project Capabilities to Owner Dynamic Capabilities

After Davies and Brady (2000) defined "project capability" as the organisational resources such as knowledge, skills, and experience, scholars have given their attention to the organisational aspects of project capability (Brady and Davies, 2004; Söderlund, 2005; Bredin, 2008; Melkonian and Picq, 2011; Davies and Brady, in press) and their contribution to successful project outcomes (Partington et al., 2005; Suikki et al., 2006; Stevenson and Starkweather, 2010). In this analysis "capabilities" are clearly distinguished from "competencies" which are "work-related knowledge, skills and abilities" (Nordhaug and Gronhaug, 1994, p. 90; see also Delamare Le Deist and Winterton, 2005) the skills and knowledge held by individuals. Scholars also emphasise the value of project capability for realising "business change" (Brady and Davies, 2004; Ashurst et al., 2008). Thus, developing project capabilities can be recognised as an essential aspect to ensure efficient business change and benefits. However, there is little empirical evidence to show how business change and benefits can be realised through project capabilities (Ashurst et al., 2008), and that which there is focuses on those possess by the suppliers (contractors) on the project such as Ethiraj et al. (2005) rather than the owner of the project (Flowers, 2007; Winch 2014).

Normally business change cannot be accomplished solely during a project life cycle, and a successful project itself cannot guarantee business benefits. Improved business processes can only be stabilised through the operation of new system after the project. In order to grasp the project's potential benefits, project owners need to consider a wider approach by recognising the business continuity from the project stage to the next-operation stage (Pellegrinelli, 1997; Winch, 2014). In other words, recent research in project management has paid relatively little attention on the importance of continuity between a project implementation stage and a post-implementation stage for benefits realisation. Aritua et al. (2009) have developed the concept of the "intelligent client", but the use of the word "client" implies a focus on the delivery of the project, and the owner's contractual role in that delivery. This is necessary but not sufficient for realising the benefits of the investment in the information system for the owner (Winch, 2014).

Since Teece and Pisano (1994) published their influential work on dynamic capabilities, there have been numerous relevant studies in strategic management research (e.g. Spender, 1996; Zollo and Winter, 2002; Winter, 2003; Teece, 2007) which are helpfully summarised by Helfat et al. who define a dynamic capability as "the capacity of an organization to purposefully create, extend, or modify its resource base" (2007, p. 4). Two principal lines of enquiry have evolved in the literature (Di Stefano et al., 2010) - those who follow Teece et al. (1997) with a focus on strategic management in high velocity market environments and those who follow Eisenhardt and Martin (2000) who are more focused on medium velocity market environments.. This is the critical distinction between two perspectives on dynamic capabilities in the strategic management literature (Peteraf et al., 2013). Teece et al. (1997) argue that the framework can be applied to environments of rapid technological change under continuous resource configuration as a source of sustainable advantage. In contrast Eisenhardt and Martin (2000) argue that a dynamic capability is not directly related to a sustainable advantage, but the business processes which lead the best practice of organisational and strategic routines - separating performance issues from the dynamic capability.

In order to build up the theory of owner dynamic capabilities in IS projects, we follow Eisenhardt and Martin's (2000) approach. They consider dynamic capabilities as catalytic capabilities by focusing on improving organisational processes and routines, rather than generating performance outcomes directly. Similarly a project owner's capabilities need to focus as much on post-implementation benefits rather than direct performance of the project itself. Second, the public sector is an environment of medium or low velocity of technological change compared to some areas of the private sector. Drawing on this literature, we define owner dynamic capabilities as the dynamic capability required by project owners in

order to efficiently initiate, execute, and close out an investment project *and also* to bring the reconfigured operational capabilities into beneficial use.

Benefits Management in Public IS Projects

Benefits management is defined as the process of organising and managing IT value creation and subsequent benefits realisation (Ward and Elvin, 1999). There has been continuous research attention on how the benefits of IS and relevant IT value creation in the public/private sectors are realised (Shang and Seddon, 2002; Ward et al., 2008; Seddon et al., 2010; Doherty et al., 2012; Wilkin et al., 2013; Pan et al., 2015). Pang et al. (2014a) analyse IT organisational value creation in the public sector by applying a resource-based view. Similarly, Wilkin et al. (2013) focus on value creation of IS deployment which is derived from IT governance performance. Pang et al. (2014b) examine the administrative efficiency of the US government by investigating cost efficiency between IT spending and profits. IS have been planned and developed as a form of project or programme. However, most IS studies with respect to benefits realisation management have been carried out without recognising the importance of business continuity through an IS development project period. In addition, intangible aspects such as organisational and governance factors have been insufficiently considered. In other words, IS projects and benefits realisation should be considered within a wider organisational context, and the accountable organisation needs to be the project owner. Not only project benefits but post-implementation benefits after IS deployment have to be covered.

In order to develop a new IS or change the legacy system, the project form of organisation has been recognised as one of the most suitable approaches in recent times (Morris, 2013). Various issues such as systems change, high technology capital goods and operational information technology infrastructure have been covered by employing IS projects (Pellegrinelli, 1997). Especially in the public sector, IS and relevant technologies have become a key element to deliver more efficient services (Currie, 2012). In this regard, the importance of organisational considerations has been recognised as the most significant managerial factor, whilst the successful implementation of systems and technologies was traditionally seen as important (Newman and Robey, 1992). Thus, many researchers have examined the IS project in the public sector from multiple perspectives including organisations, strategies, and politics. In spite of the recognition of the influence of organisational aspects in the context of an IS project, managerial difficulties have escalated. A few characteristics of the IS environment have led to difficulties for developing and managing those projects. For example, Davies and Hobday (2005) emphasise the complexity of IS projects by developing the concept of "complex products and systems". We can observe those difficulties easily through analysing the NPfIT (National Programme for Information Technology), the largest and the most controversial IT project in the world (Currie, 2012). In order to understand these problems structurally, Leavitt (1964) suggests a socio-technical change model to identify relationships between structure, people, technology and task and their effects on IS projects. Lyytinen and Newman (2008) re-interpreted the model by emphasising the gap between structure and technology. Thus, we echo this literature by arguing that the key issue in IS projects is not technology but organisational aspects. Consequently, it is essential to recognise and understand the impacts of IS on various elements including organisational ones.

In response to this review, we pose the following research questions within the context of owner dynamic capabilities in IS projects in the public sector: RQ1- what are the common issues of IS projects in the UK public sector? RQ2- which owner dynamic capabilities can make a contribution to realising post-implementation benefits in IS projects in the public sector? The method and the sources of data are explained next.

Qualitative Content Analysis and Sources of Data

This research pursues a qualitative approach to research methodology. Specifically, a qualitative content analysis method has been adopted using an inductive data categorisation. The origin of the content analysis method was established from a quantitative perspective in finding out the frequency of words and categories (Schreier, 2012; Krippendorff, 2013). However, a few researchers have emphasised the significance of qualitative content studies for understanding the context of quantitative data and their formulation (Schreier, 2012; Kuckartz, 2014). For example, Berelson (1952, p.114) demonstrated that "a

great number of non-numerical content studies call for attention by virtue of their general contribution in insight and interest". Similarly, Kracauer (1952) asserted that too much quantification of data can give rise to the inaccuracy of analysis. Thus, more theoretical/context-based qualitative research can complement the limitations of quantitative content analysis. In this paper, selected reports were initially coded qualitatively, and then summarised the initial results by using frequency counts to present overviews of the data. This approach follows earlier work on the construction (Dalton, 2007) and defence (Kebede, 2011) sectors using the same methodology. National Audit Office (NAO) value-for-money reports, our main source of data for qualitative content analysis, were explored to examine the key features and capability issues of UK government IS projects - see details for how the reports were selected at the next paragraph. Published NAO Reports are reviewed by the Public Accounts Committee in the UK Parliament. One of the main objectives to publish value-for-money reports is to share government business issues and to share lessons learnt (NAO, no date). Though many of government IS projects have still been challenged, the NAO and their reports have made an effort to give lessons learnt from these huge and complex public IS projects. Regarding this, the NAO reports do not always indicate certain required capabilities or project success criteria, but describe their issues about policies and projects. From this data, we aimed to investigate required owner dynamic capabilities inductively; we assume that these reports can give us valuable insights - learning from challenged projects - for analysing government IS projects. Moreover it can be acknowledged that those reports have a certain level of legitimacy as official data, and can be regarded as one of the most reliable sources of information for analysing UK public sector project management. This is followed by the explanation about how the final set of reports was selected and analysed.

Report selection is the first stage in developing the criteria for selecting the sources of data. Currently, there are 1,576 NAO reports available (accessed on 8 January 2015), and they are classified using 28 sector categories provided by the NAO. All of the published reports by the end of 2013 were chosen from the category of "ICT and Systems Analysis" as a filter. One report was excluded as it is regarded as outdated; it was released on 10 February 1984. As a preliminary task, the initial set of reports was briefly reviewed by reading the list of contents and the executive summary. Amongst 38 initially selected reports, 15 reports were identified as the final set for analysis, and those 15 discuss 31 UK cases. The rest of the reports describe government policy or operational services. Based on the 15 selected reports, the project/programme information in diverse UK departments was collected including health, the environment, transport, defence, and broadcasting. More details - such as project description, size, initial feasibility, and major deliverables - were also collected. Nvivo 9 software was employed to carry out an inductive content data coding and node/hierarchy development. Adopting this qualitative analysis software offers more integrated and visualised functionalities that assist the efficiency of data collection and analysis (Davidson and di Gregorio, 2011).

The data coding procedure works as follows. Whole reports were extracted by using each paragraph as a default unit of analysis, and each key meaning was identified. Then, each paragraph was grouped into certain nodes on the basis of its meaning; mostly they were coded into one node, but a few sentences were also coded into two or more nodes if they had multiple implications. By adopting an abductive approach (Van de Ven, 2007), the nodes were created based on the context of paragraphs, and the names of nodes were determined by using the existing terminologies in the reports (Hsieh and Shannon, 2005). The data collection and analysis process of this study can be regarded as partially borrowed from grounded theory. Grounded theory is an iterative, interactive and abductive method. In particular, abductive reasoning improves theory construction (Charmaz, 2011). Thus, 'catching key meanings of each paragraph', 'abductive node creation' and 'categorising nodes/paragraphs' were carried out iteratively until current nodes covered the key meanings of whole paragraphs until the theoretical saturation point was reached. After completing the data coding, the nodes were developed into a hierarchy model by categorising abductively like nodes. For example, the two nodes, 'End user support' and 'Training & skill', are categorised as the issues of 'HR & Organisation'. In this case, by accommodating their contextual meaning, the node 'HR & Organisation' contains the other two nodes as a higher level node. As a result, a 3-level data hierarchy was developed - see Table 1, 2 and 3 for details. To improve data quality and to stabilise the structural consistency, the 'node creation' and 'hierarchy development' were also inductively and iteratively carried out. As the final step, the data were summarised using frequency counts of the number of paragraphs (and hence the number of projects) coded to each node.

Results

Table 1, 2 and 3 show the hierarchies of nodes Project management (PM), Information systems (IS), and Public sector (PS), respectively; the names of three high-level nodes were determined in response to the literature review. In addition to the three main nodes, there are two additional supportive nodes, Case Description (CD) and ETC (ET). Node CD comprises descriptive information including background, objective, budget, cost, and schedule of the 31 projects. Node ET (ETC) is composed of miscellaneous paragraphs such as a foreword. We excluded the nodes CD and ET from the data analysis; a few paragraphs in the supportive nodes were also coded into the main nodes PM, IS, and PS if they contained important contextual implications. As the final outcome, 788 paragraphs were coded into 75 nodes in the three high level nodes: the node PM engages the main issues occurring in managing projects in UK public IS projects, the node IS involves managerial key points in the IS environment, the node PS deals with the key features of business patterns in the public sector - compared with the private sector.

Code	Nodes (Level 0, 1 & 2)	Reports	Unit	Unit (%)
PM-0-0	PROJECT MANAGEMENT	12	337	100%
PM-1-0	Contract Management	8	48	14.24%
PM-1-1	Pricing	3	5	1.48%
PM-1-2	Roll-out & Close-out	5	7	2.08%
PM-1-3	Sub-contraction	4	7	2.08%
PM-1-4	Supplier Management (incl. Negotiation)	8	29	8.61%
PM-2-0	Management Approach	4	14	4.15%
PM-2-1	Methodology	4	10	2.97%
PM-2-2	Programme & Inter-Project Management Perspective	2	4	1.19%
PM-3-0	Organisation Management	12	135	40.06%
PM-3-1	Communication	8	19	5.64%
PM-3-2	Governing Structure, Process & Staffing	9	31	9.20%
PM-3-3	Leadership	4	7	2.08%
PM-3-4	Responsibility & Ownership	10	29	8.61%
PM-3-5	Senior Level Engagement	3	12	3.56%
PM-3-6	Stakeholder Involvement	12	37	10.98%
PM-4-0	Planning & Change Management	8	68	20.18%
PM-4-1	[General] Planning & Change Management	4	8	2.37%
PM-4-2	Costing Change & Control	6	11	3.26%
PM-4-3	Organisational & Personnel Change	8	10	2.97%
PM-4-4	Requirement & Contractual Change	7	15	4.45%
PM-4-5	Schedule Management	4	9	2.67%
PM-4-6	Scope Creep	6	8	2.37%
PM-4-7	Uncertainty around the Estimated Benefits	4	7	2.08%
PM-5-0	Quality Management	9	59	17.51%
PM-5-1	[General] Quality Management	2	3	0.89%
PM-5-2	Consistency for Operational Works	6	8	2.37%
PM-5-3	Fallback Plan	3	6	1.78%
PM-5-4	Performance Management	9	23	6.82%
PM-5-5	Reporting & Documentation	8	9	2.67%
PM-5-6	Reviewing & Monitoring	7	10	2.97%
PM-6-0	Risk Management	8	13	3.86%
PM-6-1	Risk & Conflict Management	8	13	3.86%

Table 1. Data Hierarchy - Project Management Node

135 paragraphs were coded into the node 'Organisation management' as the most frequently occurring (40.06%) in the PM node. Amongst the 15 reports, twelve mention the significance of organisation

management and relevant issues. This can be explained because most of the UK IS projects discussed in the NAO reports place greater emphasis on organisational values including the importance of governance structure, managerial responsibility, and stakeholder involvement. Furthermore, the majority of reports also depict the changeability of a project (68 paragraphs; 20.18%). This includes scope creep, costing change & control, requirement and contractual change. In contrast to the gravity of organisational aspects, 'Contract management' was regarded as relatively less-important (14.24%). This result empirically demonstrates the opposite viewpoint of classic analyses that contractual/commercial management capabilities have been tacitly recognised as the major portion of the project owner's capability (Pryke and Smyth, 2006). From a project owner's perspective, this can be interpreted to mean that organisational management capabilities as well as contractual ones should be stressed in order to make post-implementation benefits feasible as dynamic capabilities.

Code	Nodes (Level 0, 1 & 2)	Reports	Unit	Unit (%)
IS-0-0	INFORMATION SYSTEMS	11	353	100%
IS-1-0	Context of Information Systems	11	60	17.00%
IS-1-1	Approach	7	12	3.40%
IS-1-2	Complexity & Uncertainty	6	10	2.83%
IS-1-3	IT as Business Process Change	11	38	10.76%
IS-2-0	Control & Support	7	40	11.33%
IS-2-1	On-Going System Support	4	5	1.42%
IS-2-2	System Failure Control	5	12	3.40%
IS-2-3	System Quality Management	2	4	1.13%
IS-2-4	Testing (Incl. Pilot, Proof of Solution)	7	19	5.38%
IS-3-0	Data Management	8	51	14.45%
IS-3-1	Data Migration	5	11	3.12%
IS-3-2	Data Quality	7	9	2.55%
IS-3-3	Data Security, Accessibility & Ethics	8	31	8.78%
IS-4-0	HR & Organisation	11	130	36.83%
IS-4-1	Customer Management	3	18	5.10%
IS-4-2	End User Requirement & Engagement	11	43	12.18%
IS-4-3	End User Support	7	26	7.37%
IS-4-4	Knowledge & Experience	4	17	4.82%
IS-4-5	Training & Skill	9	26	7.37%
IS-5-0	Technology	7	72	20.40%
IS-5-1	[General] Technology Management	2	6	1.70%
IS-5-2	Hardware & Device	4	11	3.12%
IS-5-3	Software Functionality	6	14	3.97%
IS-5-4	System & Process Standardisation	6	7	1.98%
IS-5-5	System Deployment & Integration	7	34	9.63%

Table 2. Data Hierarchy - Information Systems Node

In the node IS, 'HR & Organisation' was identified as the most frequent value (36.83%, 130 paragraphs were imported). Similar to the interim result from the PM node, the organisational values were also regarded as the most significant aspects of managing IS projects in the UK public sector. For example, the issues of 'End user requirement & engagement' and 'Training & skill' were emphasised in this node. Particularly, 'Training' is highly related to the context of dynamic capability and the connectivity and continuity between project and post-implementation. A project owner should have suitable training capabilities as well as routine PM capabilities in order to realise project success (business benefits) (NAO, 2008d). The second most frequent value is 'Technology', which means the significance of technological issues such as software functionality and system integration. It is an intriguing result that organisational issues are more commonly discussed rather than technological ones even in the IS nodes. In other words, it can be acknowledged that the most significant aspect of managing projects is to manage human resources and the organisation rather than technological aspects. Similar to this result, an IS project is

recognised as a business/process change in 38 paragraphs, and not just the completion of a technological mission. Table 2 portrays the overall results of coded data in the IS node.

Code	Nodes (Level 0, 1 & 2)	Reports	Unit	Unit (%)
PS-0-0	PUBLIC SECTOR	8	98	100%
PS-1-0	External Factors	3	12	12.24%
PS-1-1	Environmental Issues	2	2	2.04%
PS-1-2	Global Regulations	3	10	10.20%
PS-2-0	Government & Policy	7	17	17.35%
PS-2-1	Government Driven Business	7	12	12.24%
PS-2-2	Policy Change	3	5	5.10%
PS-3-0	Public Management Approach	5	26	26.53%
PS-3-1	Dual Management Approach; Centrally & Locally	4	7	7.14%
PS-3-2	Local Ownership	1	8	8.16%
PS-3-3	Management at a National Level	2	3	3.06%
PS-3-4	Service Improvement vs Cost Minimisation	5	8	8.16%
PS-4-0	Public Private Partnership	8	43	43.88%
PS-4-1	Commercial Opportunity	2	6	6.12%
PS-4-2	Expertise & Best Practice in (out of) Public Sector	8	18	18.37%
PS-4-3	Public Private Partnership & Collaboration	7	19	19.39%

Table 3. Data Hierarchy - Public Sector Node

In the node PS, several characteristics of public sector projects were found. First, a public private partnership was identified a dominant issue in UK public IS projects (43.88% coded). Above all, the result shows that the expertise and best practice from private sector (18.37% coded) can also enhance the efficiency of managing government projects. Second, public sector projects are driven by government policies (17.35% coded). For this reason, public projects can be inevitably changed due to the revocation of policy or because of political change. Furthermore, such projects are highly influenced by external factors such as global standards and environmental regulations (12.24% coded). For instance, the standardisation of chip design and data formats was the key requirements of the UK's e-Passport project to make it conform to the requirements of the International Organization for Standardization and the EU.

Project Back-end Capabilities as Owner Dynamic Capabilities

By developing the initially quantified data hierarchy, the key issues of IS projects in the public sector are revealed - RQ1. In response to the RQ2, we qualitatively interpreted the original reports data on the basis of highly coded issues in the hierarchies. In particular, the category of HR and Organisation in the IS high-level category contained a cluster of some of the most frequently nodes so we singled this out for further analysis. In this section, we summarise the key implications from this narrative analysis.

A few nodes remind us again about the importance of organisational issues in IS projects that many of previous studies already have argued: 'Stakeholder Involvement', 'Governing Structure, Process & Staffing', 'Responsibility & Ownership', and 'End User Requirement & Engagement'. Amongst the whole data set, two issues - from an owner perspective - show a distinctive implication from typical IS project capability issues: 'Knowledge & Experience', 'Training & Skill'. These project back-end capabilities have very often been regarded as less-significant capabilities in classical project management research studies. Recently, most researchers have focused on the value of project front-end capabilities to maximise project performance (Morris, 2013).

We also emphasise the differences in perspective between owners and suppliers on projects, even though they work together collaboratively for the same objectives during the project. First, while a project supplier aims only for project success, a project owner also considers post-implementation management strategies and the realisation of potential benefits as well as project success itself. Thus how the new IS can be operated is an overall issue for the project owner. These owner *dynamic* capabilities to manage the project are the complement of the supplier's *operational* capabilities to manage the project. This paper

therefore paid more research attention to the necessity of distinctive project capabilities for a project owner by considering the post-implementation stage. Second, the accomplishment of the project objectives is a theoretical end point for the project supplier, but is also a starting point for a project owner as they seek to realise the business benefits that the project was initiated to capture in the first place. In other words, responsibility for the achievement of full IS transformation belongs to the owner side rather than the supplier side. In order to deal with the change, strategic capability configuration is mandatory for a project owner. Drawing on our data analysis, we emphasise the importance of project back-end capabilities - training capabilities and knowledge transferral capabilities - as important owner dynamic capabilities.

Concluding Remarks

The aim of study was to contribute to a deeper understanding of why public sector IS projects are so challenging by exploring 31 IS project cases. The specific research questions were, what are the common issues of IS projects in the UK public sector?, and which owner dynamic capabilities can make a contribution to post-implementation benefits in IS projects in the public sector? After clarifying the concept of owner dynamic capability in response to the literature review, key issues of project management, information systems, and public sector in the UK were identified through the qualitative content analysis of NAO reports; the three tables address RQ1. By interpreting the data qualitatively, important owner dynamic capabilities were revealed; this addresses RQ2.

The key findings can be summarised as follows. First, the findings draw our attention to the significance of owner dynamic capabilities to realise benefits from IS investment, within a long-term approach through the IS project implementation stage to the post-implementation stage. This wider business perspective implies that project owners need to enlarge their capabilities beyond contractual matters and progress control towards a wider approach to the role of project owner as a strategic actor. Owner dynamic capabilities need to be considered alongside a continuity approach ensuring business as usual while also capturing post-implementation benefits after project hand-over. Second, this paper put a strong emphasis on the necessity of project back-end capabilities as one element of owner dynamic capabilities. In addition to the conventional project front-end capabilities such as investment appraisal, requirements capture, and stakeholder management, a project owner needs to facilitate suitable project back-end capabilities to realise post-implementation benefits from IS investments aimed at securing new and reconfigured operational capabilities to meet stakeholder requirements. Training and on-going knowledge transferrals are suggested as an exemplar of owner dynamic capabilities. In addition to these key findings, the results echo the importance of understanding the organisational context in an IS project. This reminds us once again that managing IS projects is not about technology but the human factor.

The principal contribution of this paper is to pay attention to the importance of the owner dynamic capability to accelerate post-implementation benefits after a project is completed. IS project deliverables, such as effective and efficient organisational information infrastructures benefit the project owner who makes the investment and its end users and customers who use the services the infrastructures provide to meet their needs. Post-implementation benefits therefore rely on the maturity level of the owner dynamic capabilities. Thus, we suggest that there is a real need to focus on the importance of owner dynamic capabilities, compared with conventional approaches which emphasise project supplier capabilities. Yet there has been limited research attention in the literature to the project owner's management capability and its perspective. The 10-year data of UK government reports was analysed using a qualitative content analysis. Though there have been relevant studies based on specific topics in managing projects, this paper has made a comprehensive approach to identify owner dynamic capabilities in a project context. Our results could be used to improve the adoption of owner dynamic capabilities together with relevant post-implementation benefits.

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