PUBLIC SERVICE PROVIDER'S DYNAMIC CAPABILITIES FOR IT-ENABLED GOVERNMENT TRANSFORMATION PROJECTS

Research in Progress

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Abstract

This research examines the theoretical application of dynamic capabilities to project capabilities within a transformation context. There has been a poor understanding of how a public service provider's benefits can be achieved through information systems. To establish a research agenda about the necessity of a public service provider's dynamic capabilities, this study develops a theoretical approach to project capabilities by distinguishing the dynamic capabilities of a public service provider from the operational capabilities of technology suppliers. The theoretical foundation will be highlighted by pointing out the disjunction between project and benefits management. Extant literature will be reviewed including benefits realisation from information systems and dynamic capabilities for organisational transformation. This study offers an original contribution in that project management and benefits realisation disciplines are combined by applying the context of dynamic capabilities. Thus, the importance of a public service provider's transformation from a project to an operational system is emphasised.

Keywords: Dynamic capabilities, Public service provider, Technology supplier, Information systems, Government transformation.

1 Introduction

This paper investigates the theoretical application of dynamic capabilities to project capabilities. Drawing upon this investigation, we establish a research agenda about the necessity of a public service provider's distinctive dynamic capabilities to deliver a successful information systems (IS) transformation project in the public sector by referring to the successful transformation of a public service provider's organisational capabilities. By highlighting the difference between project management (PM) and benefits management (BM) and its impact on the challenges of IS transformation (Badewi, 2016; PMI, 2016; Zwikael, 2016), this study develops a more nuanced perspective on project capabilities by distinguishing the dynamic capabilities of public service providers from the operational capabilities of technology suppliers (Winch, 2014; Cha *et al*., 2015).

IS has played an increasingly central role in most organisations, and an IS project has become a common approach to achieving their business goals (Doherty *et al*., 1998; Gauld, 2007; NAO, 2011, Doherty *et al*., 2012; NAO, 2013). Normally, an IS project is a means of implementing new systems by applying new technologies. However, the principal objective of an IS project is to make a beneficial transformation of a project owner's organisations in their pursuit of higher performance. Thus, delivering the IS project aims to transform a project owner's business processes and organisations by adopting new IS and relevant technologies. Diverse studies on project capabilities have addressed the management of projects (Davies and Brady, 2000; Brady and Davies, 2004; Söderlund, 2005; Ashurst *et al*., 2008; Bredin, 2008; Melkonian and Picq, 2011), but mostly their focal point is on the delivery performance of IS implementation within the perspective of a temporary project organisation (Morris and Hough, 1987; Ethiraj *et al*., 2005; Flowers, 2007; Aritua *et al*., 2009; Davies and Brady, 2016). Consequently, the fundamental aim of an IS project has been neglected: namely, the transformation of a project owner's business over the long-term (Winch, 2014).

To contribute to our new perspective, we examine the context of a public service provider's distinctive dynamic capabilities within the IS transformation project. The concept of dynamic capabilities evolves from the strategic management field and aims to enhance organisational change and capability improvement. This research argues that the application of a public service provider's dynamic capabilities within the project context will support the successful IS transformation of a public service provider. In order to clarify the organisational structure of IS project environment, we use the terms 'public service provider' and 'technology supplier' rather than 'owner/client' and 'supplier' respectively, to cover the context of IT-enabled government transformation projects. This approach is derived from the Winch's (2014) three domains of project organising framework (owners & operators, project-based firms and projects and programmes) that was developed within the perspective of an engineering and construction project environment. Thus, the terms 'public service provider' and 'technology supplier' denote the features of a public IS project, and distinguish the theoretical coverage between the two (see Figure 1).

In addition to this terminological adaptation, we conceptualise that a public service provider refers to an organisation who owns, uses and manages government IS to deliver IS-based public services. Facilitating appropriate dynamic capabilities is particularly important but difficult for a public service provider (e.g. a lack of internal resources, higher dependency of IS outsourcing). Thus, a better understanding of a public service provider's dynamic capabilities is a critical aspect for realising post-implementation benefits from an IT-enabled government transformation project.

The objective of this study is to suggest a research agenda about a public service provider's dynamic capabilities in organisational transformation PM. The structure of paper is as follows. The theoretical foundation will be explicated first by pointing out the disjunction between the PM and BM disciplines and by emphasising the necessity of a public service provider's dynamic capabilities. Then, extant literature will be reviewed such as benefits realisation from IS and dynamic capabilities for organisational transformation. Next, the theoretical position of a public service provider's dynamic capabilities in the transformation project context will be explained as a research agenda. This is followed by conclusion and suggestions for further research.

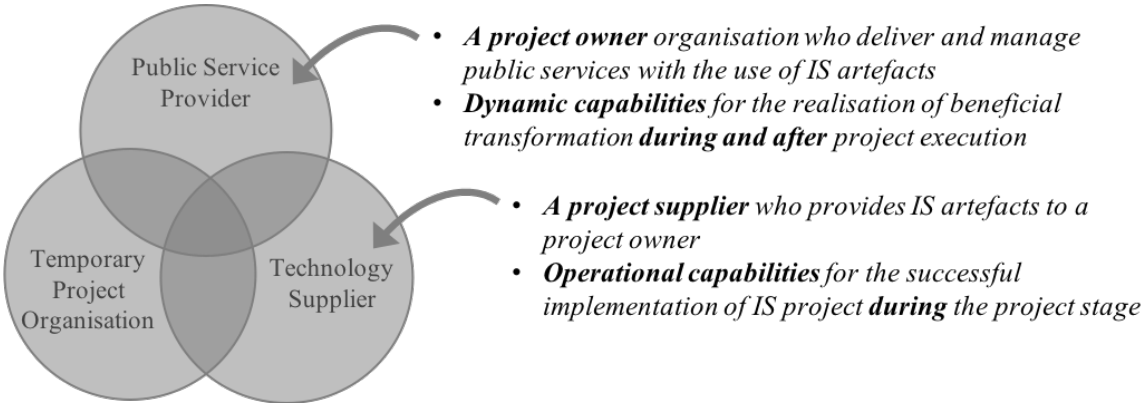

Figure 1. Three domains of project organisation in an information systems project (derived from Winch (2014))

2 Theoretical Foundation: Disjunction between Project Management and Benefits Management Disciplines

Since the PM discipline emerged, it has continuously evolved with a comprehensive understanding of how to achieve project success in practice (Morris *et al.*, 2012). Scholars have theorised PM disciplines from various viewpoints (Morris, 2013), and PM practitioners have established suitable tools and techniques in practice such as APMBoK (APM, 2012) and PMBoK (PMI, 2013). However, there seems to be no doubt that most PM studies to date have contributed within the boundary of a fixed project life cycle, an execution-based approach from project initiation to project close out (OGC, 2009; Morris, 2013; PMI, 2013; Marnewick, 2016). This "settled approach" (Pinto and Winch, 2016), of execution-based PM, starts with a common assumption with respect to the known features of project execution: that is, 'temporariness' and 'uniqueness'. This means that a project has clear start and end points with specific goals. These two features, however, could constrain viewing a project from other perspectives, and additionally, the theoretical spectrum of project-related studies cannot be enlarged because of this fixed approach.

This fixed approach is taken for granted especially in relation to a project supplier, as the successful delivery of the project is a key result (Zwikael, 2016). A project owner, however, may not be satisfied with project success alone (Winch and Leiringer, 2016). Put another way, the owner's fundamental project motivation is not project success alone but realising transformational business benefits from project deliverables. In the case of IS projects, the operational use of implemented systems is a key to successfully transforming the organisation's capabilities. Therefore, delivering projects and realising benefits are in an indivisible relationship for a project owner, and what happens after a project life cycle is of critical managerial concern (Shenhar and Dvir, 2007; Ashurst *et al.*, 2008; Zwikael and Smyrk, 2012; Marnewick, 2016; Zwikael, 2016).

Nonetheless, the multidisciplinary combination of the two is still one of the least examined approaches in the academic field. In the case of PM studies, limited research attention has been placed on realising benefits after projects because of a supplier-focussed and execution-based approach (Doherty *et al.*, 2012; Zwikael, 2016). Most PM studies have been carried out within the project life cycle boundaries, and a relatively few studies have focussed on the project owner's perspective (Breese *et al.*, 2015; Marnewick, 2016; Winch and Leiringer, 2016). Similarly, previous BM studies have limitations related to the case of IS. Specifically, most IS benefits research have tended to focus more on IS investment or IS value (i.e. cost-benefit) analysis without recognising IS implementation stages and organisational aspects (Ward *et al.*, 1996; Shang and Seddon, 2002; Seddon *et al.*, 2010).

Within this context, the paper argues for the contribution of dynamic capabilities as a theoretical link between delivering IS projects and realising transformational benefits from the projects. The PM literature has developed the concept of project capabilities (Brady and Davies, 2004), where capabilities are the organisational ability to mobilise resources towards business objectives. However, extant pro-

ject capabilities do not distinguish between dynamic and operational capabilities (Winch, 2014). This lack of distinction triggers the theoretical disjunction between project execution capabilities and benefits realisation capabilities. We will, therefore, develop a more broader perspective on project capabilities by distinguishing between a public service provider's dynamic capabilities and a technology supplier's operational capabilities. Thus, our paper makes original contribution to theory in IS PM. This study clarifies the concept of a public service provider's dynamic capabilities in the PM and IS disciplines. We theorise a public service provider's dynamic capabilities for IS investors - a public service provider's distinctive dynamic capability through which public service providers desire to move their IS investment from practical completion (the output system works as expected) to beneficial use (the system delivers the expected business benefits as outcomes) (Cha *et al*., 2015).

3 Beneficial Transformation from Information Systems Projects

The PM literature has attempted to discuss the concept of benefits as a value with the introduction of project, programme and portfolio management at an organisational level (OGC, 2009). However, it is clear that there has been a poor understanding of both benefits realisation and management within the context of PM (Bartlett, 2006; Melton *et al.*, 2011; Ward and Daniel, 2012; Badewi, 2016). It is generally acknowledged that managing benefits from IS and technology is regarded as a part of business planning processes but without the recognition of its implementation phase during the project (Bartlett, 2006). A few studies have made an attempt to interpret BM within the PM context. For example, Ward and Daniel (2012) broadly explain BM as a way of increasing the business value of information technology projects. Melton *et al.* (2011) discuss BM within the context of the PM life cycle. Finally, Badewi (2016) develops a project benefits governance framework to analyse the impact of PM and BM practices on project success.

Ward and Daniel (2012) compare BM with traditional IS project approaches at a more general level. The authors emphasise that the IS project is not about technology delivery but benefits delivery to maximise value-for-money. The context of this comparison is consistent with Nelson's (2005) findings. In Nelson's (2005) paper, senior managers in IS projects judge the success of a project as value delivered to the organisation, whilst project managers emphasise delivery on time, cost and quality above value. In other words, the traditional approach of PM has a limitation when it comes to covering the benefits from IS. Melton *et al.* (2011) emphasise the significance of BM and highlight the need for project benefits management by linking projects to the business using the perspective of the project life cycle. The authors provide four value-added project stages by expanding the conventional PM life cycle: business case development, project delivery planning, project delivery and benefits delivery (Melton, 2007). Thus, the first stage (business case development) and the final one (benefits delivery) are added before and after a project's close-out to integrate the project into the business. On the basis of the four-stage project life cycle, Melton *et al*. (2011) specify the concept of linking project delivery to business benefits. It is useful to understand the importance of benefits realisation and management. However, BM tools and techniques are major components in their study but without the sufficient consideration of an organisational context. The BM model is developed for wider use. Badewi (2016) provides the project benefits governance framework to investigate the relationship between PM and BM. Badewi distinguishes the responsibilities of the project manager and the benefits manager, and argues that a benefits owner's management accountabilities have a wider coverage than those of a project manager. Thus, the differentiated duties of the project manager and benefits owner are highlighted.

The BM literature has given attention to the importance of benefits realisation from IS projects. However, Doherty *et al*. (2012) point out that beneficial returns and desired effects from investments in IS projects have been disappointing. The authors argue that the success of IS projects should be evaluated in terms of delivering expected benefits rather than delivering a technical artefact. To address this problematic situation, Doherty *et al*. (2012) examine the factors affecting the successful realisation of benefits from IS projects. They explore systems development practices and benefits issues from three organisations (a strategic health authority, a university and a city council), and only one organisation is

considered successful in its adoption from a benefits realisation perspective. The findings from the study highlight a set of principles for IS benefits realisation. By comparing traditional project success factors to benefits realisation factors, a coherent set of IS benefits realisation factors is developed. For example, the authors argue that detailed benefits planning activities (for benefits realisation) are additionally required alongside identifying goals and objectives (for project execution). By redefining the project's success, their findings make an original contribution in that it highlights the importance of benefits realisation beyond the successful delivery of an IS artefact.

Summing up, IS implementation has been planned and developed as a form of project or programme. However, recent research approaches to IS projects and benefits have identified a few problematic issues. For instance, the theoretical distinction between project benefits and operational benefits is ambiguous or gets lost in the mix that leads to the poor performance of beneficial transformation. While a few scholars have a dichotomous research approach to dealing with PM and BM, most IS project studies have focussed on how a project can be executed, and IS benefits studies have focussed on financial returns from IS investments.

4 Dynamic Capabilities for Organisational Transformation

The concept of organisational capability and its facilitation has become a key agenda item in business and management studies. However, there has been no clear distinction of organisational capabilities whether the focus should be on operational routines or business change. As organisational change and its management has become a critical issue in any business environment, more organisational capability studies were required. Through these efforts, the concept of dynamic capability has emerged.

Since Teece and Pisano (1994) published their foundational work on dynamic capabilities, numerous relevant studies have appeared in strategic management research (e.g. Spender, 1996; Zollo and Winter, 2002; Winter, 2003; Teece, 2007). The concept of dynamic capability is placed within the flow of business change and improvement. Table 1 summarises the diverse definitions of dynamic capability. In this regard, certain keywords describe the key features of the concept, such as organisational resource (Eisenhardt and Martin, 2000; Zott, 2003; Zahra *et al*., 2006; Helfat *et al*., 2007), business process and routine (Teece and Pisano, 1994; Eisenhardt and Martin, 2000; Pisano, 2000; Zollo and Winter, 2002; Zott, 2003; Zahra *et al*., 2006), opportunities in changing environments (Collis, 1994; Teece *et al*., 1997; Eisenhardt and Martin, 2000; Teece, 2000), and competitive advantage (Rosenbloom, 2000).

Authors	Definitions of Dynamic Capabilities
Collis (1994)	Strategic insights that derive from managerial and entrepreneurial capabilities: govern the rate of change of operational capabilities
Teece and Pisano (1994)	The subset of the competences and capabilities that allow the firm to create new products and processes and respond to changing market circumstances
Teece *et al.* (1997)	The firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments
Eisenhardt and Martin (2000)	The firm's processes that use resources to match and create market change; organisational and strategic routines by which firms achieve new resources configurations
Pisano (2000)	Regulate the search for improved routines
Rosenbloom (2000)	The ability to achieve new forms of competitive advantage
Teece (2000)	The ability to sense and then seize opportunities quickly and proficiently
Zollo and Winter (2002)	A learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness
Winter (2003)	Capabilities that operate to extend, modify, or create ordinary capabilities
Zott (2003)	Organizational processes and activities that guide the evolution of a firm's resources, capabilities, and operational routines

Zahra *et al*. (2006)	The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision makers
Helfat *et al.* (2007)	The capacity of an organization to purposefully create, extend or modify its resource base

Table 1. Definitions and concepts of dynamic capability

Clarifying the concept of dynamic capability is critical to carrying out this study. As introduced above, the conceptual coverage of dynamic capability has still been a controversial topic in business and management studies (Helfat *et al*., 2007; Peteraf *et al.*, 2013; Li and Chan, 2016). There is a need to understand the conceptual origin and research trend of dynamic capabilities.

Two principal lines of enquiry have evolved in the literature (Di Stefano *et al.*, 2010; Peteraf *et al.*, 2013) - those who follow Teece *et al.* (1997) with a focus on achieving competitive advantage by modifying and creating new operational capabilities, and those who follow Eisenhardt and Martin (2000) and are more focussed on moderately-dynamic and volatile conditions. According to Teece *et al.*'s definition, a dynamic capability is defined as "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments" (Teece *et al.*, 1997, p. 516). In their conception, dynamic capabilities refer to organisational processes and patterns of current practice and learning by altering the organisation's resource base. Based on this approach, they argue that dynamic capabilities are able to provide new strategic alternatives for the firm as a source of sustainable advantage.

As the second principal line of enquiry, subsequent research has expanded the original definition of dynamic capability raised by Eisenhardt and Martin (2000). The authors define a dynamic capability as "the firm's processes that use resources to match and create market change; organisational and strategic routines by which firms achieve new resources configurations" (Eisenhardt and Martin, 2000). Thus, the authors extended the original concept of dynamic capability to include the creation of market change as the form of organisational processes as well as the response to exogenous change. For instance, they provide a few examples of dynamic capabilities as knowledge transfer, product development routines, alliance acquisition capabilities, resource allocation routines and replication routines (Eisenhardt and Martin, 2000).

Later, in similar manner to Eisenhardt and Martin's approach, Zollo and Winter (2002) define a dynamic capability as "a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness". The authors focus on the importance of their approach for improving business routines to react to and govern the level of change in operational capabilities - capabilities for modifying operational routines. In this context, Winter (2003) classified organisational capabilities based on their purpose by two types: operational and dynamic capabilities. Ordinary organisational capabilities are conceptualised as firms' abilities to 'make a living' which is synonymous with operational capability.

In order to compile the extant literature on the theoretical coverage of dynamic capabilities, Helfat *et al*. (2007) broadly define a dynamic capability as "the capacity of an organization to purposefully create, extend, or modify its resource base" (2007, p. 4). In this study, Helfat *et al.*'s definition is adopted to clarify the conceptual coverage of dynamic capabilities. Thus, we follow the broader concept of dynamic capabilities that cover both Eisenhardt and Martin's (2000) and Zollo and Winter's (2002) approaches. For example, dynamic capabilities may or may not be competitive advantages, but they provide a potential continuing source of competitive advantage: "Although firms pursue greater effectiveness of their operating routines, they may or may not achieve it. Hence, the definition of dynamic capabilities does not suffer from any sort of tautology with regard to the superiority of performance" (Helfat *et al*., 2007, p. 3).

Summing up, a dynamic capability can be defined as a capacity for improving organisational routines to purposefully create, modify and extend an organisation's resources. This is in contrast to the role of operational capability which focusses on simple problem solving and job accomplishment. Moreover, this conception adopts the wider approach by covering Eisenhardt and Martin's (2000) and Zollo and

Winter's (2002) approaches. Thus, the concept of dynamic capability can be applied to an IS transformation project where organisational change is the key issue.

5 Public Service Provider's Dynamic Capabilities in the Transformation Context

As reviewed in the previous sections, successful business change and improvement is a key theoretical objective in both managing projects and managing the context of dynamic capabilities. To explicate the necessity of dynamic capabilities in the project context, we would emphasise the differences in perspective between a public service provider's dynamic capabilities and the technology supplier's project capabilities, even though they work together collaboratively for the same objectives during the project. There is little empirical evidence to show how businesses change and benefits can be realised through project capabilities (Ashurst *et al*., 2008). Although extensive research has been carried out on project capabilities, the research to date has tended to focus on the technology suppliers' (contractors) perspective (Ethiraj *et al*., 2005) rather than the public service providers' one (Flowers, 2007; Winch, 2014). Hence, our study suggests that a public service provider's dynamic capabilities becomes part of a key research agenda for realising a successful IS transformation project.

Supporting evidence can be provided through two points. First, while a technology supplier aims only for the successful delivery of IS project, a public service provider also considers the improvement of post-implementation management and the realisation of transformational benefits as well as project success itself. Thus, how the new IS can be operated is an overall issue for the public service provider. These dynamic capabilities to manage the project are complementary to the technology supplier's operational capabilities to deliver the project. Therefore, this paper pays more research attention to the necessity of distinctive dynamic capabilities for a public service provider by considering the post-implementation stage. Second, the accomplishment of the project's objectives is a theoretical end-point for the technology supplier, but is also a starting point for a public service provider as they seek to realise the benefits that the project was to capture in the first place. In other words, the responsibility for the achieving full IS transformation belongs to the public service provider side rather than the technology supplier side. In order to deal with the change, effective capability configuration is mandatory for public service provider organisations as they aim for full dynamic capabilities.

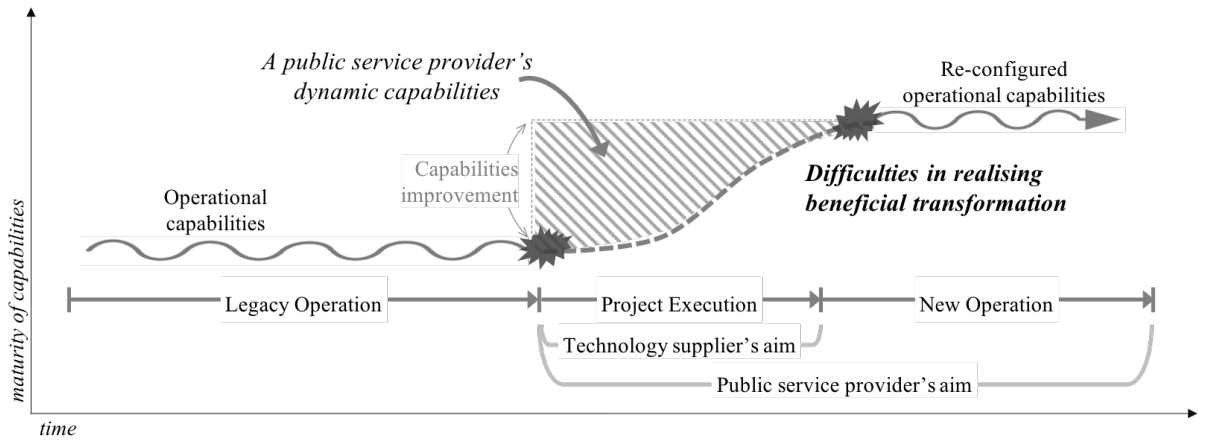

Figure 2. Theoretical position of a public service provider's dynamic/operational capabilities in the transformation context

Figure 2 outlines the theoretical position of a public service provider's dynamic capabilities within the context of PM that this study addresses. There are three stages in this diagram: legacy operation, project execution and new operation stages. The legacy operation stage refers to the operational stage using a legacy IS, and the new operation stage refers to the stage when the new or improved IS go-live after the IS project execution. During the legacy operation stage, a public service provider's operation-

al capabilities are required to retain stable business activities (shown as a wavy line). When an IS project is initiated and executed to aim for operational improvement, there is a need to reconfigure operational capabilities for the successful beneficial transformation. In the case of a technology supplier side, operational capabilities are required to deliver the IS to achieve its aims. As successful transformation is a fundamental outcome of an IS project, a public service provider's aim is different and relatively permanent compared with a technology supplier's work. Consequently, for a public service provider, the necessity of dynamic capabilities is critical for alignment with the realisation of benefits from the project.

6 Conclusion and Suggestions for Further Research

The aim of our study was to contribute to a deeper understanding of a public service provider's dynamic capabilities to realise successful IS transformation projects. By reviewing the extant literature regarding benefits realisation from IS and the detailed context of dynamic capabilities, the necessity of a public service provider's distinctive dynamic capabilities was emphasised. Figure 2 summarises the suggested research agenda about a public service provider's unique dynamic capabilities. Within the perspective of a public service provider, the organisation needs to have appropriate dynamic capabilities to deal with business change (i.e. transformation) that leads to efficient operational management after a project has completed. In other words, a wider recognition of the scope of PM is required, and managing and minimising the capabilities gap is key for a public service provider. Conversely, a technology supplier considers the successful delivery of a contracted project without the full recognition of future benefits of their project-client organisation.

This study has an original contribution as follows. On the basis of the theoretical grounds of dynamic capabilities, the two knowledge areas (PM and BM) are combined to examine the context of a public service provider's dynamic capabilities. Thus, by emphasising the necessity of distinctive dynamic capabilities, the importance of a public service provider's business continuity from project to operation was considered. The concept of dynamic capabilities supports the multidisciplinary approach on minimising the disjunction between delivering projects and realising benefits.

In line with this research agenda, we suggest three further research ideas in order to strengthen the context of a public service provider's dynamic capabilities. We first suggest that further examination of the concept of a public service provider and other project stakeholders could improve the quality of the findings in this study. Due to characteristics of the public service provider, each organisation or department may differ in a certain organisational situation. Further research on the intrinsic attributes of public service providers will advance the context and feasibility of dynamic capabilities. Furthermore, a different recognition of the importance of each capability may exist amongst diverse project stakeholders. Examining the relative importance of dynamic capabilities from various points of view (project stakeholders) will enhance the theoretical depth of this study. Second, an empirical study providing the examples of a public service provider's dynamic capabilities in practice should be beneficial. Analysing the voices from current project practitioners in public service provider organisations or the historical PM data can reveal the context of dynamic capabilities and their application in practice (e.g. which dynamic capabilities are necessary in a certain situation? and how do the dynamic capabilities contribute to reconfiguring operational capabilities?). Third, a comparative study would also be a fruitful option to further the understanding of this research. For instance, a public service provider's capabilities can be distinguished from those in the private sectors. Moreover, other industry sectors may have different perspectives on realising operational benefits from a transformation project (e.g. an engineering project with physical assets and immaterial information systems).

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