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Revisiting the project management knowledge framework

Rebalancing the framework to include transformation projects

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Abstract

Purpose – This paper highlights that extant project management (PM) bodies of knowledge have not fully addressed organisational transformation enabled by information systems projects. The purpose of this paper is to examine the transformation context in the PM disciplines. The authors argue that the execution-oriented PM bodies of knowledge are limited, as they place too much emphasis on the delivery outputs by the supplier rather than the achievement of beneficial outcomes by the project owner.

Design/methodology/approach – As a conceptual paper, this paper reviews extant PM bodies of knowledge, life cycle models, the context of organisational transformation and benefits realisation, and the distinction between a project owner's and the project supplier's capabilities.

Findings – A new PM knowledge framework is provided as an advanced research frame for future works by enhancing Peter Morris' Management of Projects framework by employing the conceptual lens of Winch's Three Domains of Project Organising model.

Originality/value – The advanced model emphasises the necessity of distinguishing a project owner's and a supplier's PM capability and knowledge to achieve successful IS-enabled organisational transformation. Through this effort to resolve the fragmentation and specialisation problems in PM disciplines, the model can be used as a theoretical groundwork for the advancement of PM research.

Keywords Project management knowledge framework, Management of projects, PMBOK, Organisational transformation, Project owner

Paper type Conceptual paper

Introduction: setting the scene

Project management (PM) has been a well-defined approach for strategic change and innovation in most organisations (Morris and Hough, 1987; Kenny, 2003; Morris and Jamieson, 2005; Crawford *et al.*, 2006; Association for Project Management (APM), 2012; Morris *et al.*, 2012; Morris, 2013b). PM researchers in a variety of disciplines have addressed scholarly enquiries in a multi-dimensional manner across individual, project and organisational levels (Geraldi and Söderlund, 2018). Those studies are foundational to developing a PM knowledge framework. Consequentially, it contributes to the formulation of PM in practice including

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methodologies, competence baselines, tools and techniques for their successful application (International Project Management Association (IPMA), 2006; Ohara and Asuda, 2009; APM, 2012; Project Management Institute (PMI), 2013). Despite these pluralistic academic progressions and impacts, a clear research gap can be found along this area. Inspired by the current state of PM research, this paper points out the unsatisfactory position of PM knowledge currently trapped in its specialisation and fragmentation (Söderlund, 2011). Knudsen (2003) defines scientific pluralism with two aspects: a specialisation trap that encompasses too little pluralism with a biased view and a fragmentation trap that encompasses too much pluralism with a lack of unification. We criticise the limitation of extant PM knowledge focusing heavily on a project supplier's execution-based approach (caught in a specialisation trap) and a lack of a valid framework to orchestrate before and beyond the project implementation stage such as benefits realisation and organisational transformation (caught in a fragmentation trap). In this context, this paper will address how a project can be successfully managed and how business operation after a project completion can be efficiently transformed to achieve the expected benefits (Shenhar and Dvir, 2007; Zwikael and Smyrk, 2012; Breese *et al.*, 2015; Zwikael, 2016). Specifically, this paper attempts to unsettle the settled PM knowledge (Morris, 2013b; Pinto and Winch, 2016) by emphasising the significance of operational benefits after the delivery of a project. To reduce the research gap, the transformation context within PM disciplines will be explored to complement the extant PM body of knowledge and to develop an advanced PM knowledge framework.

Understanding the project mission (Winch, 2010) is the starting point of this study. From a wider viewpoint, the project mission is to enable the successful transformation of a project owner's organisation in some way. This has become a key agenda in recent times (Winch, 2014; Badewi, 2016; Zwikael, 2016; National Audit Office, 2017). In other words, the mission of a project can be defined in various ways by considering the different perspectives of the project supplier and project owner, where the former focuses on project deliverables and the latter on the transformation of the owner organisation (Morris, 2013a; Winch, 2014; Badewi, 2016). First, from the supplier's perspective, a project is an operational activity that is carried out in a similar way for different project owners. A supplier delivers project outputs based on a project owner's requirements within the fixed project life cycle. The second approach is based on the project owner's viewpoint. For the project owner, the reason for launching a project is to realise better operational benefits than the current capabilities offer. Contrary to the project supplier's PM perspective, thus, a project owner should aim to enhance their business to gain dynamic benefits through turning project outputs into organisational outcomes (Morris, 2013a; Winch, 2014).

The importance of achieving a project owner's desired benefits in managing projects is well-acknowledged (Bartlett, 2006; Melton *et al.*, 2011; Ward and Daniel, 2012; Badewi, 2016). However, the various PM bodies of knowledge have not fully addressed this transformational aspect and tend to focus on the delivery aspects (Morris, 2013b; PMI, 2013). Most PM studies, for instance, have focused too much on the delivery of project execution, which predominantly considers the project supplier's perspective (Breese *et al.*, 2015; Zwikael, 2016). Competence frameworks underpinning the bodies of knowledge have followed this lead (Winch, 2014). Hence, the lopsided research phenomenon intensifies the challenges in realising the project owner's desired benefits from a project that eventually entails a successful or unsuccessful transformation (Winch and Leiringer, 2016). In this regard, we point out that execution-oriented traditional PM knowledge has caused limitations in current PM studies that consider the owner organisation's successful transformation as a marginal issue (Kloppenborg and Opfer, 2002).

Our principal contribution, therefore, is to offer an enhanced PM knowledge framework—as an attempt to resolve the specialisation and fragmentation problems of the PM discipline—appropriate to the challenges of organisational transformation. The new

knowledge framework is built on the Management of Projects (MoP) framework developed by Morris (2013b) through the conceptual lens of the Three Domains of Project Organising developed by Winch (2014). Morris' framework considers the necessity of escaping from the execution-based PM approach, and Winch's argument contains the necessity of distinguishing between the PM approaches of a project supplier and a project owner. Further details of the two models will be reviewed in the following sections. The research question is addressed as below:

RQ. In what ways do the current PM bodies of knowledge need to be developed to address the challenges of organisational transformation that emphasise post-implementation benefits?

To examine this, we review key themes: a project owner's distinctive project capabilities (compared to a project supplier) and their benefits realisation into organisational transformation, and PM knowledge framework, bodies of knowledge and PM life cycle models. The first section presents the conceptual clarification of organisational capability, individual competence and project capability. This is followed by a critical review of the theoretical distinction between a project owner's capabilities and a project supplier's capabilities. Then, the importance of benefits realisation and organisational transformation is reviewed. In the second section, the MoP framework, extant PM body of knowledge, PM life cycle models and their limitations are examined and critiqued. In response to the review, an advanced PM knowledge framework is provided as a new conceptual skeleton of PM research, including justifications for its components based on our literature review. The framework is developed from the MoP model using the conceptual lens of the Three Domains approach (Winch, 2014; Turner and Müller, 2017). The new PM knowledge framework provides a unique contribution in that it reflects the significance of a project owner's transformation context as an improved and integrated PM knowledge base.

Project owner/supplier's capabilities for benefits realisation and transformation

Organisational capabilities and individual competencies

As outlined in the Introduction, the substantive objective of a project is to successfully realise the benefits to a project owner's organisation through the project outputs. Thus, conceptual clarification of existing organisational capabilities needs to take precedence to understand the transformation context. In general, a capability refers to the capacity to perform a particular task, function or activity. Though the term was infrequently mentioned in the management literature, a considerable amount of literature in social science studies has been published concerning the concepts of capability and competence (Finegold *et al.*, 1998).

Two main bodies of research have discussed the value of capability. On the one hand, the strategic management literature discusses the concept of "capability" within the domain of business strategy. This literature takes a resource-based view of a firm (Wernerfelt, 1984) and draws on the concept of organisational capabilities (Chandler, 1990; Barney, 1991; Leonard-Barton, 1992; Winter, 2000). Therefore, within this context, a capability is defined as an essential factor for companies to achieve strategic differentiation and sustain organisational change (Leonard-Barton, 1992; Bresman, 2000; Salaman and Asch, 2003). In this context, capabilities are considered to be a compilation of knowledge, skills, routines and abilities built within the organisation and which are brought together to accomplish work (Nelson, 1991; Dosi *et al.*, 2000). That is, organisational capabilities are a combination of the competencies of an organisation's individuals and are the abilities that enable the organisation to conduct its business activities (Dosi *et al.*, 2000). Broadly, the notion of organisational capabilities considers managerial aspects such as "processes, management, coordination and governance" (Kogut and Zander, 1992; Melkonian and Picq, 2011, p. 457).

On the other hand, the human resource development and management literature tend to mix the concepts of capability and competence from a managerial perspective. Stephenson (1994) defined capability as the combination of knowledge, skill and individual qualities. This body of work focuses on the individual knowledge, skills, traits, attributes and behaviours required to carry out functional roles (Stamp, 1981; Cave and Wilkinson, 1992; Sandberg, 2001; Le Deist and Winterton, 2005; Königová *et al.*, 2012).

Among this diversity, this study takes forward the conceptual notion of capability that emphasises the organisational aspect in a manner similar to the strategic management studies. The concept of capability in the strategic management field has been established with a more consistent view than those in the human resource development and management literature. "Capabilities" are clearly distinguished from "competencies", which are "work-related knowledge, skills and abilities" (Nordhaug and Gronhaug, 1994, p. 90; Le Deist and Winterton, 2005) held by individuals. Thus, collective individual competencies can facilitate organisational capabilities to achieve certain organisational goals. In the context of the MoP, Morris (2013b) explained the difference between the conceptual definitions of competence and capability within a PM environment. By highlighting the conceptual diversity between the two, we here define the concept of "competence" as individual knowledge, skill and behaviour, in contrast to organisational "capability" which combines these competencies with organisational routines and productive assets to deliver outcomes.

Project capabilities and owner/supplier perspectives

Researchers have addressed the necessity of project capabilities and competencies for the efficient delivery and better performance of a project (Davies and Brady, 2000; Brady and Davies, 2004; Söderlund, 2005, 2008; Crawford, 2006; Nightingale *et al.*, 2011). Extant PM capability studies were limited in that they were unable to fully explain the context of benefits realisation and transformation (Ashurst *et al.*, 2008). As explained in the previous section, we argue that this limitation is influenced by an imperfect PM knowledge base.

An undeniable research trend we can observe is that most project capability studies have been strongly biased towards a project supplier viewpoint (Brady and Davies, 2004; Winch and Leiringer, 2016). For instance, Ethiraj *et al.* (2005) pointed out the importance of client-specific capabilities, but the point of view was that of a project supplier. Hence, most PM literature has been preoccupied with the successful delivery of project outputs, with a lack of recognition of the business benefits and strategic values (Zwikael, 2016). From a project owner's viewpoint, successful business change cannot be completed within a project's life cycle (Shenhar and Dvir, 2007; Zwikael and Smyrk, 2012; Breese *et al.*, 2015), and improved business performance (outcomes) can be achieved through the reliable operation of project deliverables (outputs). Thus, a project owner needs to consider the realisation of post-implementation benefits as well as the project accomplishment itself. In order to manage successful business change and benefits, a project owner's capabilities need to be understood more widely by recognising the managerial continuity from the project stage to the operational stage (Pellegrinelli, 1997; Zwikael, 2016). To make this feasible, the concept of the project owner also needs to be defined more precisely and with this in mind, Morris and Hough (1987) introduced the concept of a "strong owner". In their foundational work, they captured the challenges of eight project cases, including the computerisation of tax payment processes (Chapter 8 in their book). They then highlighted the importance of the "government's role as the direct owner of a major project" (Morris and Hough, 1987, p. 224). However, the contextual meaning of a strong owner is within the boundary of contractual matters, namely as a purchaser of the products and services needed by the project. Similarly, Aritua *et al.* (2009) suggested the

concept of the "intelligent client", but in their definition, the role of client is still limited. In other words, the importance of organisational/relational connectivity between project and operation is not covered and the definition of owner project capabilities remains imprecise (Flowers, 2007; Winch, 2014; Winch and Leiringer, 2016).

To highlight the distinctive perspectives among diverse project organisations, Winch (2014) provided the Three Domains of Project Organising model (i.e. "owners and operators", "project-based firms" and "projects and programmes") and the interfaces among them (i.e. "governance", "commercial" and "resources"). These were originally developed from the perspective of an engineering and construction project environment, but we suggest here that this can be a generic PM model. However, the model is static, so we propose Figure 1 to emphasise the dynamics of the three domains and their interfaces through time. Horizontally, the upper stream describes a project owner's PM themes, and the bottom stream describes those of a project supplier. Following the timeline from left to right, the figure shows different PM approaches between the domain of supplier and owner. While the supplier side focuses on resourcing to deliver project outputs, an owner needs to establish and govern project strategy (front-end) and benefits realisation as outcomes (back-end). During the project, both owner and supplier interface with each other in terms of commercial aspects such as contract management. The framework contributes to a better theoretical understanding of a distinctive PM approach among temporary project organisations and the two permanent organisations of owner and operator and project-based firms (Turner and Müller, 2017). In particular, the framework draws our attention to the necessity of further studies within the perspective of the owner/operator organisations. In this context, we use this framework as the theoretical base for developing an advanced PM knowledge framework. Thus, the new knowledge framework will point out and clarify the different roles and responsibilities among different project organisations.

In addition to the academic efforts as reviewed above, one recent consultancy paper also followed this argument that there is little attention paid to different skills (i.e. competencies) between client project managers (owner side) and delivery project managers (supplier side). This lack of clarity about the competencies and responsibilities between a project supplier and an owner "results in projects not delivering benefits, frustrated deliverers and sponsors, widespread angst and re-works" (Godbold, 2016, p. 62). In order to formulate this differentiation, the required competencies and responsibilities of two organisations are suggested. For example, the context of owner covers strategic contexts including the operational benefits mechanism and the commercial arrangement of projects, such as

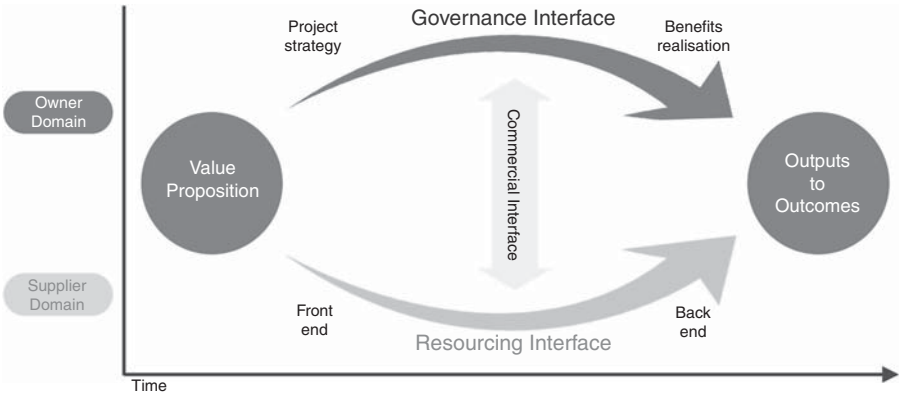

Figure 1.
Dynamics of Three Domains model

Source: Derived from Winch (2014)

supplier and contract management, continual stakeholder management and support. In contrast, the roles and responsibilities of delivery project managers are focused on delivery against the contract and bridging the skills between sub-contractors and project owners. Godbold concluded that both differentiated approaches were necessary, but the roles of the client are still weighted towards commercial project issues within the perspective of individual competencies.

Benefits realisation for organisational transformation

Organisational transformation has been constantly addressed in business and management studies from 1970s and 1980s, since Levy and Merry provided its definition as "a multi-dimensional, multi-level, qualitative, discontinuous, radical organisational change involving a paradigmatic shift" (Pettigrew, 1987; Levy and Merry, 1986, p. 5). Thus, organisational transformation refers to the revolutionary and radical change of organisations. Though its concept and theoretical position has been researched so far, common understanding of its explicit context still remains as insufficient. After that, the rapid change of information technology has triggered organisational transformation. On the basis of the organisational transformation context, many information systems (IS) scholars have elaborated its content, context and process by introducing derived concepts such as IS (IT)-enabled organisational transformation, digital transformation and digitalisation (Orlikowski and Robey, 1991; Ward and Elvin, 1999; Besson and Rowe, 2012). The fundamental aim of organisational transformation from projects is to realise a project owner's operational benefits. The term benefits management was first mentioned in the late 1980s (Farbey *et al.*, 1999). Scholars have expressed increasing concern that the expected benefits from IS implementation are questionable despite the large investment in business change (Ward *et al.*, 1996; Bradley, 2010; Ward and Daniel, 2012; Breese *et al.*, 2015). As a business term, benefits management has been defined from a process perspective as "the process of organising and managing such that the potential benefits arising from the use of IS/IT are actually realised" (Ward and Elvin, 1999; Ward and Daniel, 2012, p. 8).

Badewi's (2016) study emphasises the criticality of benefits realisation associated with managing projects. Badewi (2016) examined whether PM practices and benefits management practices enhance the probability of success if they are used in tandem, based on the project benefits governance framework. This framework explains that the authority and responsibility of a benefits owner (on the owner side) has wider managerial coverage than those of the project manager (on the supplier side). By distinguishing the managerial role of projects and benefits, Badewi emphasises the differentiated duties of the project manager and benefits owner. The benefits management life cycle, including benefits identification, planning, implementation, audit and business case development, is added to the traditional PM life cycle. Thus, one can conclude that a project owner should consider benefits management issues such as benefits identification, planning and implementation before the project, during the project and after the project. In regard to the project back-end issues, Heeks (1998) analysed the case of an IS training project in the public sector and highlighted the importance of training capabilities for operational benefits as an IS owner in public organisations. The UK Government also echoed the positive influence and the importance of an IS training programme (Home Office, 2012; National Audit Office, 2015), and how a programme could enhance productivity of public owner organisations by taking a strategic approach on knowledge sharing and training. This approach could also contribute to improving individual competencies, minimising managerial risks and assuring public service quality.

In addition to the academic approaches, the importance of transformation project has also been a recent agenda outside the academia. In the case of the UK Central Government, for example, a transformation project refers to projects that are aiming to change how the

government operates, including modernising government activities and improving the delivery of public services (National Audit Office, 2016, 2017). The Cabinet Office uses the terminology "transformation" to denote major change programmes in order to improve how the government delivers public services and manages operations: "when we say transformation, we mean a significant step change in the way a government organisation delivers its service and in the way it operates" (Cabinet Office, 2017). The context of a transformation project covers not only the management of the project itself but also the operational advancement of organisations after a project close-out. Moreover, the perspective of transformation focuses more on a project owner's business rather than a project supplier's project execution by reinventing the organisational processes and models.

Management of Projects, body of knowledge and life cycle

The Management of Projects

Among the various PM studies, Morris has continually contributed to the PM discipline in an effort to formally address the success or failure of managing projects (Morris and Hough, 1987; Morris, 1997, 2013a, b). One of his first comprehensive research studies (Morris and Hough, 1987) reviewed reports on 1,653 projects and analysed eight major project cases to describe the key "anatomy" of project success and failure. By examining the cases with a diverse level of technical uncertainty, the importance of organisational, political and environmental management perspectives is emphasised. On the basis of his foundational work, Morris (1997) provided the "MoP" model by covering internal (e.g. structure, behaviour and systems) and external (e.g. location and politics) aspects. By including environmental factors, Morris highlighted the significance of a more strategic approach to managing projects with a harmonisation between internal and external perspectives.

In his more recent publication, *Reconstructing Project Management*, Morris (2013b) criticised the conventional PM body of knowledge with extensive theoretical underpinnings to re-draw the post-knowledge model of PM. The revised MoP framework reconstructs current PM practice that relies on an execution-oriented approach (Morris, 2013b; Pinto and Winch, 2016). In addition to project delivery, Morris suggested the need for a project definition (e.g. strategy and finance, commercial and organisational activities). He pointed out that the managerial coverage of formalised project knowledge has not fully explored the MoP concept he highlighted. "The Management of Projects involves managing the definition and delivery of the project for stakeholder success. The focus is on the project in its context" (Morris, 2013b, p. 62). Thus, Morris argues that the necessity of more detailed MoP from the front-end (project definition) (i.e. front-end management: strategic, financial, commercial and organisational activities) rather than having a high focus on execution (PMI-based project delivery model). In doing so, Morris makes significant contributions to the future research direction of PM. At the same time, however, this direction also needs to be re-examined in detail. For instance, the MoP model clearly defines "what" has to be considered, but it does not provide "how" the concept of MoP can be applied to future theory and practice. Furthermore, it does not distinguish the roles and responsibilities of a project supplier and an owner. In this regard, Pinto and Winch (2016) revisited the main research stream of Morris' framework and its implication. To determine how the "settled normative best practice" (PMI's PMBOK®) should be "unsettled" (Morris' MoP), the authors identified key areas (i.e. the prospects for theory in PM, new conceptualisations of the field of PM research, and developing an empirical research agenda in project shaping) in which further project studies can pursue the context of Morris' MoP.

Project management body of knowledge

Scholars have paid considerable attention to the development or advancement of bodies of knowledge to stimulate PM research (Morris, Crawford, Hodgson, Shepherd and Thomas,

2006; Gasik, 2011; Hanisch and Wald, 2011; Fernandes *et al.*, 2014). In response to these academic efforts, diverse research topics and knowledge areas on PM have been revealed and covered by widely known PM bodies of knowledge (Ohara and Asuda, 2009; Starkweather and Stevenson, 2011; APM, 2012; PMI, 2013). PMI's (2013) PMBOK® has been considered as the *de facto* standard of PM knowledge. In 1996, PMI published the first edition of the PMBOK® to officially put PM knowledge, processes and management issues together. PMBOK® has gone through several revisions, and recently the sixth edition has been released. Mainly, there are nine knowledge areas and sub-processes identified by the PMBOK®: integration, scope, time, cost, quality, human resource, communications, risk and procurement (PMI, 2013).

In regard to the PMBOK®, two major limitations can be identified with respect to the transformational aspect. First, the PMI model focuses heavily on the viewpoint of the project supplier. By providing a five-staged PM life cycle (initiation, planning, executing, monitoring and controlling, and closing), the PMBOK® defines the critical processes and activities of a project supplier. This execution-based model provides valuable resources for managing projects. However, the roles and responsibilities of the project owner are not fully covered. Because of this limited approach, the PMBOK® ignores operational benefits and organisational transformation after executing a project. In general, business benefits and transformations (via project deliverables) cannot normally be achieved with just the successful delivery of project outputs. The fixed project life cycle and relevant project capabilities provided by the PMBOK® focus only on project execution itself and do not recognise the realisation of a project owner's operational benefits. Recently, however, the PMI has paid attention to the importance of project benefits management (Project Management Institute (PMI), 2016a, b, c, d). Though the PMI's benefits realisation framework focuses on the roles of executive sponsor, benefits owner and project manager, the point of view is still weighted towards temporary project organisations without a clear distinction between a supplier and an owner organisation (PMI, 2016c, d). For example, a project owner's unique responsibilities are de-emphasised. In other words, current PM disciplines need to consider the fundamentally different project objectives between a project supplier and a project owner. In contrast, we argue that there should be a clear distinction between a project supplier's capabilities and a project owner's capabilities (Morris, 2013a; Winch, 2014).

To move beyond the execution-based approach, the Association for Project Management developed the APMBoK by covering wider PM knowledge areas, such as objectives, strategies, techniques, business and commercial, organisation and governance and people and the profession (Morris *et al.*, 2000; APM, 2012). In particular, the APMBoK tries to cover project front-end activities and organisational governance issues (Morris, Jamieson and Shepherd, 2006) but neglects to distinguish the roles, responsibilities and required capabilities of a project owner which are critical for the beneficial business transformation after a project from those of a supplier.

Project management life cycle

Numerous academics, professionals and organisations have suggested a standardised PM life cycle for efficient MoP. "The one thing that distinguishes projects from non-projects is their project life cycle" (Morris, 2013b, p. 150). In the case of IS, for example, the standards, ISO 12207 and IEEE standard 1074, provide the process model for software life cycle and the standard for developing software life cycle processes, respectively (IEEE Standard Association, 1997; IEEE/EIA, 1998). In the case of published works, researchers and various guides have tried to standardise the project life cycle from project initiation to closing out (Bennatan, 1995; Royce, 1998; Jurison, 1999; IPMA, 2006; Office of Government Commerce, 2009; Favaro, 2010; APM, 2012; International Standards Office, 2012; PMI, 2013). Figure 2 summarises the extant PM life

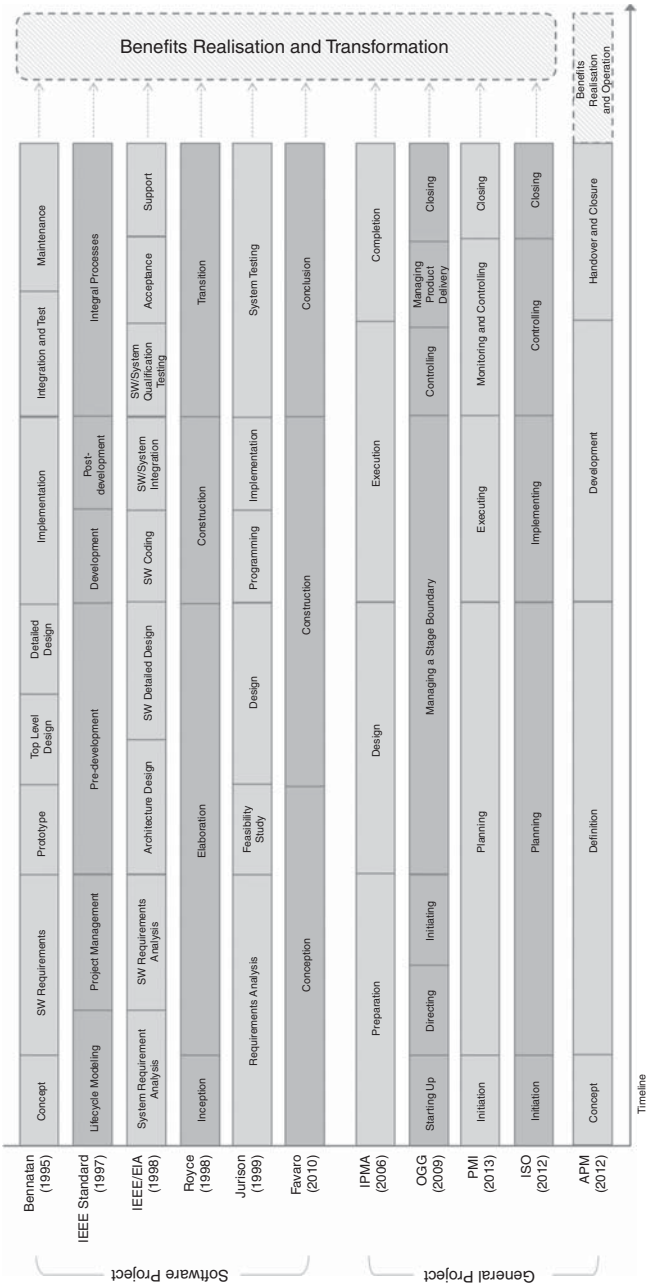

Figure 2.
Evidence from general/software PM life cycle: a lack of the recognition of benefits realisation and transformation

cycle models in the literature. As seen in the diagram, none of them represents the transformational stage of the delivery of benefits from project outputs—i.e. a dotted-line box, "Benefits realisation and transformation" indicates the missing stage. Though APMBoK's life cycle model considers a benefits realisation and operation phase, the phase is included in the "extended" project life cycle, not in the general life cycle, i.e. "some projects will be expected to incorporate the management of change and realisation of benefits (the extended project life cycle)" (APM, 2012, p. 27).

PM studies have been carried out on the basis of the standardised life cycle models and methodologies. Moreover, managing the project life cycle through phases has been regarded as the enabler for improving managerial control (PMI, 2013). Smith (2007) also highlighted the importance of managing the project life cycle as projects become more complex due to a wider variety of processes and tasks. However, a few major problems with this kind of application can be seen within the perspective of transformation and benefits from project execution. An increasing concern has been raised that previous PM and life cycle studies tend to emphasise certain phases such as planning and implementation. Havila *et al.* (2013) criticised previous project capabilities and competencies research for focusing only on the early and middle stages of managing projects. In addition to this internal concern about the life cycle, managerial coverage needs to be expanded to "before" and "after" the project to realise the transformational benefits. Therefore, this paper raises this as a critical problem in terms of realising successful operational transformation from project delivery.

Developing project management knowledge framework

Approach: the Management of Projects and Three Domains of Project Organising

In Figure 3, an advanced PM knowledge framework is displayed in response to the implications from the extant literature. Theoretically, it further develops the Three Domains model (Winch, 2014; Turner and Müller, 2017). The framework distinguishes PM roles among temporary project organisations, permanent supplier organisations and permanent owner organisations, and points out project owners' differentiated perspectives for transformational benefits. We therefore focus on distinguishing the roles between supplier and owner organisations, since a temporary project organisation is a collaboration between the two permanent ones. Structurally, this presented framework was derived from Morris' (2013b) MoP framework. The MoP framework works well as a base model because it is the result of thorough research; existing PM bodies of knowledge tend to provide relatively more practical context such as PM tools, techniques and methods to help project managers and practitioners. Thus, the advanced PM knowledge framework is the result of re-interpreting the MoP model within the context of the Three Domains approach. The explanation of the revised and newly added components on the original framework is as follows.

Advanced project management knowledge framework

Figure 3 describes the advanced PM knowledge framework. Horizontally, the PM knowledge areas are divided by the project owner's and project supplier's perspectives to categorise the required knowledge areas of the two major project organisational bodies. Vertically, the Operations and Value Creation stage was added as the last phase in the project life cycle to highlight benefits realisation and transformation activities. Moreover, the Close-out stage is replaced by a Transfer stage to point out the significance of a continuous approach from project execution to project benefits delivery. Third, the knowledge domains of Project Governance and Project Benefits are included based on the identified factors from the literature review. In addition to the traditional PM boundaries covered by Project Delivery, the importance of front-end, back-end and governance capabilities are included as the key managerial factors of project owner organisations. As seen in Figure 3, a project owner's

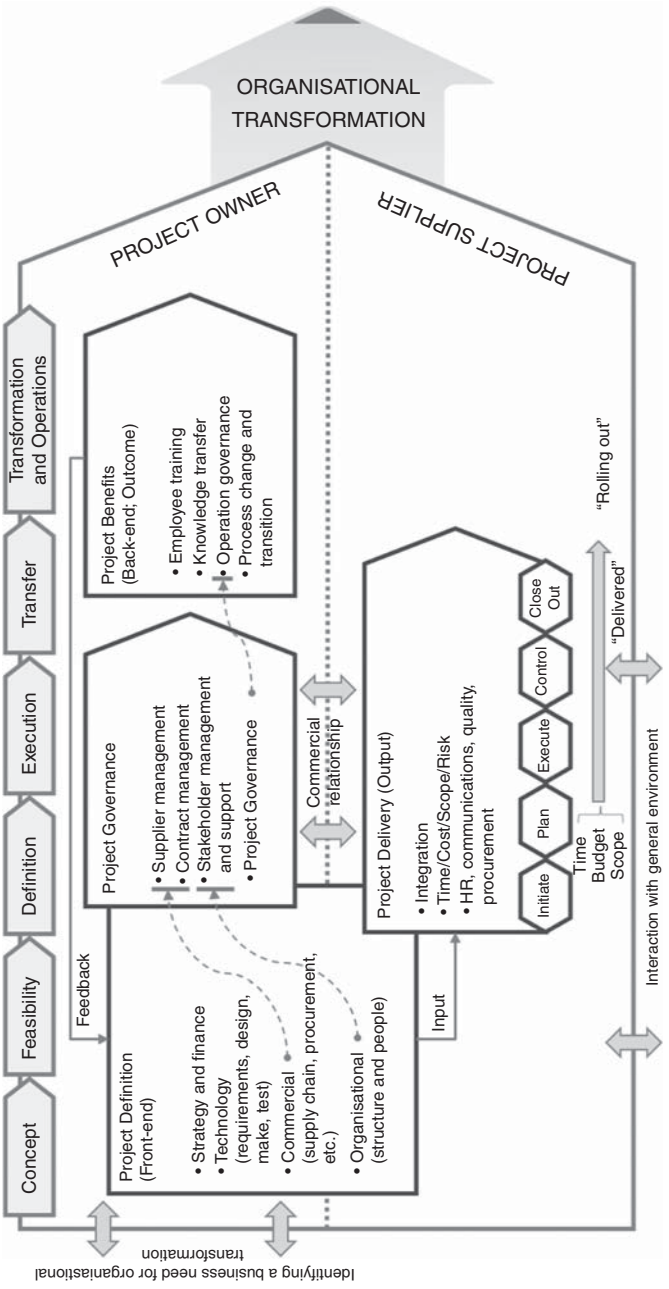

Figure 3.
Project management knowledge framework for organisational transformation

capabilities are evidently different from those of a project supplier. The concepts and components of the framework are summarised as follows:

- Life cycle model: The life cycle model is composed of six stages: Concept, Feasibility, Definition, Execution, Transfer, Operations and Value Creation. The first four stages originate from Morris' MoP framework. The fifth stage, Transfer, points to the importance of connectivity between project execution stages and operational stages. In Morris' framework, this stage is defined as Close-out and is the last stage of the life cycle. By changing it to Transfer, it can be connected more easily to the next stage, Operations and Value Creation. The last step conceptualises the process of project benefit realisation and management during a project owner's operations.
- Project definition (front-end): the collaboration between a supplier and owner is critical. In advance of a project commencement, this phase clarifies the objectives of projects and the roles and responsibilities of each project stakeholder. This component has the same elements as Morris' approach, with two minor changes: first, a project owner's managerial position is enlarged compared with that of the project supplier. To emphasise the project owner's responsibilities of project definition activities, the proportion between a project owner and supplier is modified. The major role of this domain belongs to a project owner. Second, the continuity of commercial and organisational capabilities between Project Definition and Project Governance is highlighted (see dotted arrows in the Figure 3).
- Project delivery (supplier): most PM studies have focused heavily on the activities in this component and, to date, the domain knowledge is well established. In other words, traditional PM knowledge and activities (e.g., PMI's PMBOK®) are set in the narrow project life cycle from the Definition to Transfer stages. The roles and responsibilities of this component belong to a project supplier to achieve the successful delivery of the project.
- Project governance (owner): project governance relates to a project owner's managerial roles during a project life cycle. A few studies have highlighted the importance of project governance in terms of their engagement and contract management. Our literature review supports this and points to the importance of project governance. The elements include supplier management, contract management, stakeholder management and support and project governance.
- Project benefits (back-end): this component is added based on our literature review. Few studies have focused on the role of the project owner to create value/benefits from a project. Our literature review shows that benefits creation and realisation need to be approached at the implementation stages (from project level to operation level). As emphasised in the results and findings sections, a few owner capabilities, such as training and knowledge transfer, are included. The elements of this component are employee training, knowledge transfer, operation governance, and process change and transition.
- Interfaces: in addition to the major four components and the six-stage life cycle, a few internal and external interfaces are also emphasised. These include the interaction between owner and supplier, interaction with general environment and identifying a business need to improve legacy systems.

This framework is suggested to be the knowledge framework for the MoP by covering organisational perspectives, project front-end, project governance and project back-end capabilities. Therefore, on the basis of the key implications from the literature review, the

theoretical framework suggests specific required PM knowledge domains and management factors that will contribute to a project owner's benefits realisation and effective organisational transformation.

Conclusion

There has been a growing research interest in realising benefits and the importance of organisational transformation in PM disciplines. However, extant PM studies and bodies of knowledge have limitations in addressing the issues. Most of the current body of knowledge models focus heavily on delivering the project outputs without highlighting the criticality of outcomes in the form of operational benefits after project delivery has ended, which is the fundamental objective of the investment. Hence, the successful transformation of a project owner's organisation and its business has been a marginalised issue in PM studies to date. To address the limitations of existing PM body of knowledge models—a lack of recognition of the transformation context—we examined how the extant PM knowledge framework can be enhanced to better enact business transformations from improved PM. In the same vein, this research sought to address the following question, and the question was answered by developing the advanced PM knowledge framework based on the literature review:

RQ. In what ways do the current PM bodies of knowledge need to be developed to address the challenges of organisational transformation that emphasise post-implementation benefits?

As a conceptual paper, we reviewed key themes to answer the question. First, the distinction and interrelationship between individual competencies and organisational capabilities in managing projects were briefly reviewed by clarifying each concept. Then, we highlighted the different perspectives of project owners and suppliers with respect to capabilities required by PMs for realising project benefits and transformation. The studies on how benefits and transformation management issues have been currently addressed in PM disciplines were reviewed. Second, the existing PM body of knowledge (including Morris' MoP model) and life cycle models were reviewed with a particular focus on the case of IS projects as evidence of a lack of the recognition of transformation context. By critiquing the traditional PM models, we identified their limited execution-based approach to addressing the transformation context.

As a core contribution of this paper theoretically, this study attempts to resolve the scientific pluralism (i.e. specialisation and fragmentation) in the PM discipline by developing an enhanced PM knowledge framework. Specifically, we argue that current PM knowledge base is heavily dominated by a project supplier's execution-based perspective, and accordingly none of the extant knowledge framework fully covers the wider issues such as beneficial transformation beyond the project implementation. The advanced PM knowledge framework was developed by analysing Morris' MoP framework through the conceptual lens of the Three Domains model and employing the key findings from the literature review. Both the Three Domains and the MoP frameworks that our study adopt, give focus to our research by inviting new and broader perspectives. The Three Domains approach draws our attention to important new research areas (e.g. interface between temporary and permanent organisations) in addition to the extant execution-based approach. The new MoP framework suggests the necessity of strategic and organisational PM with a wider viewpoint such as project front-end activities. On the basis of these academic efforts, the advanced model emphasises the importance of distinguishing a project owner's and a supplier's PM knowledge to achieve the successful organisational transformation through more effective PM and reveals the limitations of the existing approach to project and transformation management research. Moreover, the significance of project back-end capabilities such as training, knowledge transfer and operational governance were discussed. The model can be used as a theoretical groundwork for

the advancement of PM research for addressing the transformation context, which is the fundamental aim of projects.

As a conceptual paper, we suggest a few further studies as follows. First, empirical studies on this framework should be necessary to researchers to discover details and evidence of each component and to test the validity of the framework. Second, identifying a distinctive benefits realisation context between the different types of projects (e.g. physical asset-based projects and IS projects) benefit for a better understanding of transformation context in PM. Third, a project owner's financial accountability and burden also needs to be discussed further as they are the one who should deal with the budget and spending as managing the benefits may require additional costs and delays to the project.

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