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A Model for Organizational Project Management and its Validation

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Abstract

It is important that an organization selects the right projects and carefully manages and governs them to deliver their intended benefits. This paper will describe a model for Organizational Project Management (OPM) to help organizations to do that. OPM is the integration of all project management-related activities of an organization linking strategic decisions (where the project management-related activities are to be carried out) with business decisions (portfolio management and benefits realization) with their management (program and project management) and their governance at both the strategic and project levels. This paper will describe a seven-layered model of OPM with its 22 elements – spanning from the organizational level to the individual project level – derived by the authors using academic literature and their own experience in managing projects. The model adds new elements to OPM such as governance, projectification, benefits realization and organizational design to the conventional 3P (portfolio, program and project management) elements resulting in a more comprehensive model. The developed model was validated with a random sample of organizations in the Netherlands and China. The findings from the validation led to patterns of implementation of OPM in a variety of organizations. The process used for validation as well as the results obtained will be discussed in the paper. The feedback received on this process from academics and practitioners at the PGCS symposium will assist in the development of a web-based diagnostic tool for OPM being put together by the authors.

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Keywords: Organizational Project Management; Portfolio Management; Program Management; Project Management; Project Management Office; Megaproject; Project Governance; Corporate Governance; Strategy

Introduction

This paper is structured as follows. First, the origins of a seven-layered OPM model with its 22 elements, derived from the literature, is presented. The purpose of each layer of the model is then briefly described to show how it contributes to the integration of project-related activities in an organization. Next, the literature used to derive a research instrument used to validate the model are listed along with a questionnaire that was used for data collection. Following this, the outcomes from the process used to validate the OPM model are described. The patterns of OPM that were found from the validation exercise are then discussed. The paper ends with some conclusions and an outline of future work to be carried out for further validation of the model.

The OPM Model

The Organizational Project Management (OPM) model used in this paper is derived from organizational theory from an organizational integration perspective (Child 2005). The concept of OPM has its origins in the Capability Maturity Model (CMM) developed at Carnegie Mellon University in the late '80s (Paluk et al. 1993) to improve software delivery that was failing to deliver benefits. The application of CMM to project management started in the 1990's (Fincher & Ginger 1997). This gave rise to several models that prompted the Project Management Institute (PMI) to develop the Organizational Project Management Maturity Model OPM3 (Brookes et al. 2014; PMI 2003). The Office of Government Commerce subsequently developed the Project Management Maturity Model (P3M3) (Axelos 2015). P3M3 expanded the maturity model from a project level to include portfolio management and program management or 3Ps as it is commonly called. However, Mullaly (2006) who carried out an assessment on the use of the project management maturity models found that it was still unclear how underlying causes resulted in the results from a survey-based analysis that an organization improved its performance by adopting a maturity model. On the other hand, Brookes et al. (2014) found that 'PMMs [Project Management Maturity Models] based on different frameworks will have the propensity to stimulate different suggestions for project management performance improvement' (p. 243). However, the definition of OPM confined only to the 3Ps generated further discussion by project management scholars. Jugdev (2017) argued that OPM3 proposed by the Project Management Institute did not explain how it took into account the impact of classical organizational theories on project management. Crawford (2006) who used a discourse analysis to understand the 'nature and evolution of project management theory and practice' (p. 74) analyzed the discourse regarding the conceptualization of OPM alluded to the importance of the Project Management Office (PMO) and the importance of activities associated with portfolio and program management to the development of OPM. The term OPM was redefined by Aubry, Hobbs and Thullier (2007) to encompass the management of multi-project activities in project-based organizations to align these activities with portfolio and program management and their governance. Similar views were expressed by Drouin. and Besner

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(2012) in a special issue on projects and organizations published in the International Journal of Managing Projects in Business that the focus of ‘project management is changing from a focus on the management of individual projects to the wider organization’ (Drouin 2017, p.9) in the context of managing multiple projects. Based on these developments Drouin (2017, p.1) defined OPM as: **‘The integration of all project management-related activities throughout the organizational hierarchy or network’.**

The concept of OPM developed by Müller et al. (2019), and used in this paper, broadens the scope of OPM defined by Drouin (2017) to other critical aspects of integrating project management-related activities in an organization such as governance and benefits realization to deliver beneficial change from projects. In addition, the model also extends the importance of OPM to process-based and project-oriented organizations as they also use projects to deliver some of their strategies. This extended view of OPM looks at an organization’s philosophical point of view based on the importance paid by them to their project-related activities in partnership with their stakeholders.

Based on a literature review of key project management literature, Müller et al (2019) developed a seven-layered model with 22 elements to conceptualize a systematic model of OPM to optimize the project-related activities within each layer while not forgetting the relationships between the layers.

Figure 1 shows the seven-layered OPM model developed from the literature. For more details on the literature used to derive this model readers can refer to a recently published paper about the model in the Project Management Journal (Müller et al. 2019). A brief explanation of the model is presented next.

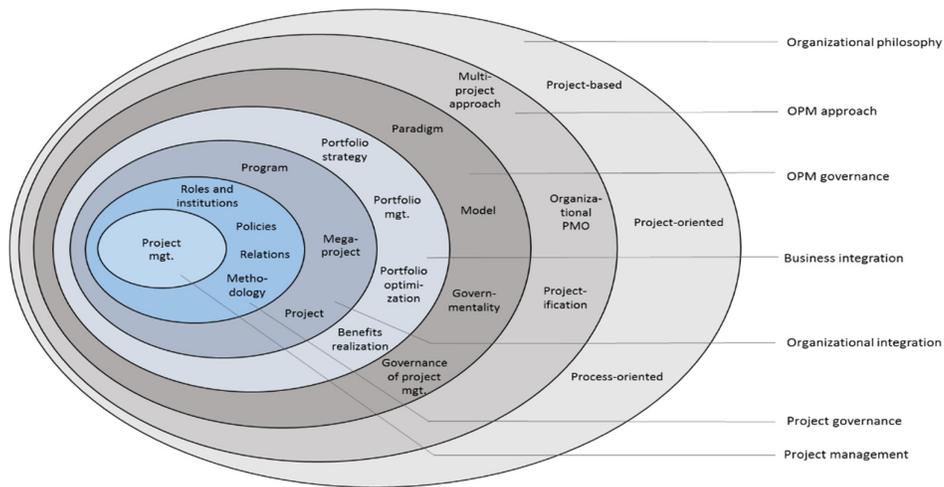


Figure 1: The onion model of OPM (Müller 2019)

Table 1 shows the 22 elements that make up the model.

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Layers	Elements			
<i>Organizational Philosophy</i>	Process-based organization	Project-oriented organization	Project-based organization	
<i>OPM Approach</i>	Multi-project approach	Organizational PMO	Projectification	
<i>OPM Governance</i>	Paradigm	Model	Governmentality	Governance of project management
<i>Business Integration</i>	Portfolio strategy	Portfolio management	Portfolio optimization	Benefits realization
<i>Organizational Integration</i>	Program management	Megaproject	Project	
<i>Project Governance</i>	Roles and institutions	Policies	Relations	Methodology
<i>Project Management</i>	Project Management			

Table 1: The elements of the OPM Model

A brief description of the layers from the outermost to the innermost is discussed next.

Organizational philosophy – An organization’s philosophy explains how it presents itself to external stakeholders such as its customers, partners and suppliers in terms of the importance it pays to project-related activities. While a process-oriented organization places importance on its processes (with some attention to projects when they need to be carried out) a project-oriented organization, while still being process based, will treat its projects more strategically and have structures and processes to manage these well. For the project-based organization its unit of production is a project.

OPM approach – This is the layer at which decisions are taken on how multiple projects are managed across an organization (Blomquist & Müller 2006). This will depend on how portfolios of projects are managed across the organization as well as the intensity of projectification within the organization. When a multi-project strategy is used projects are managed individually to maximize return on investment on independent projects. The goal of a programme strategy is to maximize the efficiency of project execution using a programme of projects. On the other hand, a portfolio strategy maximizes the effectiveness of using an organization’s resources in carrying out projects. A hybrid strategy balances both efficiency and effectiveness by combining the use of a programme and portfolio strategy as appropriate to the selected projects. An organization may also consider setting up an Organizational Project Management Office (OPMO) to strategically support the multi-project activities within the organization. Projectification refers to the extent of project thinking that is prevalent in the organization (Midler 1995).

OPM governance – OPM governance is the means by which portfolios, programmes and projects are directed and controlled. Managers in the organizations are also made accountable for governance activities. While establishing OPM governance the paradigm under which an organization operates becomes important. The paradigm adopted by the organization would depend its orientations – whether it is predominantly shareholder or stakeholder oriented and the way in which it controls its project managers – through behavior control or outcome control. Four paradigms have been conceptualized by (Müller 2017a) - conformist (shareholder orientation and behavior control);

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flexible economist (shareholder orientation and outcome control); agile pragmatist (stakeholder orientation and behavior control); and versatile artist (stakeholder orientation and outcome control). See <http://manapra.com/paradigms/questions> The models of governance an organization adopts can also be influential in setting up the governance at OPM level. The models could be designed as top-down or bottom-up or process or principles-based. Governmentality is a new concept that is gaining importance in project governance (Clegg 2019). This refers to the attitudes and behaviours of those who govern as well as those who are governed. It is the human side of governance that has its origins in Foucault's (1991) work on the relationship between governors and people.

Business integration – The OPM approach adopted by the organization will determine how the organization aligns its projects with the business it is in. It will also establish the extent to which the organization sets up project portfolio management (selection, balancing and optimization of projects to be carried out and their relationships to business-as-usual in alignment with its strategy), and the importance it pays to realize benefits from all of its project-related activities. The governance of project management then determines how projects are governed at the project level.

Organizational integration – At this layer decisions will be made on the effective coordination of all the project-related activities authorized by the top management of the organization at the business integration level so that adequate resources are allocated to carry out these activities. Projects that have a common goal would be managed as programmes. A special purpose entity is likely be set up to manage a project as a megaproject by organizations managing such large complex endeavors. When the projects are not aligned towards a common goal but compete for resources they may be managed as discrete projects but with adequate provision made for resource allocation and optimization.

Project governance – This is done through setting up governance structures such as project boards or steering committees and PMOs at a tactical level, establishing policies to manage the project including reviews, setting up contracts between parties working together on a project and choosing appropriate project management methodologies. The relationship between the project sponsor or owner and the project manager is also considered to provide effective governance.

Project management – At this layer, the project manager uses their skills and knowledge to apply appropriate tools to deliver the projects within the constraints established while scoping the project. Delivering the projects within the agreed upon schedule, under budget and of appropriate quality are often used as a measure to evaluate project success.

Two other considerations were used to develop the OPM model – within-layer relationships between elements at a layer and between-layer relationships to enable appropriate governance of the project.

The elements at each layer were chosen to form a mutually exclusive set that work together within the layer to be able to govern the elements of the next layer. Each higher layer of the model helps to govern the decisions made at the next lower layer. For example, decisions made at the business integration layer about the portfolio of projects to be undertaken by an organization govern the approaches adopted at the organizational integration layer to manage the projects within a portfolio as programs, projects or as a megaproject.

Appendix A shows the literature that was used to come up in the assessment tool used for validation in a class of MBA students comprising of practicing managers in their organizations. They were

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knowledgeable about how projects were carried out within their organizations. The references used to develop this assessment tool are listed separately in this paper.

Data Collection

Data was collected using questions derived from the assessment tool based on the literature.

Appendix B shows the questions developed from the literature used to formulate the OPM model to validate the model. (Müller et al 2019 a) A web-based tool is being developed based on the experience of using it to validate the model.

Model validation

The OPM model was validated through a random sample of organizations in the Netherlands and China. For this, part-time students of an Executive Master/MBA program were trained in the model for three days and subsequently asked to assess their organizations against the OPM model. The goal of this exercise was to identify the presence and expression of the different elements, as well as their integration in the organizations. Variety sampling was used to identify the most basic patterns of the phenomenon. Table 2 shows the sample characteristics.

Twenty organizations were assessed, 14 in the Netherlands and six in China. Most of the organizations (14) were classified as large (>1,000 employees); two as medium (51-1,000 employees); and four as small (up to 50 employees), with a range from 10 to 58,000 employees. The organizations belong to a diverse set of industries, including pharmaceuticals, healthcare, engineering, retail, food processing and telecom. Students (mostly managers) assessed their respective organization either through self-assessment or by interviewing up to five managers of the organization. This resulted in 31 contributors to the study.

Eight of the organizations were ProcOOs, focusing on production. However, they had between three and 20 projects each year to improve manufacturing capabilities and quality. Six companies were project-oriented (POO), and six project-based organizations (PBO).

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<i>Country</i>	<i>Industry</i>	<i>Company size</i>	<i>Informant roles</i>	<i>Organizational philosophy</i>
NL	Product Engineering	Large	Department manager, Marketing manager, Project manager (2)	ProcOO
	Electronic Engineering	Large	Program manager, Project manager, Technical manager	POO
	Healthcare	Small	Manager	ProcOO
	Product Engineering	Med	Manager	PBO
	Food	Large	PMO Manager and Supply Chain Specialist	ProcOO
	Engineering	Large	Managing Director, Operations Director, Project Manager	PBO
	Online retail	Large	Manager	POO
	Retail	Medium	Manager	ProcOO
	Food	Large	Planning Analyst	ProcOO
	Healthcare	large	PMO Manager	POO
	Food processing	Small	Manager	ProcOO
	Traffic	Small	Logistics Manager	ProcOO
	Bus services	Small	Consultant	PBO
	Healthcare	Large	Managers (4)	ProcOO
China	Pharma equipment	Large	Sales Manager	PBO
	Pharma	Large	Product Manager	PBO
	Telecom	Large	Project Manager	POO
	Automation	Large	Senior Manager	POO
	Engineering	Large	General Manager	POO
	Pharma	Large	Project Manager	PBO

Size: Small: 50 employees; Medium: 51-1000 employees; Large: >1000 employees

Philosophy: ProcOO – Process oriented organizations.

POO – Project oriented organizations.

PBO – Project-based organizations.

Table 2: Sample of organizations

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Validation of measures

Appendix A references and describes the measures and scales used to assess the OPM elements. Due to space limitations in this article, the measures and scales cannot be explained in detail. The readers are referred to the original publications listed as references in Appendix A. However, the questions used are included in Appendix B to show the types of questions used.

All measurement dimensions and their scales were fully used in the assessment, which validates both the existence of elements and the appropriateness of their measurements for the model described herein.

Discussion

Comparison of the assessment results identifies some implementation patterns. Thirteen of the organizations (65%) use an OPMO for the governance of their multi-project business. Overall, the implementation patterns differ in organizations with and without an OPMO. OPMO-driven organizations prefer a hybrid approach in governing their project business (62%). An approach describes the strategy selected by upper management to run the project-based part of the business as outlined above. A comparison of the different organizational implementations of the model elements identified six potential implementation patterns, which are shown in Table 3.

Both ProcOOs and POOs often prefer hybrid approaches to steer their multi-project business. Within each of these two organizational philosophies, the presence of an OPMO is associated with different implementation patterns. PBOs prefer both hybrid and multi-project approaches with OPMOs. Table 3 shows that projectification increases from pattern 1 to pattern 6, as the maturity in running projects is expected to be higher in organizations with more projects. Governance paradigms also vary across the patterns; while ProcOOs use all of the four possible paradigms, POOs prefer stakeholder-oriented paradigms, and PBOs adjust the paradigms to the project settings. With the exception of pattern 6, the existence of governance models appears to be associated with that of an OPMO. Within these governance approaches, all three governmentality approaches – authoritarian, liberal and neoliberal – are used. Again, pattern 6 seems to be an exception with its focus on liberal governmentality only.

In line with the argument for higher OPM maturity in more project-based settings, the governance of project management increases from ProcOOs to PBOs. Table 3's entry on portfolio is a combination of the three portfolio elements, that is, strategy, process for portfolio management, and use of optimization approaches. While high in PBOs, this seems to vary significantly in other patterns. Similarly, the use of benefits management is varied, and seems to be higher in organizations with hybrid approaches and OPMO. Organizational integration in ProcOOs and POOs seem to prefer program approaches, which is indicative of their longer-term focus and process orientation in general and lends itself to program thinking. PBOs use both project and program approaches to implement their business opportunities. Steering Groups are paramount as project governance institutions and complemented by PMOs in POOs and PBOs. Finally, the project management methodologies vary across the organizations, with predictive methodologies (such as PRINCE2) being popular across the patterns, occasionally complemented by emergent (Agile/SCRUM), or convergent (mix of predictive and emergent) methods.

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<i>Elements</i>	<i>Pattern 1</i>	<i>Pattern 2</i>	<i>Pattern 3</i>	<i>Pattern 4</i>	<i>Pattern 5</i>	<i>Pattern 6</i>
<i>Philosophy</i>	ProcOO		POO		PBO	
<i>Approach</i>	Hybrid		Hybrid		Hybrid	Multi-project
<i>OPMO</i>	Yes	No	Yes	No	Yes	Yes
<i>Projectification</i>	Low	Low	Low	Medium	High	High
<i>Paradigm</i>	All	All	VA/AP	AP	All	VA/CON
<i>Model</i>	Yes	No	Yes		Yes	No
<i>Governmentality</i>	All	All	All	All	All	Liberal
<i>Gov of PM</i>	Medium	Low	Medium		Low/High	Med/High
<i>Portfolio (3)</i>	High/Med	High/Med	Med/High	Low	High	High
<i>Benefits</i>	Low/Med	Low/Med	High	Low	High	Low
<i>Org integration</i>	Program	Program	Program	Program	Program	Project
<i>Institutions</i>	SG		PMO/SG	SG	PMO/SG	PMO/SG
<i>Methodology</i>	Conv/Pred	Pred/none	Predictive	Emergent	Predictive	Pred/Conv

Table 3: Implementation patterns

Conclusions

Existing theories and literature were used to come up with the initial OPM model and further literature was then sought to refine and fine tune the model. The model represents a better combination of elements derived from the academic literature as well as the experience of the authors who manage projects. These elements were carefully included in the model using within-layer and between-layer relationships to minimize redundancy of activities within an organization making roles and responsibilities clear at each layer.

The findings across the 20 organizations validate the model, as all elements were identified, and the results indicate clear patterns of implementation for which the organizational philosophy and the presence of an OPMO appears to play a decisive role.

The instrument used by the authors for validation was a qualitative assessment tool. A web-based instrument is being developed as a follow up to the qualitative evaluation that was carried out to validate the model in Canada, Australia, the Netherlands and China. The validation of the model in Australia and Canada appear as case studies in a book on OPM being published later this year (Müller et al 2019a). This paper has presented the validation of the model with managers from the Netherlands and China. The authors are continuing the validation of the model in different industry sectors to identify patterns of implementation that could serve as a reference for organizations that wish to implement OPM in their organizations.

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References (used in the paper)

- Axelos (2015). *Introduction to P3M3®*, London, Axelos.
- Aubry, M., Hobbs, B., & Thullier, D. (2007). A new framework for understanding organisational project management through PMO, *International Journal of Project Management*, 25 (4), 328-336.
- Blomquist, T., & Müller, R. (2006). *Middle Managers in Program and Portfolio Management: Practice, Roles and Responsibilities*. Newton Square, USA: Project Management Institute
- Brookes, N., Butler, M., Dey, P. & Clark, R. (2014). The use of maturity models in improving project management performance: An empirical investigation, *International Journal of Managing Projects in Business*, 7 (2), 231-246.
- Child, J. (2005). *Organization: Contemporary Principles and Practice*, Oxford: Blackwell.
- Clegg, S. (2019). Governmentality, *Project Management Journal*, 50 (3), 266-270.
- Crawford, L. (2006). Developing organizational project management maturity: Theory and practice, *Project Management Journal*, 37 (3). 74-87.
- Drouin, N. & Bessner, C. (2012). Management of project knowledge and experiences, *International Journal of Managing Projects in Business*, 5 (2), 175-179
- Drouin, N., Müller, R., & Sankaran, S. (2017). The Nature of Organizational Project Management through the Lens of Integration. In S. Sankaran, R. Müller, & N. Drouin (Eds.), *Cambridge Handbook of Organizational Project Management* (pp. 9–18). Cambridge, UK: Cambridge University Press.
- Fincher, A. & Levin, G. (1997). The project management maturity model, *Project Management Institute Annual Seminar/Symposium, Chicago, IL*. Pp. 48-55.
- Foucault, M. (1991). Governmentality in G. Burchell, C. Gordon. & P. Miller. (Eds.) *The Foucault Effect: Studies in Governmentality*, (pp. 1-20). Hemel Hempstead: Harvester Wheatsheaf.
- Jugdev, K. (2017). Strengthening the connections between strategy and organizational project management, in S. Sankaran, R. Müller, & N. Drouin (Eds.), *Cambridge Handbook of Organizational Project Management* (pp. 44-54). Cambridge, UK: Cambridge University Press.
- Midler, C. (1995). "Projectification" of the firm: The Renault Case. *Scandinavian Journal of Management*, 11(4), 363–375.
- Mullaly, M. (2000). Longitudinal assessment of project management maturity, *Project Management Journal*, 37(3), 62-73.
- Müller, R. (2017a). *Governance and Governmentality for Projects: Enablers, practices and consequences*. (R. Müller, Ed.). New York, NY, USA: Routledge, USA.
- Müller, R., Drouin, N. & Sankaran, S. (2019). Modeling Organizational Project Management. *Project Management Journal*, 50 (4), 1-15.
- Müller, R., Drouin, N. & Sankaran, S. (2019a). *Organizational Project Management: Theory and Implementation*, Edward Elgar, Cheltenham (forthcoming).
- Paulk, M.C., Curti, B., Chrissis, M.B. & Weber, C. (1993). *Capability Maturity Model for Software, Version 1.1.*, CMU/SEI-93-TR-24, ADA 263403, SE Institute, Carnegie Mellon University, Pittsburgh, PA.

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PMI. (2003). *Organizational Project Management Maturity Model: Knowledge Foundation*. Newtown Square, USA: Project Management Institute.

References (Additional references used in the Assessment Tools in Appendix A)

- Bradley, G. (2014). Benefits Realization Management. In R. Turner (Ed.), *Gower Handbook of Project Management* (5th ed., pp. 123–137). Farnham, Surrey, UK: Gower Publishing Limited.
- Cooper, R. G., Edgett, S. J., & Kleinschmidt, E. J. (2004). Benchmarking Best NPD Practices - I. *Research Technology Management, 2004*(January-February), 31–43.
- Flyvbjerg, B. (2014). What You Should Know About Megaprojects and Why : An Overview. *Project Management Journal, 45*(2), 6–19.
- Gareis, R., & Huemann, M. (2007). Maturity Models for the Project-oriented Company. In J. R. Turner (Ed.), *Gower Handbook of Project Management* (4th ed., pp. 183–208). Aldershot, UK: Gower Publishing Ltd.
- Kopmann, J., Kock, A., & Killen, C. P. (2017). Project portfolio management. In S. Sankaran, R. Müller, & N. Drouin (Eds.), *Cambridge Handbook of Organizational Project Management*. Cambridge; MA, USA: Cambridge University Press.
- Müller, R. (2017a). *Governance and Governmentality for Projects: Enablers, practices and consequences*. (R. Müller, Ed.). New York, NY, USA: Routledge, USA.
- Müller, R. (2009). *Project Governance*. Farnham, UK: Gower Publishing Ltd.
- Müller, R., & Lecoeuvre, L. (2014). Operationalizing Governance Categories of Projects. *International Journal of Project Management, 32*(8), 1346–1357.
- Müller, R., Zhai, L., & Wang, A. (2017). Governance and governmentality in projects: Profiles and relationships with success. *International Journal of Project Management, 35*(3), 378–392.
- Turner, J. R. (2004). Farsighted project contract management: incomplete in its entirety. *Construction Management and Economics, 22*(1), 75–83.
- Turner, J. R., & Keegan, A. (2001). Mechanisms of Governance in the Project-Based Organisation: a Transaction Cost Perspective. *Henley Working Paper Series, HWP 0104*.
- Turner, J. R., & Müller, R. (2003). On the nature of the project as a temporary organization. *International Journal of Project Management, 21*(1), 1–7.

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Appendix A: Assessment tools, their references and scales

<i>Layer</i>	<i>Element</i>	<i>Assessment model reference</i>	<i>Question /reference</i>	<i>Measures</i>
Organizational philosophy	Project-based Project-oriented Process-oriented	(Turner & Keegan, 2001) (Gareis & Huemann, 2007) Ditto.	Discussion	Predominant philosophy of the organization: process-oriented, project-oriented, or project-based
OPM approach	Multi-project approach OPMO Projectification	(Blomquist & Müller, 2006) (Müller et al., 2017a) (Müller, Zhai, et al., 2017)	p.85-98 p.54-58 p.391	Multiproject, program, portfolio, or hybrid-driven With or without organizational PMO Low, Medium, or High
OPM governance	Paradigm Model Governmentality Governance of PM	(Müller & Lecoivre, 2014) (Müller, 2009) (Müller, Zhai, et al., 2017) (Müller, 2009)	p.1346-1357 p.23-28 p.391 p.31-40	Conformist (CON), Flexible Economist (FE), Versatile Artist (VA), or Agile Pragmatist (AP) Existence of governance model Authoritarian, liberal, or neo-liberal Low, Medium, or High
Business integration	Portfolio strategy Portfolio management Portfolio optimization Benefits realization	(Kopmann et al., 2017) (Kopmann et al., 2017) (Cooper, Edgett & Kleinschmidt, 2004) (Bradley, 2014)	Discussion	Low, Medium, or High – link to strategy Low, Medium, or High – process for ptf. mgt. Low, Medium, or High – optimization Low, Medium, or High – benefits management
Organizational integration	Program Megaproject Project	(Turner & Müller, 2003) (Flyvbjerg, 2014) (Turner & Müller, 2003)	Discussion	Average approach to opportunity implementation: project, megaproject, or program
Project governance	Institutions and roles Policies Relations Methodology	(Müller et al., 2017a) (Müller, 2009) (Turner, 2004) (Müller, 2009)	Discussion	Steering group, PMO, others Existence of policies Contract types Predictive (e.g. Prince2), Emergent (Agile), Convergent (mix of predictive and emergent), or self-developed

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Appendix B: Questions used in the validation

Layer	Name of Layer	Element	Questions developed for validation
1	Organizational philosophy		<p>What is the nature of the customer/client deliverables and how are they delivered?</p> <p>Is the organization's interaction with customers/markets based merely on projects or continuous processes?</p> <p>How are projects with customers handled within the organization: as separate projects, or are the parts of the project subordinated to a production process?</p> <p>How many projects or programmes does the organization execute per year?</p> <p>Are project and programme management explicit processes and functions in the organization?</p>
2	OPM Approach		<p>What types of projects are accepted in the organization?</p> <p>How important are the existing skill-sets of employees and objectives of other projects in the acceptance of projects?</p> <p>Are projects grouped into programmes, or portfolios, or both?</p>
2	OPM Approach	OPMO	<p>Is there a central organizational unit for the organization-wide development and improvement of project management practices (often called strategic PMO or organization-wide PMO)?</p> <p>What is the mandate, scope of work and authority of this organization?</p> <p>Is this the only one of such organizations or are there other, probably more tactical, units that also work on the improvement of project management practices (often called PMOs or tactical PMOs)? If so, how is the work divided between them?</p>

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Layer	Name of Layer	Element	Questions developed for validation
2	OPM Approach	Projectification	<p><i>Status of project management in the organization:</i> how important is project management in the organization?</p> <p><i>Career progression for project managers:</i> is there a defined and implemented career path for and elements supporting (e.g. training) project management?</p> <p><i>Projects as a business principle:</i> are the relationships with its partner organizations and customer/clients based on joint projects, or merely handled as operations (such as outsourced services)?</p> <p><i>Percentage of business done in projects:</i> what proportion of the organization's business is based on projects?</p> <p><i>Project mindset and culture:</i> when talking about their work, do employees refer to the projects they work on or the company they work for?</p>
3	OPM Governance		<p>Is decision making in the organization governed by the aim of maximizing shareholder return, or by providing value to many different stakeholder groups simultaneously?</p> <p>Are project managers supposed to predominantly to follow the project management methodology (i.e. execute process compliance) or accomplish pre-set objectives irrespective of the process followed?</p> <p>How are project managers monitored?</p>
3	OPM Governance	Governance Model	<p>Is there a governance model for projects which is applied in the organization? If so, describe the model.</p> <p>Is the model based on rules or principles?</p> <p>What are the consequences of non-compliance with the model's rules or principles?</p> <p>What percentage of projects is governed using this model?</p>

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Layer	Name of Layer	Element	Questions developed for validation
3	OPM Governance	Governmentality	<p>How does the governance institution (e.g. steering committee) interact with its managers?</p> <p>Authoritarian: as indicated by giving clear directions, enforcing decisions, being authoritative in style.</p> <p>Liberal: as indicated by emphasizing the achievement of project objectives, using rational means to convince the managers, and flexible adjustment of organization structures to the manager's needs.</p> <p>Neoliberal: as indicated by communicating values and fostering a culture that allows managers to control themselves, expecting managers to decide for themselves, based on the collective interest of the organization's stakeholders, rarely steering through directives.</p>
3	OPM Approach	Governance of Project Management (Using Table in Chapter 4 of Müller et al. 2019a)	<p>What are the measures used in governance of project management?</p> <p>To what extent they are used?</p> <p>Overall, which step (1, 2 or 3) would you say the organization has reached?</p>
4	Business Integration	Portfolio strategy	<p>What are the strategies for the different portfolios in the organization?</p> <p>How are the strategies linked to corporate strategy?</p> <p>Are the strategies and their links static or dynamic over time?</p> <p>In the case of dynamic strategies, how often are they adjusted to the changing circumstances of the organization?</p>
4	Business Integration	Portfolio Management	<p>How does the organization select, prioritize, staff and authorize its projects?</p> <p>Is there a portfolio management process? If so, is it followed?</p> <p>What tools and techniques are used for the selection of projects?</p> <p>What criteria are used for the prioritization of projects?</p> <p>How is resource balancing carried out?</p> <p>How are projects in the portfolio authorized and controlled?</p>

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Layer	Name of Layer	Element	Questions developed for validation
4	Business Integration	Portfolio Optimization	<p>Are portfolios deliberately optimized for the accomplishment of strategic objectives?</p> <p>If so:</p> <p>What criteria or optimization strategy criteria are used?</p> <p>What tools and techniques are used to support the process?</p> <p>How often are portfolio optimization strategies applied to portfolios and how often is their performance controlled?</p>
4	Business Integration	Benefit Realization	<p>To what extent is benefits realization a subject at the management level?</p> <p>Are there accountabilities assigned for benefits realization? If so, to whom (which role)?</p> <p>Is there a benefits realization process, related criteria and goals to manage benefits realization?</p> <p>Are the results of the management of benefits realization controlled? If so, are they used to improve practices?</p>
5	Organizational Integration		<p>Is the work in the organization mostly done through projects, or programmes, or megaprojects?</p> <p>What is the percentage of revenue from projects, programmes and megaprojects?</p> <p>What is the percentage of human resources assigned to projects, programmes and megaprojects?</p> <p>What is the percentage of working time assigned to projects, programmes and megaprojects?</p>
6	Project Governance	Institutions and Roles	<p>Who is the project owner and/or sponsor of the project?</p> <p>Is there a steering committee and if so, what roles are represented there?</p> <p>Are there other governance institutions, such as tactical PMOs, quality committees, or other advisory groups?</p> <p>If so, what is their mandate and authority?</p>
6	Project Governance	Policies	<p>Which organizational policies outline the suggested practices for project management?</p> <p>Are the policies relevant and current?</p> <p>To what extent can the policies be adopted to projects in the organization?</p> <p>Is their use mandatory or voluntary?</p> <p>What are the consequences of non-compliance?</p>

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Layer	Name of Layer	Element	Questions developed for validation
6	Project Governance	Relations	<p>How are agreements predominantly made for and in projects (e.g. formal contracts versus psychological contracts, etc.)? If there are several, what is the percentage and context of each?</p> <p>What types of formal contracts are used and with whom?</p> <p>What types of informal contracts are used and with whom?</p> <p>Are the authorities to sign the contracts defined and communicated?</p> <p>What are the consequences of non-compliance with agreements?</p>
6	Project Governance	Methodology	<p>Which types of project management methodologies are used in the organization (predictive, iterative, emergent, or self-developed)? Can you name them?</p> <p>How many different types of methodologies are used in the organization?</p> <p>Which methodologies are suggested by the governance system?</p> <p>Are project managers free to choose their own methodology?</p> <p>What happens when project managers do not follow the suggested methodology?</p>
7	Project Management		<p>What type of project life-cycle underlies the project (e.g. sequential, incremental, agile or hybrid)?</p> <p>How is planning done in the project?</p> <p>Which documents constitute a project plan?</p> <p>How are projects implemented and controlled?</p> <p>To what extent is risk management and change management carried out in projects?</p> <p>Which leadership approach (vertical, horizontal, shared/distributed or balanced) is applied in projects?</p> <p>Which leadership styles (transactional/transformational, or goal-oriented/involving/engaging) are used by the project manager?</p>