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Project-based management as an organizational innovation: drivers, changes and benefits of adopting project-based management

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Abstract

This paper examines project-based management as an organizational innovation. Institutional theory and innovation diffusion literature suggest that the drivers for adopting an organizational innovation may differ across organizations, and that the drivers may be linked with the timing of the innovation. A survey questionnaire was used for data collection, and the sample consisted of 111 companies representing a variety of industries. The results of this study identified external pressure and internal complexity as drivers for introducing project-based management. The degree of process change, depth of project-based management adoption, and local success of project-based management introduction as changes caused by adopting project-based management are examined. The study also reveals benefits from introducing project-based management in the form of improvement in project culture, and efficiency improvement.

Keywords: Innovation management; organizational innovation; project-based management

Project-based management as an organizational innovation

One track of innovation management literature examines innovations that change the ways in which the organization operates. Organizational innovation can be considered an idea or behavior new to the adopting organization (Damanpour and Evan 1984). Organizational innovation may encompass new products or services, new process technologies, new organizational structures or administrative systems, or new plans or programs pertaining to organizational members (Alänge et al. 1998, Damanpour 1996, Damanpour and Evan 1984). The idea may be internally generated or borrowed from other organizations (Damanpour and Evan 1984).

Project-based management can be considered an organizational innovation that may influence both the technical and social system of the organization through new structures, methods, technical systems, and behavioral patterns. Project-based management has at least four special features, as compared to other forms of management.

1. Project-based management is directed towards organizing activities to achieve goals of scope, cost, and time (PMI 2004, Turner 1999) and, increasingly, towards broader customer and business goals (Shenhar et al. 2001). In earlier research, management by objectives has been considered as an organizational innovation, as well as goal-oriented programs (Fennell 1984).
2. Project-based management induces a temporary organization structure as part of (matrix) or replacing the old organization structure (PMI 2004, Packendorff 1995). Earlier, M-form or matrix organization structures (Teece 1980, Mahajan et al. 1988, Burns and Wholey 1993), and flow manufacturing in multiple plants (Maritan and Brush 2003) have been examined as organizational innovations.
3. Project-based management can include both standardized and organization-specific tools and good practices (PMI 2004, White and Fortune 2000, Milosevic and Patanakul 2005). As a comparison, studies on Total Quality Management and ISO 9000 have earlier been considered as organizational innovations (Westphal et al. 1996, 1997, Guler et al. 2002). Also data processing and IT solutions have been studied (Kimberly and Evanisko 1981).
4. Project-based management promotes distributed and project-specific responsibilities in the organization (PMI 2004, Turner 1999). Each project has a dedicated project manager and project organization which dissolves as the project ends. New management system has earlier been considered as organizational innovation in somewhat different settings, i.e., administrative process or staff development program in libraries (Damanpour and Evan 1984, Damanpour et al. 1989, Damanpour 1987).

A specific feature of organizational innovations is that the “product” is not as clear as in other types of innovations, and the incentives for developing them are not immediately apparent (Alänge et al. 1998). Yet, organizational innovations have been considered particularly important and interesting for the survival and success of the firm. For example, Powell (1995) has examined Total Quality Management as an organizational innovation and proposed that it contributes to a sustained competitive advantage. Due to the co-existence of the above mentioned features, project-based management can be considered a highly interesting organizational innovation that may face difficulties when being adopted and developed.

Adopting organizational innovations

One inherent feature of organizational innovations is that their imitation, i.e. spread in and across organizations, is difficult if not impossible due to organization-specific implementation conditions, and the local interpretations necessary (e.g. Teece 1980, Mahajan et al. 1988). However, companies do attempt to imitate organizational innovations because they seek the same benefits as many other firms and because there are no obvious protective barriers such as patenting opportunity for the use of these innovations (Teece 1980).

Adoption of organizational innovations is a process that includes the generation, development and implementation of new ideas or behaviors in or across organizations. Earlier research on institutionalization suggests that those companies that adopt an organizational innovation early have more freedom to modify practices to increase organizational efficiency. Later adopters, in turn, have normative pressures to comply with the practices developed by the early adopters (Westphal et al. 1997). This mechanism of institutional isomorphism may force organizations to take into use practices that do not fit with the organization (e.g. DiMaggio and Powell 1983). As a result, the way in which the organizational innovation is introduced and, thereby, adopted may influence the degree to which it succeeds in bringing about sustainable competitive advantage.

Project management research has covered development of project-based management through different maturity models, competency models, excellence models, and scorecards (e.g. Ibbs and Kwak 2000, Jugdev and Thomas 2002, Kwak and Ibbs 2002, Andersen and Jenssen 2003, Cormican and O'Sullivan 2004, Westerveld 2003, Cooke-Davies and Arzymanov 2003). Many of such studies examine the maturity or competence areas relevant to successful project-based management, differences across firms or industries, and the steps through which companies develop their project based management. Such studies often assume that project-based management is already in use and that companies differ in their maturity of project-based management. The original **introduction** or **adoption** of project-based management has received little attention. Therefore, utilizing innovation diffusion and institutional theory to better understand the early phases and diffusion of project based management in and across firms could contribute to project management research. Both innovation and institutional theory literature encourage examining three topics: **rationale** for project-based management, and the **changes** and **benefits** stemming from adopting project-based management.

Firstly, companies may differ in the adoption of an innovation in terms of their rationale (motives or drivers). Innovation diffusion literature suggests that firm adopt new organizational innovations to maintain and enhance their performance (Damanpour 1987), e.g. ensure cost effective production of high quality products and services. Institutional theory provides a complementary rationale: new innovations are adopted to ensure social fitness and legitimacy (Meyer and Rowan 1991). Organizations that adopt organizational innovations increase their legitimacy and survival prospects regardless of the efficiency of the adopted practices (Meyer and Rowan 1991). Institutional theory differentiates between the early and late adopters of innovations and have identified somewhat different drivers for these groups. For example, research on the adoption of total quality management (TQM) in healthcare sector has reported that earlier adopters implemented TQM mainly to increase efficiency and effectiveness of their work processes (Westphal et al. 1997). They modified the innovation for their own needs and integrated new practices into the working processes. Later adopters rather focused on the symbolic benefits of such an innovation. Our first research question is: **what are the main drivers for introducing project-based management?**

Secondly, the actual changes caused by the adoption process are relevant in determining whether adoption has taken place or not. Damanpour and Evan (1984, also Damanpour 1987) pondered whether an innovation has been adopted upon its decision, start of implementation, or only after successful implementation. They concluded that the idea can be considered adopted (well or poorly) only when the idea is actually being used. Abrahamson (1991) has drawn attention to the fact that some innovations are actually rejected, and that organizational processes sometimes prompt the adoption of inefficient innovations, besides the efficient ones. Both Damanpour's and Abrahamson's studies suggest that the actual changes accomplished through adopting an organizational innovation are related to the drivers and adoption conditions (also Alänge et al. 1998, Kimberly and Evanisko 1981). Our second research question is: **what kind of changes has the introduction of project-based management caused in practices and processes in the organization, and are these changes associated with the drivers?**

Thirdly, the benefits or outcomes of adopting an innovation can be considered relevant. Abrahamson (1991) notes the proinnovation bias in innovation diffusion research: the dominant assumption is that innovation is always brought to completion and would benefit adopters. In reality, good innovations may be rejected and bad ones adopted. Fads and fashions may promote even quite unbeneficial innovations in uncertain environments, and encourage imitation across organizations. Earlier research indicates that some aspects of the innovation diffusion process, e.g. standardization of the innovation, or the use of an external, trustworthy institution of expertise, may impact both the adoption of the innovation, and the associated benefits (Fennell 1984, Alänge et al. 1998, Westphal et al. 1997). Our third research question is: **what are the perceived benefits from introducing project-based management, and how are these benefits associated with the drivers and changes?**

The purpose of this research is to examine project-based management as an organizational innovation. More specifically, we study the drivers, changes and benefits of introducing project-based management, and linkages between them.

Research method

A questionnaire survey was used to examine the introduction, current state and future prospects in project-based management. The questionnaire was originally developed in Germany (Volkswagen Coaching 2002) and later adopted by other countries. The Australian version is a modification of the original survey, developed further on the basis of expert interviews and literature review (the background and methodology of the entire research is explained more thoroughly in Hensman, Valenta and Jaafari 2004). This paper covers only those survey topics that focus on the introduction of project-based management.

Survey sample

The survey was carried out across Australian companies representing a variety of industry sectors. Originally, the questionnaire was mailed to 4800 companies based on Australian Business Review listing of top firms in the country. Of these, 111 companies responded to the survey, with a total response rate of 2.3%. A number of people in the original target population reported lack of project-based management in their organization and, therefore, non-response. The low response rate may also have resulted from the rather heavy questionnaire form, and another survey on the same population being launched at the same time. The sample characteristics indicate a skewedness towards rather experienced project personnel, which may influence the results and need to be considered as a limitation of the study.

A majority of the responses were received from public sector and service organizations, with a minority of responses representing the more traditional project businesses such as capital industry, manufacturing, and IT and telecommunications. Small to medium sized companies dominate in the sample. A majority of responses come from firms where project management has been officially introduced throughout the firm. The time of introducing project based management varies strongly. Background information on the companies participating in the survey is presented in Table 1.

Industry	%	Nr of employees	%
1=Public sector	30.6	1=Below 500	51.4
2=Services	28.8	2=501-1000	16.2
3=Manufacturing	15.3	3=1001-5000	21.6
4=IT and telecommunications	15.3	4=Over 5001	10.8
5=Capital industries (construction, energy etc.)	9.9		

Was PM officially introduced?	%	Years from introducing PM	%
1=No, it was not officially introduced at department or company level.	29.7	1=Below 1	6.3
2=Yes, it was officially introduced either at department level or throughout company	27.0	2=1-3 years	35.1
3=Yes, it was officially introduced both at department level and at company level	38.7	3=4-10 years	28.8
n.a.	4.5	4=Over 10 years	23.4
		n.a.	6.3

Table 1. Companies in the survey sample (N=111).

Of the respondents, 80% are male, and 27% are members of a project management association. The respondents represent different age groups, have dominantly an economics or business education, and a majority represent project management or finance tasks. The respondents are very experienced in project work, i.e. over 53% have over 10 years of experience in projects. More information on the individual respondents is presented in Table 2.

Age group	%	Training background	%	Area of work	%	Years in project work	%
Below 34	21.6	Economics, business	51.4	Project management	36.0	1=Below 1	0.9
35-44	33.3	Engineering	15.3	Finance, accounting	20.7	2=1-3	8.1
45-54	38.7	IT	12.6	Internal consultancy, staff	12.6	3=3-10	37.8
Over 55	6.3	Science	9.0	Information technology	10.8	4=Over 10	53.2
		Other	11.7	Strategy, planning, development	6.3		
				Other	13.5		

Table 2. Individual respondents' background (N=111).

Questionnaire items included in the analysis

For the purposes of this study, we used altogether 23 questionnaire items to examine the drivers, changes and benefits related to introducing project-based management (later abbreviated as PM).

Benefits of introducing project-based management. The survey asked: What benefits has PM brought to your company. Eight items were included: Greater entrepreneurship; More client satisfaction; More effective communication; More knowledge management and knowhow transfer; Improved project control; Better multi-project coordination; Greater project transparency; and Better project performance. A scale of 1=completely disagree...5=totally agree was used.

Changes through introducing project-based management. We examined changes in three areas: degree of process change, depth of PM adoption, and local success of PM introduction. Degree of process change examined how much did the work processes change as a result of introducing PM for your area, for your department, and for you personally. A scale of 1=hardly at all...5=a great deal was used. Three questions in Depth of PM adoption examined the presence of PM: PM culture is widely present at all levels of the hierarchy, PM is used sporadically in the company (scale inverted for further analyses), and Project and line organizations work well together in the company. A scale of 1=completely disagree...5=totally agree was used. Local success of PM introduction was measured with two items that asked, how successful was the introduction of PM in your area, and in your department. The items had a scale of 1=unsuccessful...5=very successful.

Drivers for introducing project based management. The questionnaire asked for the main reasons for introducing project-based management. Seven items were used: Increasing project complexity; Increasing number of projects; Time pressure for projects, Image of modernity; Client demands; Internationalization and globalization; and Market or competitive pressure. These items were measured on scale 1=unimportant...5=very important.

Control variables. We used four control variables at company level, all introduced in Table 1: Industry, Number of employees, Official introduction of PM, and Years from introducing PM. Additionally, we controlled for two individual level variables: membership of an association for

project management (dummy variable, 1=member, 0=non-member), and years of involvement with project work (ordinal scale, as in Table 2).

Preliminary analysis and descriptive statistics

To explore and identify the variable structure, we conducted principal components analysis of the items and tried out different models. For the drivers and changes we used orthogonal (varimax) rotation. A two-factor model is suggested for Drivers: *Internal complexity* and *External pressure*, and the factors account for 57% of the variance in the model. For Changes, a three-factor model was used as indicated by the question setting: *Degree of process change*, *Depth of PM adoption*, and *Local success of PM introduction*, and the factors explain 76% of the variance in the model. For the benefit items, we used oblique (direct oblimin) rotation due to expected item intercorrelations. A two factor model was supported for benefits and explains 69% of the variance. We named the benefit variables as: *Improvement in PM culture*, and *Efficiency improvement*. Two items have fairly high component loadings outside of the proposed variable structure, as shown in Appendix 1. However, we chose to include them as part of the principal component factor.

We developed variables based on the principal components for further analysis. Scores for each variable were calculated as average of the included items. To estimate the reliability of the variables, Cronbach's alpha coefficients were calculated. The scores for benefit and change variables are high (0.73 - 0.89), but slightly below the acceptable level of 0.7 for driver variables (0.66 and 0.68). The content and reliability coefficients for the variables are presented in Appendix 1.

Means, standard deviations and correlation coefficients among the variables are presented in Table 3. Internal complexity dominates as a driver for introducing project-based management, as compared to external pressure. Of the change variables, local success of PM introduction receives slightly higher scores, as compared to degree of process change or depth of PM adoption. Of the benefit variables, the score of Efficiency improvement is somewhat higher than Improvement of project culture.

	N	mean	s.d.	Industry	Number of employees	Official introduction of PM	Years from introducing PM	Are you member of an association for PM	Years in project work	Internal complexity	External pressure	Degree of process change	Depth of PM adoption	Local success of PM introduction	Improvement of project culture
Industry	111	2.45	1.33												
Number of employees	111	1.92	1.08	-0.14											
Official introduction of PM	106	1.09	0.85	-0.09	-0.05										
Years from introducing PM	104	2.74	0.91	0.28**	0.12	-0.15									
Are you member of an association for PM	111	0.27	0.45	0.02	-0.11	0.09	-0.02								
Years in project work	111	3.43	0.68	0.19*	0.01	-0.12	0.45***	0.09							
Internal complexity	111	4.29	0.62	-0.01	0.13	0.06	0.08	-0.02	0.16						
External pressure	111	2.67	0.90	0.28**	-0.06	0.06	0.21*	0.20*	0.12	0.33***					
Degree of process change	111	3.32	0.89	-0.13	0.13	0.05	-0.22*	0.05	-0.13	0.07	0.13				
Depth of PM adoption	111	2.97	0.99	0.39***	-0.09	0.21*	0.30**	0.27**	0.27**	0.10	0.44***	-0.06			
Local success of PM introduction	108	3.63	0.97	0.05	0.07	0.27**	0.00	0.15	0.17	0.26**	0.23*	0.33***	0.41***		
Improvement of project culture	111	3.25	0.75	0.12	-0.02	0.07	0.10	0.22*	0.08	0.17	0.47***	0.19*	0.44***	0.39***	
Efficiency improvement	111	3.78	0.76	0.05	-0.02	0.13	0.06	0.18	0.05	0.22*	0.30**	0.25**	0.38***	0.58***	0.63***

***p<0.001, **p<0.01, *p<0.05

Table 3. Descriptive statistics and correlation coefficients (PM = project-based management).

Of the control variables, industry, official introduction of PM, timing of PM introduction and PM association membership have a few correlations with the other variables. For instance, traditional project industries have a longer history with PM than does public sector and services. Traditional project industries also report external pressure more often as a driver for introducing PM, and higher depth of PM adoption. The driver, change and benefit variables have a number of significant correlations with each other.

Drivers, changes and benefits of adopting PM

To better understand the links between drivers, changes and benefits, we conducted linear regression analysis on the variables. The scatterplots revealed linear relationship between independent and dependent variables. We tried out different models and decided to use a four-step regression approach for both the dependent variables. Firstly, we entered the control variables (model 1), then we added the drivers (model 2), thirdly we added degree of process change and depth of PM adoption (model 3), and finally we added the local success in introducing PM (model 4). Model 1, i.e. control variables alone, did not prove sufficient for explaining variance in either of the dependent variables.

Improvement of project culture

Models 2-4 are suitable for explaining variance in Improvement of project culture, but especially model 2 has a low explanatory value. In model 2, the control variables and drivers together explain only 18% of variance in Improvement of project culture. External pressure appears as a strong and significant contributing variable. The more external pressure is experienced as a driver for introducing PM, the more improvement is seen in project culture. Internal complexity as a driver for introducing PM, however, does not explain variance in the benefit "Improvement of project culture". Table 4 reports the regression analysis for improvement of project culture.

	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
Industry	0.13	1.28	0.03	0.26	-0.05	-0.50	-0.03	-0.29
Number of employees	0.05	0.45	0.05	0.51	0.05	0.58	0.03	0.36
Official introduction of PM	0.08	0.80	0.04	0.42	-0.06	-0.67	-0.12	-1.34
Years from introducing PM	0.05	0.41	-0.03	-0.26	-0.08	-0.74	-0.05	-0.54
Are you member of an association for PM	0.23	2.25*	0.14	1.50	0.05	0.61	0.06	0.68
Years in project work	0.05	0.41	0.03	0.31	-0.01	-0.10	-0.06	-0.64
Internal complexity			-0.01	-0.11	-0.01	-0.12	-0.05	-0.54
External pressure			0.44	4.06***	0.25	2.41*	0.26	2.57*
Degree of process change					0.14	1.62	0.05	0.50
Depth of PM adoption					0.47	4.41***	0.37	3.35**
Local success of PM introduction							0.28	2.68**
		R² 0.09		0.25		0.4		0.45
		Adjusted R² 0.03		0.18		0.34		0.38
		F 1.53		3.73**		5.93***		6.43***

Standardized Beta coefficients are shown

***p<0.001, **p<0.01, *p<0.05

Table 4. Regression analysis, Improvement of project culture as dependent variable.

Model 3 explains 34% variance in Improvement of project culture and shows that depth of PM adoption adds explanatory power and is a significant variable. This means that wide, consistent and thorough use of project management is reflected in perceived improvements in project culture in terms of entrepreneurship, knowledge transfer, client satisfaction and communication. Also, depth of PM adoption and degree of process change seem to mediate the relationship between external pressure and the dependent variable, but also a direct relationship between external pressure and the dependent variable remains almost significant.

In model 4, altogether 38% of variance in the dependent variable is explained. Local success of PM introduction appears as a significant variable, slightly mediating the impact of depth of PM adoption and external pressure. If the introduction of project management is perceived as successful locally, also improvements in PM culture are perceived high.

Control variables do not appear as significant, besides PM association membership in model 1. This effect is removed in the other models, indicating that the relationship between association membership and improvement of project culture is mediated by drivers and changes.

Efficiency improvement

Only models 3 and 4 are suitable for explaining variance in Efficiency improvement, and model 3 has still a fairly low explanatory value. Control variables and drivers alone or together do not explain much variance in Efficiency improvement. In Model 3, degree of process change and depth of PM adoption both appear as significant and fairly strong variables, and the model explains altogether 24% variance in Efficiency improvement. That is, higher degrees of process change and wide, consistent and thorough use of project management are reflected in higher perceived efficiency improvements. Table 5 shows the regression analysis results for Efficiency improvement.

We examined the degree of process change, depth of PM adoption, and local success of PM introduction as changes caused by adopting project-based management (Research question 2). Our results emphasize that achieving benefits from project-based management requires both a wide, consistent and thorough use of project management throughout the firm, and local success in introducing PM. This is in line with an earlier proposition that a great number of units should support the use of the organizational innovation, and that a localized search process is needed for the organizational innovation to succeed (Alänge et al. 1998). The results show that depth of PM adoption and local success of PM introduction correlate with external pressure, and mediate the relationship between external pressure and the benefit variables.

Degree of process change has only an intermediary role towards achieving the benefits of project-based management, through local success. While degree of process change may reflect the degree of adoption of project-based management, our results highlight the importance of a subjective estimate of those changes, to be perceived as beneficial. Additionally, the results may suggest that other kinds of changes should be studied besides process change: e.g. attitude and behavioral changes may be equally important for the adoption of project based management. Addition of such variables could have improved the explanatory power of our regression models. The relationship between internal complexity, external pressure and degree of process change was not revealed with our analysis, i.e. the relationship could be non-linear or more complex.

The study revealed benefits from introducing project-based management in the form of improvement in project culture, and efficiency improvement (Research question 3). Even if the items are strongly intercorrelated, their relation with drivers and changes of introducing PM are somewhat different. A significant degree of variance in improvement of project culture is explained by external pressure, depth of PM adoption, and local success of PM introduction as depicted in Figure 1. Part of the impact of external pressure and depth of PM adoption are mediated. These findings emphasize the necessity to locally adjust and modify (local success) the thorough, company-wide solution (depth of PM adoption) to reap the practical benefits of PM.

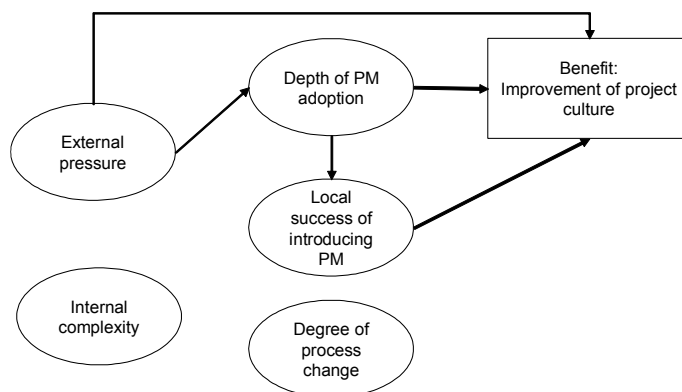


Figure 1. Factors contributing to improvement of project culture as a benefit from introducing project-based management.

A significant degree of variance in Efficiency improvement is explained through depth of PM adoption, and local success of introducing PM as shown in Figure 2. While the drivers do not appear to have a significant role, degree of process change has an indirect link to efficiency improvement through local success of introducing PM. This finding indicates that process change as such is not self-evidently beneficial but, rather, must be approved and adjusted at the local setting. These findings suggest that the linkages from the studied drivers to efficiency improvement are mediated by some other variables, or that efficiency improvements are originally driven by some other forces than those covered in our study. Strategic choices, top management support, pressures from outside institutions, PM standardization, or the practices used while introducing project-based management are examples of possible relevant factors.

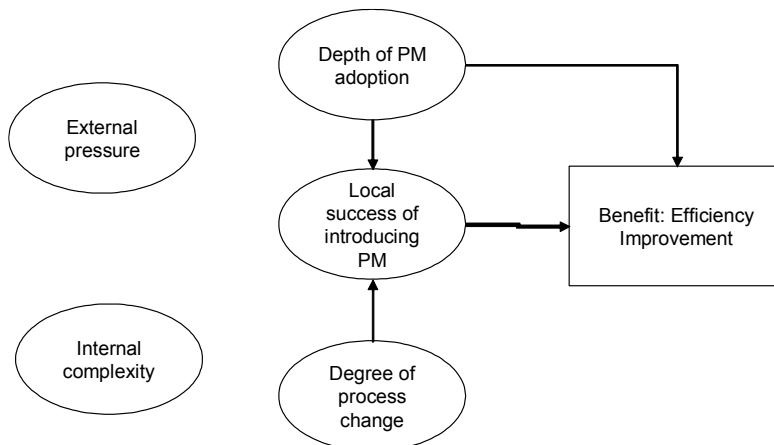


Figure 2. Factors contributing to Efficiency improvement as a benefit from introducing project-based management.

Earlier studies suggest and report some individual and organizational background variables relevant to the adoption of organizational innovations. For example, organizational complexity and size have been considered among significant background variables (e.g. Kimberly and Evanisko 1981, Damanpour 1996). Our results did not directly confirm such findings. This may be explained through how our background question was set: small, medium and almost large firms were included in one single response category (below 500 persons) and may have blocked out the most influential differences, and we did not use other complexity variables. Also, our analysis setup did not fully uncover the relationship between control variables and changes, which could be examined more in future studies.

Ideas for further research

To confirm the findings, more elaborate models should be developed on project-based management as an organizational innovation. Besides confirmatory analyses on our findings, additional research questions have been identified. For instance, what is the relationship between improvement in project culture, and efficiency improvement? What is the temporal linkage between internal complexity and external pressure? What kind of factors drive the degree of process change and its impact on local success in PM adoption? What behavioral and attitude changes should be considered as intermediary impacts of adopting project-based management?

Institutional theory and innovation diffusion research encourage studying the role of standardization and project management association membership with regards to the adoption of innovations. Project management research has to some extent already covered standardization of project management, but its link with project management maturity and evolution could be studied further. Top management support has already been mentioned as potential area for research. Our survey did not cover top management actions and practices directly but only in the form of a control variable “Official introduction of PM”. Earlier studies emphasize the role of top management support which could be examined also in the connection with introducing project-based management.

More research is also suggested to examine the diffusion of project-based management within and across industries. Institutional theory and innovation diffusion literature provide a good basis and suggestions regarding relevant hypotheses and contingency factors.

Limitations

The generalizability of the results of this study is weakened by some limitations regarding the sampling, survey design, and analysis set-up. We have above reported the sampling procedure, low response rate and possible skewedness in the sample as compared to the whole population. Despite

these limitations, we succeeded in having very diverse firms in different industries as part of the sample. The sample size of over one hundred is already appropriate for statistical testing. Even if the data cannot fully cover the current state of project-based management in Australian firms, the findings with these data do tell many important things about introducing project based management in these firms. Regarding the survey design, the use of subjective estimates of the introduction of project-based management may have its drawbacks. Knowing that the sample was dominated by very experienced project people, the results could have looked different, had we had access to multiple opinions or objective measures in the same firms. To improve the applicability of the findings, we have reported the sample characteristics as thoroughly as possible.

The validity of the survey and developed variables could have been improved by further testing and refinement. With the questions and scales used, the reliability of some variables was slightly below the acceptable level of 0.7, the validity of the entire factor structure could not be confirmed, and many interesting areas of innovation adoption remained uncovered. In this sense, we must consider this study as exploratory: we probed with a set of questions and variables, succeeded in charting important aspects of project-based management as an organizational innovation, and opened up arenas for further research.

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Appendix 1. Variables, items included in them, principal component analysis results, and reliability coefficients (Cronbach's alpha).

Drivers, reasons for introducing PM	α	Component 1	Component 2
<i>Internal complexity</i>	0.66		
Increasing project complexity		0.82	
Increasing number of projects		0.80	
Time pressure for projects		0.66	0.40
<i>External pressure</i>	0.68		
Market /competitive pressure			0.79
Client demands			0.72
Image of modernity			0.71
Internationalization / globalization			0.53

Loadings below 0.3 omitted

Changes	α	Component 1	Component 2	Component 3
<i>Degree of process change</i>	0.83			
Degree of process change in your department		0.87		
Degree of process change in your area		0.84		
Degree of process change for you personally		0.81		
<i>Depth of PM adoption</i>	0.73			
PM culture is widely present at all levels of the hierarchy			0.87	
PM is used consistently (=not sporadically) in the company			0.82	
Project and line organizations work well together in the company			0.67	
<i>Local success of PM introduction</i>	0.89			
How successful was PM introduction in your department?				0.90
How successful was PM introduction in your area?				0.88

Loadings below 0.3 omitted

Benefits of introducing PM	α	Component 1	Component 2
<i>Improvement of project culture</i>	0.80		
Greater entrepreneurship		0.92	
More knowledge management, knowhow		0.73	
More client satisfaction		0.69	
More effective communication		0.67	
<i>Efficiency improvement</i>	0.86		
Better multi-project coordination			-0,88
Improved project control			-0,81
Greater project transparency			-0,80
Better project performance		0.47	-0,55

Loadings below 0.3 omitted