EXPLORING TENSIONS BETWEEN CREATIVITY AND CONTROL IN PRODUCT DEVELOPMENT PROJECTS

Bojesson, Catarina; Backström, Tomas; Bjurström, Erik
Mälardalen University, Sweden

Abstract

To sustain organizational performance in dynamic contexts, organizations must be able to change through innovation while still continuing to perform in the short term. Central to successful innovation is to understand and manage tensions, paradoxes, contradictions, and dilemmas. This paper will present empirical data from a single case study discussed in relation to institutional theory in connection to organizational tensions and conflicts. Results show examples of a strong focus on proactive approaches with attempts to control and manage product development projects in a strict manner, even though the organization is acting in a context characterized by uncertainty with a need for creativity and a reactive approach. This shows a lacking understanding of what is required of the project process in this context and the tensions created between the strict process control and the dynamic environment.

Conclusions point at the need for both creativity and control in the management of product development projects. However, there is a risk of strong institutions preventing organizations from recognizing the need for change.

Keywords: Organisation of product development, Project management, Creativity, Control

Contact:
Catarina Bojesson
Mälardalen University
Product realization
Sweden
catarina.bojesson@mdh.se

1   INTRODUCTION

In dynamic contexts, sustained organizational performance depends on the organization's ability to change through innovation but at the same time continue to perform in the short term (Smith and Tushman 2005). Innovation is characterized by tensions, paradoxes, contradictions and dilemmas, with the origins of these being conflicting demands and conflicting activities. Understanding and managing these tensions, paradoxes, contradictions and dilemmas is central to successful innovation (Bledow et al. 2009).

Management innovation represents a certain form of organizational change where novelty is introduced in an established organization. The rational perspective on management innovation builds on the idea that management innovations are introduced by individuals with the goals of making their organizations work more effectively (Birkinshaw et al. 2008). When organizations are streamlining how work is performed and encouraging their employees to standardize work practices but at the same time encourage teams to be creative, teams are faced with a dilemma as to whether standardized work practices or creativity will enhance their overall effectiveness (Gilson et al. 2005). Further, it is important to understand the fundamental psychological and social principles involved in innovation and the ability to adapt methods to contextual demands (Bledow et al. 2009).

This paper will re-examine empirical data initially reported in Bojesson and Jackson (2014) and Bojesson et al. (2014) since a need for further analysis was discovered, based on a different theoretical frame of reference. The empirical data was collected through a case study at a manufacturing company with the purpose of investigating the process for product development projects including the current state, project and process characteristics, problems, improvement initiatives and the desired future state. The study was carried out in two steps, with project managers as the main respondents. First an exploratory study, including interviews, document analysis and participant observation was performed. Based on the results from that study a questionnaire was designed with the purpose of confirming or falsifying indications and assumptions made. Results from the first study show that the project process is well designed and there are efforts to improve the process. However, the process is still perceived as difficult to follow. Improvements suggested involve even more strict control of the projects then what is currently applied. This is suggested even though project managers find it difficult to follow the process stringently. Within the organization there is a great focus on implementing improving proactive methods such as an early requirements freeze, early problem solving and detailed planning, when there actually is a need for reactive methods to handle unexpected events. As the results from the first part of the study indicated several paradoxes in the design and management of the project process, the questionnaire was developed for further inquiry. It was found that even though the project managers are aware of the fact that the company acts in a context which is affected by uncertainty and that unexpected events will occur and affect the projects, they are still of the opinion that the projects should be more strictly controlled, showing a low awareness of what is required of the project process in this context, as well as a low awareness of the tensions created between the strict process control and the dynamic environment.

There is a problem for organizations in complex and uncertain environments regarding how to find the right balance between e.g. control and flexibility, creativity and standardized routines, and proactive and reactive approaches. When improvements to the organization are to be suggested and implemented the focus is still most often on increased control and strict management of the project, implying a proactive approach with standardized routines, even though the need for flexibility and increased room for creativity has been identified. This suggests that underlying mechanisms exist which affect the individuals in the organization, making them express opinions and take actions which contradict there actual experiences. The objective of this paper is to increase the understanding of the paradox and tensions between proactive and reactive approaches for team members in complex product development projects. The empirical data is discussed in relation to institutional theory in connection to organizational tensions and conflicts, including how institutions affect actions of the individuals within the organization and the underlying mechanisms behind it

2 THEORETICAL BACKGROUND

2.1 Innovation and control

As complex systems create competing processes to achieve a desired outcome, organizing paradoxes surface, including e.g. tensions between routine and change (Smith and Lewis 2011). Management control systems are the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities (Simons 1995), while operational control refers to the process of assuring that specific tasks are carried out effectively and efficiently (Anthony 1965). There is a stream of research stating that management control systems have positive impact on innovation in uncertain environments, while another stream of research argue that management control systems risk undermining the motivation and creativity needed for effective performance on highly uncertain tasks (Adler and Chen 2011). By defining how to operate, as well as how to not operate, organizing tensions are created such as flexible versus controlling (Smith and Lewis 2011). The norms and demands which organizations meet are sometimes difficult or even impossible to combine since they can be contradictory or inconsistent (Brunsson and Olsen 1990). When confronted with paradoxes the natural reaction is often to attempt to resolve and rationalize them. However, in today's complex organizations, models based on linear and rational problem solving do managers a great disservice (Lewis 2000) since it has been found that linear models do not adequately represent the innovation process (Bledow et al. 2009).

In product development there is a need for both individuals and teams to be creative and innovative which requires them to be curious and strive for newness. At the same time, these individuals and teams are supposed to produce efficiently and must focus on existing routines and close their minds to new ideas which will cause interruptions (Bledow et al. 2009). Hence, successful product development requires managing tensions through the combination of building innovative capacity and achieving efficient execution (Lewis et al. 2002). Creativity is needed when tasks are uncertain, while formal controls are needed when tasks are complex and interdependent (Adler and Chen 2011). Tasks are often both uncertain, and complex and interdependent, requiring the ability of creativity and control simultaneously. Much organization theory argues that organizations confront a trade-off between efficiency and flexibility, as efficiency requires bureaucracy and that bureaucracy impedes flexibility. Some researchers have, however, challenged this theory, arguing that there is a possibility to attain both superior efficiency and superior flexibility (Adler et al. 1999). Even though the development of detailed implementation plans are important for innovation, equally as important is the flexibility to be responsive to unforeseen events which might lead to giving up on previous plans and cause fundamental changes to the course of action (Bledow et al. 2009). Lewis et al. (2002) found that product development may require managers to use emergent and planned activities concurrently and be able to go back and forth between management styles as changes in project uncertainty occur, as well as make trade-offs between competing demands. According to Gilson et al. (2005) creative and standard practices do not have to be mutually exclusive but can complement each other to benefit both performance and customer satisfaction. There may be a need for teams to be skilled in using both creative and standardized approaches, as well as learning to adapt their work styles as circumstances call for (Gilson et al. 2005), requiring managers to adapt different behaviours according to contextual demands, the progress of the project, and the needs of individual employees (Bledow et al. 2009). However, even though management styles are of great importance to innovation outcomes, little empirical research has directly examined how conflicting demands could be effectively managed and self-regulated (Anderson et al. 2014, Bledow et al. 2009).

2.2 Organizations and institutions

The difference between an institution and an organization is not always clear as the concept institution often is used in a very broad way. Institutions can be thought of both as rather concrete things and as things that pattern behaviour (Edquist 1997). Edquist (1997) chooses to make the distinction between organization and institution by labelling the concrete thing as the organization while adopting the sociological meaning of institutions as the things that pattern behaviour. Similarly, Hargrave and Van de Ven (2006) distinguish institutional actors or entities from institutional arrangements, with the term institution referring to the latter. North (1990) describes the relation between institutions and organizations based on a game analogy, where institutions provide the rules of the game, whereas

organizations act as the players. Hence, the concept institution can be described as organizational arrangements that link roles/identities, accounts of situations, resources and prescriptive rules and practices (March and Olsen 2004). Edquist (1997) defines institutions in the following way: "Institutions are sets of common habits, routines, established practices, rules, or laws that regulate the relations and interactions between individuals and groups". Developed institutions create capacity for action and facilitate coordination of actions efficiently but at the same time create inactivity or friction in connection to attempts for reforms (Brunsson and Olsen 1990).

Scott (2008) defines institutions as comprised of regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life.

- Regulative elements: formal regulations and rules which govern behaviour such as constitutions, laws, and property rights (Orr and Scott 2008).
- Normative elements: informal norms, values, standards, roles, conventions, practices, taboos, customs, traditions, and codes of conduct which guide behaviour and decisions, and specify how things should be done (Orr and Scott 2008).
- Cultural-cognitive elements: shared beliefs, categories, identities, schemas, scripts, heuristics, logics of action and mental models (Orr and Scott 2008).

In most empirically observed institutional forms, varying combinations of these elements are at work. When aligned, the strength of their combined forces can be powerful, but when misaligned, they may support and motivate differing choices and behaviours (Scott 2008). The purpose of institutions is to reduce uncertainty by establishing a stable structure to human interaction, but this does not necessarily mean it will be efficient (North 1990).

2.2.1 Institutional change

Institutional change refers to both the emergence of new institutions and the decline and disappearance of old ones (Edquist 1997). Similarly, administrative reforms refers to deliberate changes to an organization's form, structures, ways of working or ideologies, with the purpose of improving its behaviour and results (Brunsson and Olsen 1990). Hargrave and Van de Ven (2006) define institutional change as a difference in form, quality, or state over time in an institution. If the change is novel or an unprecedented departure from the past, then it can be considered an institutional innovation. There is much more resistance to institutional and organizational change than to technological change. The classical force behind institutional change is, however, technological change (Edquist 1997).

It has been found that inconsistencies between core capabilities and innovation demands can lead to more use of existing strengths, resulting in missed opportunities for creative breakthroughs. Further, trying to increase the simplicity in environments characterized by growing complexity prevents organizations from recognizing the need for potentially disruptive change (Lewis 2000). Some of the major capabilities of modern institutions come from their effectiveness in substituting rule-bound behaviour for individually autonomous behaviour (March and Olsen 2004).

Institutions may have both supporting and retarding effects on innovation, but a specific institutional set-up can neither permanently support nor retard innovation (Edquist 1997). When faced with uncertainty and a need for change, there is a risk of managers mimicking successful organizations by adopting their systems and processes (Simons 1995), not suitable for their own organization. A similar risk is that when using external change agents e.g. consultants, they might see their role as stimulating managers to adopt an existing or fashionable practice, rather than to create a new one (Birkinshaw et al. 2008). Bledow et al. (2009) propose that "one-best-way" recommendations for organizational innovation which do not take into account the specific situation and context of a given organization are misguided and may even do more harm than add value.

2.2.2 How institutions affect actions

The introduction of something new creates ambiguity and uncertainty for the individuals in an organization (Birkinshaw et al. 2008). Individuals demonstrate a strong preference for consistency in their attitudes and beliefs and between their cognition and their actions. This may result in a mindless maintained commitment to previous behaviours in order to enable consistency between the past and the future, and these commitments become reinforced by organizational structures which support consistency (Smith and Lewis 2011). Even though formal rules may change overnight as a result of

management decisions, the constraints on behaviour embodied in customs, traditions, and codes of conducts typically change incrementally (North 1990).

Simons (1995) lists three desires of individuals in organizations affecting their behaviour. First, *the desire to do right* relates to the code of personal conduct that makes individuals want to act in an ethical manner. Social sanctions and peer disapproval will limit what is considered acceptable behaviour. Second, *the desire to achieve and contribute* involves both the will to achieve tangible rewards such as money, prestige and promotions, as well as intangible benefits of personal satisfaction of accomplishment and contribution. Third, *the desire to create* relates to the assumption that individuals have a natural potential to innovate, experiment and create, and if given the chance employees will fulfil this potential. Similar to the desire to do right, *the logic of appropriateness* is a perspective on how human action is to be interpreted, where action is seen as driven by rules of appropriate or exemplary behaviour, organized into institutions (March and Olsen 2004). Rules are followed because they are seen as natural, rightful, expected, and legitimate and consequently, actors do what they see as appropriate for themselves in a specific type of situation. This involves that the processes of reasoning not primarily are connected to the anticipation of what future consequences an action might lead to, in contrast to as they are in most contemporary conceptions of rationality.

When faced with the complexities of daily organizational life, human rationality and rational behaviour is challenged. The concept *bounded rationality* refers to the limits upon the ability of human beings to adapt optimally, or even satisfactorily, to complex environments (Simons 1995). Optimization requires the ability to deduce the future with certainty, which implies that the structure of the world is deterministic (Gigerenzer 2008). A major consequence of bounded rationality is the existence of multiple realities as individuals, due to e.g. limited information processing capabilities, will notice different things, will reflect at different times, and will process different segments at different speeds (Weick 2001). For an unboundedly rational person, on the other hand, the world is no longer fully predictable, that is, the experienced world is not deterministic. Unbounded rationality ignores the constraints imposed on human beings, referring to a limited mental or environmental resource (Gigerenzer 2008).

A *measurement system* can assist in controlling performance as part of a control system. As these control mechanisms include rules of how to assess information, when to act on the information and what type of action is required it will in turn have effect on human behaviour (Robson 2004). A problem is that metrics may be based on actions in the past and may overlook actions that enhance future performance (Cravens et al. 2010), which could lead to unsuitable actions in some situations.

Cognitive frames are established constructs that provide a lens to understand a situation, and in turn, create a context for complex behavioural responses (Smith and Tushman 2005). Actors tend to make sense of experiences through their existing frames of reference and chose interpretations that support, rather than challenge, their frames (Lewis 2000). At one point in time, with a given set of people and a given frame of reference, one decision may emerge; at a different point in time with a different set of people and a different frame of reference, a different decision may emerge (Simons 1995). As actors choose interpretation that support, rather than challenge, their frames, it will inhibit critical self- and social reflection and the reframing which might be needed to solve inconsistencies between their understanding and the world around them (Lewis 2000).

3 METHODOLOGY

3.1 Case study

The empirical data presented in this paper have been gathered within two studies at the same case company. The first study, study A, was an exploratory study including interviews, document analysis and participant observation, previously presented in Bojesson and Jackson (2014). The second study, study B, was a questionnaire study, previously presented in Bojesson et al. (2014). The questionnaire was designed based on the results from study A with the purpose of verification or falsification of the indications and assumptions made, as well as further inquiry.

3.1.1 Study A

The purpose of the study was to investigate and analyse the current state of the product development process. The empirical study focused on methods and models used during the product development work. As an industrial PhD student at the case company and project member of an internal improvement

project aiming at reducing the lead time of the product development process, the author was able to take the role as participant observer. Within the internal improvement project, ten different on-going product development projects where studied through a document analysis as well as through interviews with project managers, and for some of the projects also engineering project managers. The interviews were planned and conducted by the author in collaboration with the project manager of the lead time reduction project. A certain set of questions involving the project process, planning, deviations and problems were developed in advance, but the interviews remained open ended, assuming a conversational manner. The document analysis included internal documents describing the project model, the project process and working methods.

The results from the interviews were discussed in a workshop with the steering committee of the lead time reduction project where the most commonly mentioned problem areas were prioritized according to expected improvement potential.

3.1.2 Study B

The purpose of the questionnaire study was verification or falsification of indications and assumptions made based on the results of the initial interview study, study A, and therefore carried out at the same company. Prior to the questionnaire study a literature study was conducted to develop the themes and statements used in the survey. The questionnaire consisted of 40 statements with fixed answer alternatives, and with the opportunity to add thoughts and comments at the end. The statements were formulated based on information from the previous interview study, different project types and project management methods (Marmgren and Ragnarsson 2001), and hard and soft systems thinking (Checkland 2000, Checkland and Poulter 2010). The questionnaire covered the areas of *project characteristics*, *project process and plan*, *uncertainty and complexity*, *managing the project*, and *project success*.

The questionnaire was specifically directed to project managers at the case company and the study was performed during one of the project managers' regular meetings, meaning that everyone answered the questionnaire at the same time, with the opportunity to ask questions to the researcher in case of any uncertainties. Out of the 18 project managers who attended the meeting, 17 chose to participate in the study. The time span that the respondents had worked as project managers at this company, at the time of the study, varied between six months and 15 years, with the average time being 5.8 years.

3.2 Case company

The case company is a global manufacturer in the railway industry. The division studied develops and manufactures propulsion and control systems for customers worldwide. Product development projects are customer specific, thus, most projects imply new product features, and the direct customer can be either the internal division for complete rail vehicles or an external customer. For the majority of the projects the customer is internal. The customer in turn is working commissioned by the end customer, creating two stages of customer requirements to consider.

4 EMPIRICAL RESULTS

4.1 Project characteristics

The development projects at the case company are characterized by long lead times, customer specific requirements, and a high amount of changes throughout the project. Since the work on product design, production design and sourcing activities are carried out concurrently, events affecting changes to the project plan or product specification are often difficult to handle as many functions in the organization are affected. Complexity of the projects is also caused by the dependencies between different design teams as the product consists of several components designed by different teams but with interdependencies. A key characteristic of the development projects, which cause further complexity, is that the projects have a fixed delivery date and customer specific requirements, but at the same time traits of new product development projects such as technological novelty and new concepts. A large amount of unexpected events occur during the projects and these unexpected events easily affect several parts of the organization. There is, however, no consensus among project managers that there must be a high level of preparedness for events in the external environment. This stands in contrast to the impression that changes in a project caused by unexpected events are difficult to handle. The focus for

managing changes has been proactive methods such as early requirement freeze, in order to minimize the amount of changes. Since this not has been successful to the extent required, questions regarding reactive methods have surfaced. Several of the project managers suggest that established methods exist for dealing with unexpected events. Still there have been issues in handling changes due to the lack of reactive methods to apply when unexpected events have occurred. Methods for managing later changes in the project have been requested as this not is integrated in the current process design.

4.2 Project organization

The case company uses a stage-gate model for the idea-to-launch process. The stage-gate model is seen as well designed and there are continuous efforts to improve the project process, but in many projects there have been difficulties in following the process stringently. The complexity of the product development projects is high and there are a great amount of dependencies between the different parts of the project. There is a risk, sometimes a high risk, of prerequisites of a project changing while the project is on-going. This uncertainty and complexity makes it difficult to follow the project plan. Even though there are difficulties in managing the projects according to the predetermined process, 12 of the 17 project managers feel that the project plan should be followed strictly and 13 of them are of the opinion that the projects should be managed even more strictly and in accordance with the predetermined project process and plan as described in the official process map.

Management representatives argue that if customer requirements would be clear and complete at the start of the project, it would reduce the complexity and uncertainty problems radically. Opinions differ among project managers if the requirement freeze should be placed early in the project or if it currently is placed too early in the project. Further, it was also suggested that the requirements freeze gate should be stricter and that the project members must work harder in identifying the correct requirements at the start of the project. It is, however, also argued that the likelihood of requirements being subject to change is so high that the focus should be on reactive methods instead of only proactive ones such as the requirements freeze. Consequently, project members work as if requirements are frozen although they know that the requirements most likely will change.

4.3 Organizational characteristics

The projects, as they progress with many changes during the whole lifecycle, have generated a problem solving attitude in the organization and especially among project managers. Expectations from the customer to start the product design work early in the project as well as the feeling among project members of having to progress with the work from the very start has contributed to the attitude of starting the work based on assumptions. This attitude itself is not seen as negative, but is in conflict with the project process as it currently is designed. There is also a culture of taking initiatives for improvement projects but a common problem is that when these initiatives reach the implementation phase there are difficulties in actually getting the solutions implemented.

Two different consulting projects have resulted in the solution that front loading the projects would lead to significant improvements. The organization have put a lot of effort into the attempt of front loading the projects and working with proactive methods in order to try to reduce changes, and have accepted this solution without really questioning whether or not it actually is a suitable approach for this organization. This has raised the question regarding if the company actually is the kind organization that can use the strategy of front loading in a successful way.

It is suggested by nine of the project managers that success of a project is defined by how well unexpected events can be managed. In contrast, the same number of project managers are of the opinion that having a high preparedness to events in the external environment not is important.

5   DISCUSSION

The results from the empirical studies show a low awareness among the respondents regarding what is required of the project process design and management in the context of the case company, as well as a low awareness of the tensions created between the strict process control applied and the dynamic environment in which they act. Questions regarding why organizations try to design and manage the projects in a way which is contradictory to the characteristics of the environment they are acting in must therefore be addressed. The empirical results suggest a need for a reactive approach with more possibilities for flexibility and creativity within the product development projects. However, the

currently applied approach with a focus on proactive methods and activities is strongly advocated within the organization.

There are several examples of institutionalized behaviour at the case company. The project managers show a strong will to manage and control the project process according to the predetermined process design even though they are of the opinion that it is difficult and some of them see a need for reactive methods. This can be related both to acting according to what is considered appropriate and a difficulty to change the frame of reference. The emphasis on control, front loading, and early decision making indicates that there is a view on the project process as deterministic with a possibility of finding an optimal solution. This is most likely also a result of the consulting projects suggesting that front loading will lead to several problems, which occur due to late changes, being solved.

According to the organization's defined project model it is correct to work as if the customer requirements have been frozen at an early stage of the project. This is not believed to actually reflect the real situation, but at the same time it is the appropriate behaviour in regards to the described way of working. The problem solving attitude among project managers and the fact that they often start the work based on assumptions can probably be related to a desire to contribute and do right by the customer. There is a view that it is better to start work based on assumptions just to show that the project is progressing, instead of waiting. However, this is also in conflict with what is considered appropriate regarding how the projects should be managed according to the project model. Further, a problem with this way of working is that assumptions not are transparent enough.

An explanation to why project managers have differing experiences and opinions on how to best improve the project organization can be the consequences of bounded rationality. As the projects are characterized by uncertainty in a complex environment, the limits and constraints imposed on human beings can result in multiple realities due to e.g. that they have limited capabilities to process information, they notice different things, and will reflect at different times.

A need to be more flexible to enable creativity and innovation exists, but at the same time a certain level of control must be kept in order to manage the complexity. At the moment it seems as there are strong institutions related to control and existing frame of references which support the focus on control. It seems to be difficult to implement changes regarding ways of working, which further hinders the possibility of reframing in order to achieve an increased level of flexibility and innovation. Tasks within the projects are often both complex and interdependent, as well as uncertain, requiring the ability of control and creativity simultaneously. The unexpected events and problems that occur in the projects are viewed as possible to reduce by proactive methods. Since it has been found that linear models do not adequately represent the innovation process, there is an evident need to rethink the project process design and find a better fit with the context of the company. The approach of trying to resolve and rationalize paradoxes must be abandoned. To achieve successful product development projects, a way of managing paradoxes and the tensions created must be found. Even though there may be trade-offs between flexibility and efficiency which cannot be avoided, it is apparent that in the context of complex product development that project managers are required to go back and forth between management styles in order to benefit performance. However, as little empirical research has directly examined how these conflicting demands can be effectively managed there is a need for further research.

A very strong focus on proactive methods suggests an attempt to increase simplicity. This company is, however, acting in a context which is characterized by uncertainty and complexity and the proactive approach is preventing the organization from recognizing the need for change. Instead of trying to implement general best practice solutions which do not take into account the specific situation and context of this organization, there is a need to understand the characteristics of the organization and its context to find an approach which will result in increased effectiveness. Institutions affect behaviour in a way that might hinder change and management innovations which in turn hinders the possible results of increased effectiveness. This implies that institutional change is required in order to be able to achieve management innovations.

6   CONCLUSIONS

The objective of this paper is to increase the understanding of the paradox and tensions between proactive and reactive approaches for team members in complex product development projects. In product development projects there is a need for creativity and control concurrently, requiring both proactive and reactive management approaches. Instead of trying to resolve and rationalize paradoxes,

to achieve successful product development projects a way of managing paradoxes and the tensions created must be found. However, as the individuals within the organization are affected by institutions, in order to achieve management innovations which will lead to increased effectiveness, institutional change is required. This due to that strong institutions might prevent organizations from recognizing the need for change. As long as institutions affect the behaviour of individuals to act in ways contradictory to the actual needs of the organization, it is unlikely that effective improvements will be initiated and implemented. The lack of empirical research in the area in combination with the evident practical need suggests a great potential for further research.

REFERENCES

Adler, P. S. and Chen, C. X. (2011) 'Combining creativity and control: Understanding individual motivation in large-scale collaborative creativity', *Accounting, Organizations and Society,* 36(2), 63-85.

Adler, P. S., Goldoftas, B. and Levine, D. I. (1999) 'Flexibility versus efficiency? A case study of model changeovers in the Toyota production system', *Organization science,* 10(1), 43-68.

Anderson, N., Potočnik, K. and Zhou, J. (2014) 'Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework', *Journal of Management,* 40(5), 1297-1333.

Anthony, R. N. (1965) 'Planning and control systems: a framework for analysis'.

Birkinshaw, J., Hamel, G. and Mol, M. J. (2008) 'Management Innovation', *Academy of management review,* 33(4), 825-845.

Bledow, R., Frese, M., Anderson, N., Erez, M. and Farr, J. (2009) 'A dialectic perspective on innovation: Conflicting demands, multiple pathways, and ambidexterity', *Industrial and Organizational Psychology,* 2(3), 305-337.

Bojesson, C. and Jackson, M. (2014) 'Linking development efficiency, effectiveness, and process improvements', in *Tools and Methods of Competitive Engineering, TMCE*, Budapest, Hungary, TMCE, 577-586.

Bojesson, C., Jackson, M. and Strömberg, A. (2014) 'Rethinking effectiveness: Addressing managerial paradoxes by using a process perspective on effectiveness', in *21st EurOMA Conference*, Palermo, EurOMA,

Brunsson, N. and Olsen, J. P., eds. (1990) *Makten att reformera,* Stockholm: Carlsson Bokförlag.

Checkland, P. (2000) 'Soft systems methodology: a thirty year retrospective', *Systems Research and Behavioral Science,* 17(S1), S11-S58.

Checkland, P. and Poulter, J. (2010) 'Soft systems methodology' in Reynolds, M. and Holwell, S., eds., *Systems approaches to managing change: A practical guide*, London: Springer, 191-242.

Cravens, K. S., Oliver, E. G. and Stewart, J. S. (2010) 'Can a positive approach to performance evaluation help accomplish your goals?', *Business Horizons,* 53(3), 269-279.

Edquist, C., ed. (1997) *Systems of innovation: technologies, institutions, and organizations,* London: Pinter.

Gigerenzer, G. (2008) *Rationality for mortals: How people cope with uncertainty,* New York: Oxford University Press.

Gilson, L. L., Mathieu, J. E., Shalley, C. E. and Ruddy, T. M. (2005) 'Creativity and standardization: complementary or conflicting drivers of team effectiveness?', *Academy of Management Journal,* 48(3), 521-531.

Hargrave, T. J. and Van de Ven, A. H. (2006) 'A collective action model of institutional innovation', *Academy of management review,* 31(4), 864-888.

Lewis, M. W. (2000) 'Exploring paradox: Toward a more comprehensive guide', *Academy of management review,* 25(4), 760-776.

Lewis, M. W., Welsh, M. A., Dehler, G. E. and Green, S. G. (2002) 'Product development tensions: Exploring contrasting styles of project management', *Academy of Management Journal,* 45(3), 546-564.

March, J. G. and Olsen, J. P. (2004) *The logic of appropriateness,* ARENA.

Marmgren, L. and Ragnarsson, M. (2001) *Organisering av projekt: från ett mekaniskt till ett organiskt perspektiv,* Stockholm: Fakta info direkt.

North, D. C. (1990) *Institutions, institutional change and economic performance,* Cambridge university press.

Orr, R. J. and Scott, W. R. (2008) 'Institutional exceptions on global projects: a process model', *Journal of International Business Studies,* 39(4), 562-588.

Robson, I. (2004) 'From process measurement to performance improvement', *Business Process Management Journal,* 10(5), 510-521.

Scott, W. R. (2008) *Institutions and organizations : ideas and interests,* 3 ed.*,* Thousand Oaks, California: Sage.

Simons, R. (1995) *Levers of control: how managers use innovative control systems to drive strategic renewal,* Boston: Harvard Business School Press.

Smith, W. K. and Lewis, M. W. (2011) 'Toward a theory of paradox: A dynamic equilibrium model of organizing', *Academy of management review,* 36(2), 381-403.

Smith, W. K. and Tushman, M. L. (2005) 'Managing strategic contradictions: A top management model for managing innovation streams', *Organization science,* 16(5), 522-536.

Weick, K. E. (2001) *Making sense of the organization,* Malden, MA: Blackwell.

ACKNOWLEDGEMENTS