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NEW PRODUCT DEVELOPMENT PROJECT MANAGERS AS ACTORS: THE VIEWPOINT OF MANAGEMENT ACCOUNTING AND CONTROL

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1 Introduction

This chapter focuses on management accounting and control in supporting managerial work (Hall 2010), especially new product development (NPD) management, which has not been adequately examined from a managerial-work viewpoint (see e.g. Jørgensen and Messner 2010). Research already acknowledges the presence of multiple, sometimes competing, objectives in NPD projects (Davila and Wouters 2006). These objectives would require the employment of multiple mechanistic or organic controls (Ylinen and Gullkvist 2014). However, the roles given to or taken by individual NPD management actors are not sufficiently understood (see e.g. Laine, Korhonen and Martinsuo 2016).

In order to address this research gap, this chapter provides a detailed account of one actor group that clearly identifies and influences many possibilities in organisations and enacts management accounting and control for NPD – namely, *NPD project managers*. This chapter concentrates on how the production and use of NPD project management accounting and control are experienced by NPD project managers through interacting with other manager groups. There is considerable uncertainty in the interaction of factual possibilities and multiple actors in NPD. Essentially, by employing the pragmatic constructivist perspective, this chapter reveals NPD project managers' viewpoints on how pragmatic truth statements of management accounting and control are produced in their business context (see Mitchell, Nielsen and Nørreklit in this book). Naturally, in many business contexts – the NPD context included – validating pragmatic truth is a question of delimiting some aspects outside of one's thinking. Oftentimes, it is difficult to say whether a past decision actually provides positive or negative impacts or, if it does, to what extent it influences the impacts compared to other topical aspects. Hence, whether one invests in an NPD project or certain technology are likely to be ambiguous decisions with regard to proactive and pragmatic truths.

This chapter delves into NPD project managers' organisational realities through the concept of *topos*. In this approach, an individual actor's *subjective topos* refers to 'an individual actor's particular way of understanding acting in the world' (Nørreklit and Raffnsøe-Møller in this book). When multiple actors are involved, the concept of *topos* needs a social dimension. Therefore, a *social topos* is 'the common way of understanding acting shared by a group of actors' (in Nørreklit and Raffnsøe-Møller in this book). When these multiple actors are working for a company, then a certain *company topos* becomes relevant. Company *topos* refers to the overarching way of coordinating different functional groups of actors, interpretations of organisational circumstances, accessible possibilities and values

to create collective progress (Jakobsen, Johansson and Nørreklit 2011; Nørreklit and Raffnsøe-Møller in this book). This topos is a construction that aims at integrating and balancing individual actors' topos within the company (Jakobsen, Johansson and Nørreklit 2011). Regardless of the viewpoint taken (actor, social or company), the integration of facts, possibilities, values and communication is important.

Addressing the construction of the company topos is especially important because the reality of an NPD project manager is affected by different actors' requirements or viewpoints that are related to the success of a new product, the budget and schedule of the project, the technical characteristics of the new product and the fit of the new product to the existing operations of the company, which (together) constitute the business impacts of the new product. Related actors, together, are to form a factual possible product within value range and thereby establish the proactive true statements about a future product, e.g. what assumptions about business success they are committed to and what technical goals they accept (Mitchell, Nielsen and Nørreklit in this book). The fundamental role of management accounting and control is to support the construction of a product based on proactive true statements about what would expectedly be functioning in practice; thus, whether values and possibilities are integrated with facts needs to be considered and communicated within a company across organisational activities (Jakobsen, Johansson and Nørreklit 2011). This chapter asks the following research questions:

1. *How can we conceptualise different NPD project managers' management accounting and control topos?*
2. *How can project managers interact with the company topos?*

To answer these questions, in-depth empirical insight was needed. To acquire this insight, the chapter draws on in-depth interviews of nine NPD project managers in Finnish R&D intensive companies. The NPD project managers were interviewed within a larger study of 23 NPD project stakeholders – namely, project managers, product managers, R&D managers and business controllers.

The emphasis in this examination was placed on the potential of accounting information in supporting decision-making (Nielsen, Mitchell and Nørreklit 2015) and, more widely, in supporting the management of the factual possibilities embedded in NPD projects (Nørreklit, Nørreklit and Mitchell 2010; Mitchell, Nielsen and Nørreklit in this book; see also Hall 2010 for accounting information supporting managerial work). Altogether, the employment of pragmatic constructivism enables the current roles and limitations of management accounting and control for NPD management to be examined.

2 Literature Review

2.1 NPD project managers' organisational context and working environment

NPD is typically undertaken in projects with interfaces to different business functions (from purchasing and operations to sales and marketing). An NPD project aims at transforming an idea into a commercialised product (Davila 2000). The Project Management Institute (1996) defines an NPD project as a temporary activity for creating a unique product or service, and project management refers to the adoption and use of knowledge, skills, tools and techniques to fulfil the stakeholders' (i.e. actors') needs and expectations (Project Management Institute 1996). The role of an NPD project manager is of great importance because the management and implementation of an NPD project significantly affect NPD project success (or failure) (Tatikonda and Rosenthal 2000a; 2000b). Quite typically, companies set several competing objectives for NPD projects (Rozenes, Vitner and

Spraggett 2006); those objectives include product features, quality and cost efficiency, accompanied by several other aspects related to a company strategy.

From the viewpoint of pragmatic constructivism (Nørreklit, Nørreklit and Mitchell 2010; Jakobsen, Johansson and Nørreklit 2011; Nielsen, Mitchell and Nørreklit 2015), the NPD project portfolio, and single projects within that portfolio, represent a multitude of *factual and illusionary* possibilities. Hence, NPD project managers and other related actors are supposed to assess which of these possibilities are factual, desirable and actively contribute to realising the possibilities perceived most desirable. For these purposes, companies have means and practices for NPD project portfolio management, as well as for managing individual NPD projects. Essentially, NPD projects usually have a specified project manager, who is responsible for project implementation and performance. An NPD project manager typically has a dual role because (1) he/she is controlled by the overall organisation with his/her NPD project objectives and (2) he/she controls the project execution and project stakeholders, respectively, in order to ensure project performance. Typically, top managers or R&D managers have chosen the means to control NPD projects; whereas, NPD project managers practically affect control decisions within single NPD projects (Tatikonda and Rosenthal 2000a; Ylinen and Gullkvist 2014).

Stage-gate models (Cooper 1990) are typically used in NPD project management. The innovation process is managed through gates, in which the innovation needs to fulfil the goals and requirements (Lewis et al. 2002; Ylinen and Gullkvist 2012; 2014). The formal checkpoints of a formal model intend to provide desired support for an NPD project manager (Lewis et al. 2002). At the same time, formality may hinder resource flexibility, which can again hinder project performance under uncertainty when new possibilities emerge (Tatikonda and Rosenthal 2000a; Sethi and Iqbal 2008). However, project management autonomy is not always desired because it requires an NPD project manager's ability to solve emerging problems (Lewis et al. 2002) and to use also organic controls instead of/besides mechanistic ones (Ylinen and Gullkvist 2012; 2014).

2.2 Management accounting and control do support NPD project managers

Even if there is a lot of potential in using financial control for NPD, the practice is not necessarily understood well enough in research (Nixon 1998; Jørgensen and Messner 2010). Thus, there is a need to obtain knowledge about the integration of factual possibilities in NPD. Indeed, NPD projects have been seen as a challenging context for management accounting and control, as uncertainties embedded in NPD activities challenge the adoption of management accounting and control tools. Still, there are several studies that highlight the importance and positive consequences of using financial control in product development (e.g. Nixon 1998; Davila 2000; Rabino 2001; Davila and Wouters 2004; Suomala 2004; Laine, Korhonen and Martinsuo 2016; Laine et al. 2016). In particular, Suomala (2004) highlights the need for NPD performance measurement, stating that there are at least two meaningful motivations for financial control in the NPD context: (1) financial controls should provide information about the current NPD project statuses and enable decisions accordingly; and (2) financial control should provide information and scenarios that would enable long-term learning and development efforts. Both of these motivations are important and can be solved by mechanistic or actor-based approaches to management accounting and control.

However, the actor-based approach relates to realising what is factually possible (Jakobsen, Johansson and Nørreklit 2011; Nielsen, Mitchell and Nørreklit 2015). Accounting information could be used not only in seemingly rational decision-making, without interaction among actors involved, but also in extending the awareness of and building a shared understanding about central business

phenomena (Hall 2010). This idea is well in line with pragmatic constructivism and the actor-approach for decision making (Nielsen, Mitchell and Nørreklit 2015) and seems to have potential for better understanding management accounting and control in NPD project managers' work.

3 Empirical findings

3.1 The research process, data gathering and analysis

Our field study was conducted among R&D intensive medium- or large-sized companies in Finland between November 2011 and June 2012. Interviews of nine NPD project managers in seven companies serve as the primary data source of this chapter (bolded in Table 1). Six among the seven companies represent mechanical engineering, and one represents the ICT sector. All the actors interviewed to accompany the NPD project managers are listed in Table 1, covering 23 managers in total. Also, all the other actors interviewed work directly in R&D or have a clear connection to R&D activities (R&D directors, business controllers, product managers). Altogether, the NPD project managers' perceptions of financial control were gathered and supplemented by the other actors' viewpoints.

Table 1: The interviewed organisations and NPD project stakeholders.

<i>Organisation</i>	<i>Industry</i>	<i>Interviewees</i>
A	Machinery and services	R&D director, two business controllers, project manager , product manager
B	Manufacturing systems and services	R&D director / project manager , business controller, product manager
C	Machinery and services	R&D director / project manager , business controller, project manager
D	Production machinery	R&D director, two business controllers, project manager , product manager
E	Production machinery	Business controller, two project managers
F	Machinery and services	R&D director, project manager , product manager
G	ICT products and services	R&D director / project manager

NPD project management, in general (company topos), as well as the individual NPD project managers' identities (topoi), were the primary units of analysis. The interviews, which were semi-structured, were recorded and transcribed. We used Atlas.ti software for the purpose of analysing the interview material. The researchers' interpretations of the data were coded according to the topics under examination. The list of codes included, for instance, overall controls for R&D, project objectives, project stakeholders and their viewpoints, facts, possibilities, values and communication. Furthermore, the researchers' access to in-depth case studies in some of the interviewed companies was used in validating the conclusions.

To answer its research questions, in the following sections, this chapter first presents different NPD project manager archetypes (3.2) and then gives exemplars of each of these archetypes (3.3). This chapter then illustrates project managers' interactions with the company topos (3.4) before forming conclusions of empirical findings (3.5). Accessing project managers' topoi, both with regard to their specific role (3.2–3.3) and their interaction with the company topos (3.4), will help obtain knowledge about the integration of factual possibilities in NPD. Indeed, in order to better understand the interviewed NPD project managers' roles and the roles they desire from management accounting and control, one needs to understand the company topos under which a certain NPD project management

operates. When this understanding is acquired, research and practice can better reach the pragmatic prerequisites for and means of integrating different actors' topoi to build a shared understanding about the key business phenomena and functioning practice.

3.2 Results on the NPD project managers' topoi affecting management accounting and control

First, it is important whether the organisation (or the actor himself/herself) considers NPD project managers primarily as actors under control or as actors who, due to their responsibility, actually control the project organisation. In fact, our empirical data shows that both viewpoints of control simultaneously coexist, but NPD project managers' role under control seems to be much more apparent. Second, it is important how an actor works with facts and possibilities. Table 2 illustrates NPD project managers' different identities by presenting certain archetypes of NPD project managers' topoi.

Table 2: Different topoi of the NPD project manager archetypes.

	<i>Primarily under control</i>	<i>Also in control</i>
<i>Primarily uses calculations</i>	Technology topoi	Management topoi
<i>Actively also produces calculations</i>	Analyst topoi	Business controller topoi

The NPD project managers, who interpret themselves as being primarily under control and do not (by themselves) produce financial calculations, typically represent the *Technology topoi*, with a clear focus on the engineering and technology aspects and project practicalities. These project managers focus on being technological 'hubs' by solving technical and sourcing-related problems and coordinating technical development work tasks for other actors. NPD project managers with this type of technology topoi can have limited, though sometimes critical, interest toward business aspects; their facts and possibilities lie particularly within the domain of technology. These NPD project managers can also crave more support from business people, possibly highlighting their critical view toward current support that, for them, is inadequate.

The NPD project managers that interpret themselves as being primarily under control but are actively involved in producing (and possibly communicating) the calculations hold, in this typology, an archetype of *Analyst topoi*. This involvement also means that these project managers' relationships with other actors and their facts and possibilities are also in the domain of business, supplementing project management or technology substance. The analyst topoi refers to the execution of a project according to given requirements but with limited interest or involvement in or responsibility to actively control other stakeholders.

Those project managers that are also in control (but naturally not only in control) can be seen to hold the archetype of *Management topoi* when taking advantage of calculations produced by other project stakeholders. The project managers with the Management topoi see their facts and possibilities, respectively, within a wider domain. Since these project managers are also in control of how 'things get done', this nuance is also reflected in how these project managers interact with other actors.

Alternatively, the NPD project manager can hold the archetype of *Business controller topoi*. In this archetype, the NPD project manager interprets himself/herself as being (also) in control while taking responsibility for producing the calculations according to project control needs as well. In this topoi,

the element of ‘how things get done’ is accompanied by facts and possibilities in producing calculations.

3.3 Exemplars of different NPD project manager topoi

An exemplar of the Technology topoi:

In this section, we provide examples of different NPD project managers’ topoi in our empirical findings. To start with, we exemplify the technology topoi. The interviews suggest that some project managers with the technology topoi are primarily senior designers and only secondarily business managers of the NPD project. Financial facts might be linked to certain technological specifications, component lists, etc.; thus, the project manager relies on these given economic facts and is reluctant to estimate otherwise (e.g. in Organisation A):

‘I have noticed that the more you are an engineer [you have purely technical education], the more difficult it is for you to give estimates [about financial aspects with uncertainty]. It is a way of thinking, there is uncertainty and it can be very difficult to give a rough estimate’.

The technology topoi in this example implies that establishing proactive truth, in relation to the integration of factual possibilities, is challenging. These project managers focus on historical facts and not possibilities. For some more technologically-oriented managers, giving an estimate actually seems like giving a promise for which they are then responsible for, thereby making them reluctant to try to estimate what is anyway uncertain.

An exemplar of the Analyst topoi:

In our interview data, the formal project model was one clear frame that controls NPD project managers’ activities. It can be interpreted that NPD project managers are there to ensure effective project execution with limited flexibility and power. However, also within this model, some of the interviewed NPD project managers, classified as *Analyst topoi*, saw the possibility for top-down and bottom-up communication and, especially, the possibility to bring up uncertainties and surprises during project execution. A project manager (Organisation D) described their project model enactment, underlining its formality in bringing problems up:

‘(...) [the project model] forces us to report, follow certain issues very carefully. And at the same time, it provides us a formal route to bring up problematic issues. These issues escalate [and will be managed] quite naturally, if we follow the project model’.

In this quote, some emerging project-related facts bring forth the possibility to avoid problems. Therefore, our empirical findings show the positive stance toward formal project models, although they might also be considered burdening in their bureaucracy.

An exemplar of the Management topoi:

As a contrast to the analyst topoi, and to clarify the difference between different NPD project manager identities, a project manager (Organisation F), illustrating the *management topoi*, criticised the overemphasis on project budgets and highlighted the importance of active product costing in NPD projects:

‘Product cost is more essential; it is the mechanism for future profits. It enables keeping the contribution margin. (...) The project cost is paid only once, and it will pay back typically in months’.

or in few years, and it should not be that strict, but the product cost is the important one, it will accumulate the profits or losses’.

This person in the management topos, hence, exemplifies the shortcomings of the formal project model. The project model does not necessarily allow wider optimisation but, rather, might even encourage sub-optimisation or focus attention to suboptimal control mechanisms. In this topos, possibilities arise from defining functioning practice (see also Laine, Korhonen and Martinsuo 2016): What should the company focus on? What is meaningful? What further bottlenecks need to be removed? A person that asks these questions needs to have not only good negotiation and reasoning skills to be able to influence the current company practices but also routes to acquire needed calculations to back up their ideas.

An exemplar of the Business controller topos:

Sometimes, the wider profitability impacts were discussed (Organisation E), reflecting the *business controller topos* among NPD project managers:

Project manager 1: *‘I think that [a business impact analysis] responds more to that project as an investment, and we expect income from it, and we look at the pay-back time...’*

Project manager 2: *‘We look at those issues, but our analysis includes also all the potential cannibalisation, after sales expectations, total business impacts, and there are different scenarios, (...) what do we expect, best case and worst case scenarios. And the project should provide input according to the current status’.*

These project managers expect a lot from NPD accounting and control and have positive expectations, laying fertile ground for constructing proactive truth in NPD. However, they also see the ambiguities related to producing the needed calculations. Their facts and possibilities are manifold; thus, they need to decide what aspects are consciously left out of a certain decision. These project managers need to have the relationships to influence decision-making practices and the perseverance to continuously scope the relevant facts and possibilities in different NPD-related decisions.

3.4 Project managers’ interactions with the company topos

In this section, the chapter presents insights about how project managers interact with the company topos. The section builds upon the understanding that, in the NPD project management practice, different types of objectives need to be balanced and prioritised. A company needs to execute the projects according to the division of tasks between different managers (as either adaptors of calculations or actors involved in producing those calculations). Understanding the process of structuring and prioritising the facts mechanistically related to NPD projects is not enough to understand NPD management. One needs to involve different stakeholders’ viewpoints (Laine, Korhonen and Martinsuo 2016) and bear in mind the values and other aspects affecting different stakeholders’ topoi and, thus, company topoi, in general (Jakobsen, Johansson and Nørreklit 2011). In particular, this section first presents project managers’ interactions with the company topos through acquiring competitive advantage, project objectives and the usefulness of accounting information.

Acquiring competitive advantage: In most of the companies interviewed, the company topos includes the values of innovativeness and business renewal in sustaining competitive advantage. These values are translated in different ways into NPD project objectives and, respectively, into NPD project managers’ expected roles.

If the possibilities related to NPD projects include a huge amount of potential business impacts, there can be clear differences between companies in how clearly actors are able to explicate factual possibilities and how much of NPD project managers' active work is required. As some elements of competitive advantage clearly are constructed in NPD, project managers are in a key position to integrate facts, possibilities, values and communication. Whether a project manager is an active producer of accounting calculation, or whether he/she can be in control, can determine the extent to which the values of innovativeness and business renewal are involved or compromised in NPD project management. Less empowerment can easily mean a narrower decision-making scope and vice versa.

Project objectives: In some organisations, the interviewed project managers considered that the immediate project objectives and also the expectations set for NPD project managers' roles are quite clear after project acceptance. However, the project manager in Company A, for example, admitted that several additional NPD project objectives seem to stem from external sources. These objectives are not clear enough for NPD project managers. Thus, NPD project managers need to put a lot of effort into refining and communicating NPD project objectives among project stakeholders as expected NPD project impacts.

Among NPD project business impacts, cost efficiency/reduction and project budgets were brought up several times during the interviews. Some project managers actively review the project budget; whereas, in other companies, NPD controllers compare budgeted and actual figures. The emphasis on project cost issues, in comparison to other accounting issues, varies from one company to another. For project managers with management or business controller topoi, there are several other important business impacts (in addition to the project budget) to be planned and controlled, such as expected sales volumes, pricing scenarios and after sales possibilities. In fact, one can interpret NPD projects as investments with certain project costs, future product prices, volumes and costs. These investments would also have several types of indirect effects, representing overall business impacts as aspects of proactive truth. The aspects are not necessarily carefully defined or actively managed in every NPD project, but they do represent one starting point for valuating and communicating possibilities in NPD. Conversely, some NPD project managers with technology or analyst topoi, i.e. primarily under control, seem to be willing to focus on project costs, as well as technological solutions, product features and project schedules, as project objectives. One interviewed project manager had the impression that, in their project model, the formal process is overemphasised, and the decisions are sometimes made formally (at the cost of the *de facto* business possibilities). Therefore, it seems that pro-active truth is not necessarily followed but overshadowed by the formal project model.

Usefulness of accounting information: Although the scope, content and interpretation of management accounting and control varied across the interviewed companies, most of the interviewed NPD project managers considered accounting information beneficial. Some of the interviewed project managers described that they were satisfied with the financial support, which quite typically consisted of the economic facts delivered to project managers and the clear performance measures in project models. These aspects relate to project managers as adopters of accounting information. Besides using economic facts for management, NPD project managers are supposed to identify and analyse a variety of possibilities, with values related to the products that are under development. Some of the interviewees discussed the actual role of financial control related to those possibilities. For example, a project manager (Company A) highlighted the fact that financial control should play a crucial role in the beginning of an NPD project, i.e. when the economic

possibilities are estimated under a relatively high uncertainty and the managers make, perhaps, the most important new product decisions. Some interviewees highlighted the need for freedom and flexibility in research projects and concept development, where new possibilities are developed. At this stage, there was not that much need for accounting and control as restrictions, but rather, there might be a need for using calculations as a source of inspiration. We expect that those project managers primarily in control, in particular, will be able to influence how companies use accounting information as a source of inspiration, although much technological development is needed in early NPD stages as well.

3.5 *Conclusions of our empirical findings*

Altogether, the perceived support from financial control can vary based not only on the characteristics of different company topoi but also on individual project managers' needs and preferences. It may also depend on individual actors' topoi as to whether business possibilities are primarily interpreted as financial, technical, operational or quality-related aspects. In response to our research questions, we found out that organisational realities are affected by the overall R&D organisations, NPD project models in use (e.g. formality), project characteristics (e.g. uncertainty) and roles given to and actually taken by NPD project managers (e.g. autonomy and flexibility). These roles are also affected by NPD project managers' experiences and personalities. Therefore, it is of great importance to understand the interactions between a company topoi and the topoi of the individual NPD project managers within that company.

The identity of the NPD project manager, as a managerial actor, varies from one company to another and among the individual project managers within the organisations. There is no common identity or topoi that is better than the others for an NPD project manager (even in a certain context). However, importantly, the role of an NPD project manager should be in line with the overall company topoi and with the tasks given to project management.

4 Conclusions of the chapter

4.1 *Answers to research questions*

This chapter asked two research questions: 1) *How can we conceptualise different NPD project managers' management accounting and control topoi?* and 2) *How can project managers interact with the company topoi?* The findings of this chapter are based on how NPD project managers experience the notions of facts, possibilities, values and communication (Nørreklit, Nørreklit and Mitchell 2010; Jakobsen, Johansson and Nørreklit 2011). These notions represent the fundamental viewpoints of company topoi and individual topoi, and through these notions, it is possible to examine management and control practices in the NPD context. In NPD project managers' organisational realities, facts, possibilities, values and communication need to be acknowledged, examined and integrated. If this integration is successful, NPD project managers can have a role with meaning, possibly leading to higher willingness and capability to contribute to meeting overall company objectives.

This chapter shows that it is important to examine the role of the project manager in relation to the use of management accounting in NPD. Moreover, the chapter presents some of the NPD management aspects that pragmatic constructivism brings forth. Indeed, leveraging a company topoi in NPD project management requires adjusting the topoi according to individual NPD projects (Jakobsen, Johansson and Nørreklit 2011; Laine et al. 2016). More importantly, and as an answer to the first research question, we can conclude that one needs to seek a balance between the requirements

set by (1) NPD project management models, (2) the characteristics of an individual NPD project and (3) the topoi of an individual NPD project manager. The division of tasks in analysing and controlling NPD projects should be made case-by-case, and learning between projects needs to be organised.

Our results show that the roles given to and taken by NPD project managers vary from one company or project to another. We identified *management topos*, *business controller topos*, *analyst topos* and *technology topos* as archetypes, but these archetypes do not even attempt to comprehensively capture the versatile practice of management accounting and control in NPD. Rather, they are archetypes that facilitate understanding the different topoi between different actors with ostensibly similar responsibilities, i.e. managing an NPD project. By acknowledging the existence of different topoi, and by balancing and adjusting management accounting and control in cooperation, companies can attain better management accounting and control support for NPD managers. This is in line with Hall's (2010) idea on accounting information extensively supporting managerial work outside of decision-making (see also Nielsen, Mitchell and Nørreklit 2015). Therefore, this chapter adds a sound viewpoint of pragmatic constructivism to this particular line of research. In practice, when finding the balance between the company topos and the topoi of individual NPD project managers, thinking about the identity archetypes outlined above could be helpful in finding ways to adjust the management accounting and control practice in a given NPD project context. The archetypes can provide a tool for conceptualising how facts and possibilities work in different NPD project managers' practice.

As a response to the second research question, the maturity of communication culture, which is central in the interaction of individual project managers and the company topos, seems to vary from one organisation to another, along with the scope and content of management accounting and control in use (in line with the observations by Laine, Korhonen and Martinsuo 2016). The actual support for managerial work from management accounting and control requires acknowledging differences between different actors' topoi in the NPD context and making management accounting and control help define pragmatic truth in a given business context, i.e. what is factually possible (Mitchell, Nielsen and Nørreklit in this book). Also, in the NPD context, the construction of common topoi that integrate different actors' topoi is important yet difficult (see Trenca, Nørreklit and Raffnsøe-Møller in this book). Therefore, enhanced communication among NPD management actors would mean (or require) co-authorship and increased attention to intentional (joint) construction of these company topoi. When using the archetypes of this chapter, one can see how different project managers interact with the company topos with regard to competitive advantage expected from projects as impact, project objectives which direct action and accounting information that support these project managers' work.

4.2 *Contribution of the chapter*

The contribution of this chapter is twofold. *First*, the chapter examines the identity of an NPD project manager as an organisational actor and advances knowledge on NPD project managers' topoi. In all, the scope and content of financial control vary from one organisation to another. Some organisations strictly follow the rules of a project model with only limited project manager autonomy. NPD project managers seem to only rarely initiate discussions among project stakeholders about wider business impacts, i.e. discussions about wider impacts are not sufficiently supported by the *de facto* financial NPD project control. Some NPD project managers, on the other hand, see the project model as a mechanism supporting their work with substantial flexibility (cf. Tatikonda and Rosenthal 2000a). This finding provides more understanding about management accounting and control actually

supporting managerial work in practice. The involved NPD project managers' ideas and expectations were explicitly related to the wider notion of NPD performance. Thereby, the chapter reports co-authorship in management accounting practice in action and, thus, highlights the need for supplementing seemingly rational decision-making with more proactive, actor-based features in both research and practice (cf. Nielsen, Mitchell and Nørreklit 2015; see also Hall 2010).

Second, the chapter shows how NPD project managers, in their current roles, can desire enhanced interaction and communication (with regard to NPD project objectives and execution) in order to attain better support in their work that easily relates to wider business impacts. As NPD project managers are, by definition, in charge of an NPD project, they are in the position of making decisions and choices towards realising related possibilities. In the terminology of pragmatic constructivism, this requires both identifying underlying values in the company topos and examining different factual or fictional possibilities (Jakobsen, Johansson and Nørreklit 2011) in order to attain or extend the benefits of an NPD project (Laine, Korhonen and Martinsuo 2016). In analytical decision-making, described by Nielsen, Mitchell and Nørreklit (2015), financial control should informationally support an NPD project manager's decision-making. However, as NPD projects are activities that deal with emerging possibilities with remarkable uncertainty of their potential value, such an analytical approach, i.e. seemingly rational decision-making without interaction (or co-authorship) among the actors involved, is not enough to understand the current or desired role of financial control in NPD (see also Korhonen et al. 2016).

Attaining NPD project objectives requires acknowledging the differences between different actors' topoi in the NPD context. This means making management accounting and control help define pragmatic truth in a given business context. It is essential to acknowledge the presence of different topoi that relate to each other and should be integrated and leveraged to make things actually work. Different topoi can (either intentionally or unintentionally) lead to varying accounting and control practices inside companies, e.g. in terms of division of tasks between actors, formality of management accounting and control utilisation and different procedures adopted. Hence, this chapter provides new knowledge about the integration of different actors' topoi in a context with a high uncertainty and plenty of opportunities (see Jakobsen, Johansson and Nørreklit 2011; Laine, Korhonen and Martinsuo 2016; Mitchell, Nielsen and Nørreklit in this book). Altogether, the requirements set for an NPD project manager in a given business context should be in line with the company topos and intentionally adjusted according to the characteristics of an NPD project manager or task, i.e. the particular NPD project. This chapter contributes to understanding how NPD project managers, as actors, help achieve organisational goals and improve NPD performance. Advancing this understanding facilitates interactions between the company topos and individual actors' topoi in NPD projects.

More precisely, in a highly mechanistic view, one could assume that the top management priorities are merely translated into NPD project priorities and objectives and then realised by NPD project managers and other project personnel. This chapter shows that NPD projects offer a dynamic context with uncertainty; it is essential that NPD project managers are able to cooperate with different NPD project stakeholders and understand both technical and economic new product aspects (Tatikonda and Rosenthal 2000a). Moreover, an NPD project manager himself/herself may have, for instance, a technological or economic orientation and may possess more or less interactive character.

Finally, calculations may provide social structures and means of communication among different actors (Nørreklit, Nørreklit and Mitchell 2010; Laine et al. 2016). In NPD project managers'

organisational realities, actors should be comprehensively understood (Nielsen, Mitchell and Nørreklit 2015) while acknowledging their significant influence on NPD project performance and wider business performance. Moreover, communication among different NPD stakeholders needs to be taken into account (Laine, Korhonen and Martinsuo 2016; Laine et al. 2016), and the potential support from management accounting and control to NPD should be designed and utilised accordingly. Management accounting and control practices could, in some cases, be based on the activities taken primarily by an NPD project manager himself/herself. To be effective, choosing the person responsible for enacting management accounting and control should be aligned with the company topos, division of tasks and related individuals' topoi.

4.3 Further research

Based on our results, NPD project managers' overall roles and responsibilities are well acknowledged, and there have been clear attempts to enhance the role of management accounting and control to support NPD projects and project managers. However, much work is still needed in order to provide NPD project managers with the means to control and support project execution. Currently, management accounting and control for NPD is primarily interpreted as a set of mechanistic tools; whereas, this chapter highlights the need for supplementing seemingly rational decision-making with more proactive, actor-based features to actually realise the factual possibilities in NPD. This aspect could be examined in various different (industry) contexts in the future to understand their possible similarities and differences (see Messner 2016).

As observed in this chapter, NPD project managers have a challenging role featuring several interactions with (and co-authorship among) other NPD project stakeholders. This chapter underlines how NPD project managers, as actors, can help achieve organisational goals and improve NPD performance. Indeed, management accounting and control enactment requires finding a proper balance between a company topos and NPD project managers' topoi; moreover, both of these need to be adjusted in different projects through interaction between related NPD managers.

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References

- Cooper, Robert G. 1990. "Stage-gate systems: a new tool for managing new products." *Business horizons* 33 (3): 44–54.
- Davila, Tony. 2000. "An empirical study on the drivers of management control systems' design in new product development." *Accounting, Organizations and Society* 25 (4): 383–409.
- Davila, Antonio, and Marc Wouters. 2004 "Designing cost-competitive technology products through cost management." *Accounting Horizons* 18 (1): 13–26.
- Davila, Tony, and Marc Wouters. 2006. "Management accounting in the manufacturing sector: Managing costs at the design and production stages." In *Handbook of Management Accounting Research*, edited by Christopher S. Chapman, Anthony G. Hopwood, and Michael D. Shields, 831–858. Amsterdam, the Netherlands: Elsevier.
- Hall, Matthew. 2010 "Accounting information and managerial work." *Accounting, Organizations and Society* 35 (3): 301–315.

- Jakobsen, Morten, Inga-Lill Johansson, and Hanne Nørreklit. (Eds.) 2011. *An Actor's Approach to Management – Conceptual Framework and Company Practices*: 160. Copenhagen, Denmark: Djøf Publishing.
- Jørgensen, Brian, and Martin Messner. 2010. "Accounting and strategising: A case study from new product development." *Accounting, Organizations and Society* 35 (2): 184–204.
- Korhonen, Tuomas, Teemu Laine, Jouni Lyly-Yrjänäinen, and Petri Suomala. 2016. "Innovation for Multiproject Management: The Case of Component Commonality." *Project Management Journal* 47 (2): 130–143.
- Laine, Teemu, Tuomas Korhonen, and Miia Martinsuo. 2016. "Managing program impacts in new product development: An exploratory case study on overcoming uncertainties." *International Journal of Project Management* 34 (4): 717–733.
- Laine, Teemu, Tuomas Korhonen, Petri Suomala, and Asta Rantamaa. 2016. "Boundary subjects and boundary objects in accounting fact construction and communication." *Qualitative Research in Accounting & Management* 13 (3), 303–329.
- Lewis, Marianne W., M. Ann Welsh, Gordon E. Dehler, and Stephen G. Green. 2002. "Product development tensions: Exploring contrasting styles of project management." *Academy of Management Journal* 45 (3): 546–564.
- Messner, Martin. 2016. "Does industry matter? How industry context shapes management accounting practice." *Management Accounting Research* 31: 103–111.
- Mitchell, Falconer, Lars Braad Nielsen, and Hanne Nørreklit. In this book. "A pragmatic constructivist approach to planning and decision-making."
- Nixon, Bill. 1998. "Research and development performance measurement: a case study." *Management Accounting Research* 9 (3): 329–355.
- Nielsen, Lars Braad, Falconer Mitchell, and Hanne Nørreklit. 2015 "Management accounting and decision making: Two case studies of outsourcing." *Accounting Forum* 39 (1): 64–82.
- Nørreklit, Hanne and Morten Raffnsøe-Møller. In this book. "Introduction."
- Nørreklit, Hanne, Lennart Nørreklit, and Falconer Mitchell. 2010. "Towards a paradigmatic foundation for accounting practice." *Accounting, Auditing & Accountability Journal* 23 (6): 733–758.
- Project Management Institute. 1996. *A Guide to the Project Management Body of Knowledge*: 176. PMI Publishing Division.
- Rabino, Samuel. 2001. "The accountant's contribution to product development teams—a case study." *Journal of Engineering and Technology Management* 18 (1): 73–90.
- Rozenes, Shai, Gad Vitner, and Stuart Spraggett. 2006. "Project Control: Literature Review." *Project Management Journal*, 37 (4): 5–15.
- Sethi, Rajesh, and Zafar Iqbal. 2008. "Stage-gate controls, learning failure, and adverse effect on novel new products." *Journal of Marketing* 72 (1): 118–134.
- Suomala, Petri. 2004. "The life cycle dimension of new product development performance measurement." *International Journal of Innovation Management* 8 (2): 193–221.
- Tatikonda, Mohan V., and Stephen R. Rosenthal. 2000a. "Successful execution of product development projects: Balancing firmness and flexibility in the innovation process." *Journal of Operations Management* 18 (4): 401–425.
- Tatikonda, Mohan V., and Stephen R. Rosenthal. 2000b. "Technology novelty, project complexity, and product development project execution success: a deeper look at task uncertainty in product innovation." *IEEE Transactions on engineering management* 47 (1): 74–87.
- Trenca, Mihaela, Hanne Nørreklit, and Morten Raffnsøe-Møller. In this book. "Management topos, Actor-ship and co-authorship."

- Turner, J. Rodney, and Ralf Müller. 2004. "Communication and co-operation on projects between the project owner as principal and the project manager as agent." *European Management Journal* 22 (3): 327–336.
- Yline Ylinen, Mika, and Benita Gullkvist. 2012. "The effects of tolerance for ambiguity and task uncertainty on the balanced and combined use of project controls." *European Accounting Review* 21 (2): 395–415.
- Ylinen, Mika, and Benita Gullkvist. 2014. "The effects of organic and mechanistic control in exploratory and exploitative innovations." *Management Accounting Research* 25 (1): 93–112.