Management control systems effect on the micro-level processes of product innovation

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Abstract

Purpose - Using institutional theory this study seeks to understand how the management control systems (MCS) designed by top managers influence the micro-level process practices of organization members during product innovation.

Design/methodology/approach - This paper reports on a case study carried out at NZMed to examine the design and use of MCSs and their product innovation practices. Simons' levers of control was used to understand the ways in which MCSs were designed and used in a product innovation setting.

Findings – The findings indicate that the everyday micro-level processes of organization members encoded MCS when their espoused values aligned with those of top managers. However, when the perspectives within the organization differed, variations to the micro-level processes of organization members emerged. The authors show how this resulted in an increase in innovation capabilities necessary to meet organizational goals.

Practical implications - The misalignment between espoused values and enacted values had a positive effect as it helped the organization maintain their innovation culture, build long-term trusting relationships with suppliers which enabled the achievement of organizational goals.

Originality – By focusing on the relationship between MCS and the micro-level processes of organization members in product innovation, the paper shows how the lack of alignment between the espoused values of top management and the enacted values of project managers explained the variations between the MCS used by top managers and the practices of project teams at our case study company.

Keywords Management control systems, Institutional theory, Innovation, Levers of control, Micro-level processes, Case study

Paper type Research paper

1. Introduction

Management accounting scholars have devoted a considerable amount of effort to understanding management control system (MCS)[1] stability and change using an institutional lens (see for example, Bertz and Quinn, 2022; Burns and Scapens, 2000; Conrath-Hargreaves and Wüstemann, 2019; Damayanthi and Gooneratne, 2017; Drum *et al.*, 2017; Gamage and Gooneratne, 2017; Goretzki *et al.*, 2013; Hassan, 2005; Järvenpää, 2009; Ribeiro and Scapens, 2006; Sharma and Lawrence, 2005, 2008; Sharma *et al.*, 2010). Recent studies have gone beyond institutional isomorphism and symbolic conformity by placing an emphasis on actors and practices as well as the relationship between institutional forces and the micro-level processes of organization members[2] (Ancelin-Bourguignon *et al.*, 2013; Bertz and Quinn, 2022; Cruz *et al.*, 2009; Lounsbury, 2008; Sharma *et al.*, 2010; Schäffer, *et al.*, 2015; Smets and Jarzabkowski, 2013; ter Bogt and Scapens, 2019; van der Kolk *et al.*, 2020). Zucker and Schilke (2020, p. 371) argue that '(t)here is great promise for micro-institutional inquiry to make an integral contribution to institutional theory by bringing processes and people back in.'

In this paper we seek to contribute to the micro-institutional view of institutions by asking the following research question - why do the individual micro-level processes of organization members conform/not conform to the MCS designed and used by top managers to control these activities. To address this question we collect data from a case study to provide empirical insight into the variations between top managers' design and use of MCS (Ferreira and Otley, 2009) and the activities of organization members to understand how they interact in practice.

A product innovation setting was chosen for this study as the literature has noted a change in innovation thinking from a reliance on closed internally generated innovation ideas and processes - known as 'closed innovation' - to more open, external and collaborative processes - known as 'open innovation' (see for example, Biswas and Akroyd, 2016, 2022; Chesbrough, 2019; Chesbrough *et al.*, 2006, 2014; Chiaroni *et al.*, 2011; Gassmann *et al.*, 2010). Open innovation has two dimensions: inside-out and outside-in (Chesbrough *et al.*, 2006, 2014; Chiaroni *et al.*, 2011; Gassmann *et al.*, 2010). The inside-out dimension is when an organization allows internal projects to go to an outside organization, either through selling the rights to an idea or technology or through a corporate venture spin-out (Chesbrough *et al.*, 2014). The outside-in dimension is when organizations seek to leverage the expertise of external parties during an internal innovation project to increase their return on innovation investment (Chesbrough, 2019; Chesbrough *et al.*, 2006, 2014; Chiaroni *et al.*, 2011; Gassmann *et al.*, 2010). This results in them searching for external ideas, know-how and technologies and integrating them into the innovations they are developing internally (Biswas and Akroyd, 2016, 2022; Chesbrough, 2019).

The outside-in dimension of open innovation has been further divided into pecuniary and non-pecuniary activities by Dahlander and Gann (2010). Pecuniary activities refer to acquiring input into the innovation process through the market place, while non-pecuniary activities refer to firms leveraging the knowledge of an external party for the development of a new product or service without immediate financial rewards for the external party. In other words, the external

[1] From an institutional view MCS are the set of rules that allow for the reproduction and cohesion of organizational life (Burns and Scapens, 2000).

[2] The micro-level processes of organization members refers to the activities which members of an organization carry out as part of their everyday practices (Goretzki et al., 2013).

party collaborates with the focal firm in anticipation of indirect benefits (Dahlander and Gann, 2010).

It was this shift in innovation thinking that attracted us to our case study organization, NZMed (a pseudonym). However, it was evident early on in our investigations that there were a range of views within the organization regarding the use of open innovation practices. This intrigued us, so we sought to examine the reasons why top managers' MCS did not permit open innovation practices and why some project team activities still sought external ideas and technologies, which are common open innovation practices, as part of the product development process.

We contribute to the MCS literature by examining the interaction between an organization's MCS, which reflect the espoused values of the top management, and the micro-level processes of product innovation practices, which reflect the espoused values of product development managers and teams. This helps us understand the dynamics which take place in organizations (Bertz and Quinn, 2022; Burns, 2000). Looking in more detail at the reasons why top managers design MCS compared to the reason why organization members carry out their activities can help researchers understand practice variations as well as the effects that MCS have on micro-level processes.

In the next section we present the theoretical background of the paper. Section 3 presents our research methodology while in section 4 we present our findings and explain why different organizational perspectives resulted in decoupling between the actions of organization members and the MCS. Finally, in section 5 we discuss the findings and conclude the paper with some limitations and suggestions for future research.

2. Theoretical background

Institutional theory argues that organizations are embedded in wider institutional environments (see for example Burns and Scapens, 2000; Dillard *et al.*, 2004; Guerreiro *et al.*, 2006; Davis and Marquis, 2005; Lounsbury, 2008). As stated by Dillard *et al.* (2004, p. 508), 'institutional theory is a way of thinking about formal organization structures and the nature of the historically grounded social processes through which these structures develop'. Over the years, this theory has been one of the most dominant perspectives in organizational analysis (Davis and Marquis, 2005; Lounsbury, 2008). However, it has been argued that institutional theory has often 'black boxed' what is inside an organization by viewing the reasons for behavior as coming from external sources (Zilber, 2016; Zucker and Schilke, 2020).

In this paper we focus on a 'micro-level' institutional view by focusing on 'micro-level processes… which is increasingly moving to the forefront of contemporary institutional theory' (Zucker and Schilke, 2020, p. 371-372). This has been argued to be '(o)ne of the most remarkable developments in contemporary institutional theory' as it is able to 'encompass those that operate below the organization's institutional context, including (but not limited to) intraorganizational phenomena, groups, and yes, to be absolutely clear, individuals and their interactions' (Zucker and Schilke, 2020, p. 372).

To understand the effect of MCS on the micro-level processes of product innovation activities we draw on Lounsbury (2008) and the institutional logics literature (see for example, Ancelin-

Bourguignon *et al.*, 2013; Cruz *et al.*, 2009; Lounsbury, 2007; Sharma *et al.*, 2010; Smets and Jarzabkowski, 2013; van der Kolk *et al.*, 2020) and Burns and Scapens' (2000) processual view of organizational routines and their institutionalization (see for example, Cruz *et al.*, 2009; Lukka, 2007; Ribeiro and Scapens, 2006; ter Bogt and Scapens, 2019). This literature views MCS as a set of rules and routines that together with other micro-level processes allow for the reproduction and cohesion of organizational life (Burns and Scapens, 2000; Ribeiro and Scapens, 2006). In other words, while formalized MCS tend to constitute relatively stable rules and routines there is always a possibility that they are not encoded on all micro-level processes.

The institutional literature proposes that researchers should study both actors and their practices and has identified two key reasons for practice variations. The first reason is the existence of conflicts or tensions between institutional legitimacy and technical efficiency pressures (Dillard *et al.*, 2004; Hopper and Major, 2007; Masquefa *et al.*, 2017). These studies suggest that firms enact practices to mimic changes in the field or to gain legitimacy. However, if during these enactments actors lived experience contradicts their technical understanding, taken-for-granted assumptions, norms or beliefs, they may resist the institutionalization of the imposed practice resulting in loose-coupling or decoupling between the imposed practices and actual practices within a firm (see for example, Cruz *et al.*, 2009; Lukka, 2007; Meyer and Rowan, 1977; Nor-Aziah and Scapens, 2007; Quinn, 2014; Ribeiro and Scapens, 2006; Sawabe and Ushio, 2009).

The second reason for practice variations is the existence of multiple, and often competing, logics informing the consciousness of the organization members (Cruz *et al.*, 2009; Lounsbury, 200; Ribeiro and Scapens, 2006; ter Bogt and Scapens, 2019). This can be seen in Lounsbury's (2007) study of the variations in practices of mutual funds which highlighted how distinct logics led to multiple forms or modes of understanding, which in turn generated distinct practices. Cruz *et al.* (2009) also found that multiple logics can co-exist within an organization informing the consciousness of organization members leading to practice variations. These studies imply that the logics which are unquestioned norms, assumptions and beliefs existing at the macro-social level define the perspectives of groups of individuals within the organization by determining the values, identities and self-representation (Ancelin-Bourguignon *et al.*, 2013).

The organizational culture literature has separated these values into espoused values and enacted values (Kabanoff and Daly, 2002; Marie Schuh *et al.*, 2006; Schein, 2006). Espoused values are defined as the articulated, publicly announced principles and values that the group claims to be trying to achieve (Marie Schuh *et al.*, 2006; Schein, 2006). They reflect what top management believe their organizations should be like and how they would like their organizations to be perceived by significant stakeholders (Kabanoff and Daly, 2002). Hence, espoused values are those that are reflected in an organization's mechanisms, such as mission and vision statements, policies and standard operating procedures, and even publicly available materials such as advertisements and recruiting materials (Gray *et al.*, 2017). Enacted values on the other hand are values in action (Senge *et al.*, 1994) driving day-to-day behavior and actions of organization members (Howell *et al.*, 2012).

Gray *et al.* (2017) suggest that typically, espoused values would precede enacted values (Schein, 2006) and hence an analysis of MCS and espoused values regarding assessment can expose whether there is a difference between the espoused value of assessment activities and

the enacted values that are actually experienced within an organization. This would provide further insights into what drives the enactment of those MCS and why there are variations in the micro-level processes of actors within the organization.

To understand the use of MCS in organizations it is important to acknowledge that formalized MCS can take various forms. In this study we use Simons' (1995) Levers of Control (LoC) to understand the ways in which MCS are used at our case study company. The LoC focuses on the tensions between an organization's need for innovation and an organization's need for the achievement of pre-established objectives. It points out the consequent tensions among components of MCS that need to be managed to successfully deal with organizational needs (Simons, 1995). The LoC also enables us to understand the MCS used to manage risks in inter-firm relationships (Anderson *et al.*, 2009), which is an important aspect of the product innovation context which we examine.

Simons' (1995) LoC offers a broad perspective of control systems by looking at the range of controls employed and how they are used by firms. An important strength of the LoC is that it provides a typology for alternative uses of the MCS that is widely viewed in the literature as meaningful and helpful (Bisbe *et al.*, 2007; Curtis *et al.*, 2017; Bisbe and Otley, 2004). Ferreira and Otley (2009) suggest that this aspect is particularly important as the way controls are used, is key to establishing whether all four LoCs are used and to assess the balance (or otherwise) between positive and negative controls (Simons, 1995). This is because getting the balance wrong could hinder the firm's innovation (Akroyd *et al.*, 2019; Bisbe and Otley, 2004; Frare *et al.*, 2021; Sridharan and Akroyd, 2011).

Simons' (1995) LoC sets out four key constructs that need to be analysed and understand for the successful implementation of a strategy: core values, risks to be avoided, critical performance variables, and strategic uncertainties. Simons suggests each of these constructs is controlled by a different lever: that is, belief systems, boundary systems, diagnostic control systems, and interactive control systems respectively. The use of each LoC has different implications. For instance, the belief systems are used to inspire and direct the search for new opportunities, while the boundary systems are used to set limits on opportunity-seeking behaviour. The combination of these two levers can be used to frame the strategic domain of activity for organization members in terms of positive ideals and proscriptive limits. Similarly, the diagnostic control systems are used to motivate, monitor, and reward achievement of specified goals, while interactive control systems are used to stimulate organizational learning and the emergence of new ideas and strategies (Simons, 1995). The belief systems and the interactive control systems are the yang that creates positive and inspirational forces. Contrarily, the boundary systems and diagnostic control systems are the yin that create constraints and ensure compliance with orders (Simons, 1995).

The LoC elements provide a useful frame of reference to conceptualize formalized MCS in a firm. For that reason, we use the LoC to identify the formalized MCS relating to the innovation function present in the case study as well as to identify the product innovation routines that encode these formalized MCS. This helps identify any routines (Quinn, 2011) that are not explained by the existence of the identified formalized MCS.

3. Research method

Gray *et al.*, (2017) suggest that to assess the degree to which a particular value is enacted within an organization requires organization members to be directly questioned on their perceptions of the degree of enactment. Hence, a case study was deemed to be an appropriate method for this study, as it involves an in-depth investigation of a phenomenon (Adams *et al.*, 2006) offering the opportunity to analyze different points of views about practices in an organization, which is a growing area of management accounting research (see for example, Ahrens and Dent, 1998; Akroyd *et al.*, 2016; Akroyd and Kober, 2020; Jollands *et al.*, 2015, 2018).

Our case study company, NZMed is a leading designer, manufacturer, and marketer of a range of healthcare devices. NZMed's innovation function was deemed to be one of the key pillars in its growth strategy and investment in research and development (R&D) was believed to be fundamental. Empirical data for this study was collected through 15 hours of semi-structured interviews with 21 organization members[3] along with an analysis of company documents. The interviews included organization actors who were considered to be most involved and have inside knowledge of the innovation practices of the firm. Interviewees included organization actors from different hierarchical levels. They were chosen in order to understand their actions and get the viewpoints of people with different levels of ability to change the MCS and innovation practices in the firm. Interviews included a mixture of in-depth one-to-one interviews as well as some group discussions. A cross section of organization actors ranging from company executives to the employees directly involved in the everyday activities of innovation projects were interviewed.

We started by interviewing project managers who were directly involved in managing the day-to-day innovation activities. The initial interviews involved the participants talking about their daily activities and how they carried out product innovation. They explained in detail about the actions they took to complete an innovation project from start to finish including the interactions they had with external parties. The interviewees were asked to explain the reasons for the specific actions they described. The interviewees frequently used examples of recent projects they were involved with to explain their points. However, due to confidentiality reasons, we have not included these project specific examples in this paper.

The relevant MCS were identified from the initial interviews with the project managers and the documents as listed in Table 1[4] below.

[3] In this study our focus was on interviewing participants who had in-depth understanding of the MCS and innovation context from multiple organizational levels. For this reason we carried out enough interviews to enable a balance between the representativeness and the quality of responses (Saunders and Townsend, 2016).

[4] We should note that while our data is now more than a decade old, we believe that it is still relevant to contribute to our understanding of the relationship between MCS and the micro-level processes of organization members.

Table 1: NZMed Data

NZMed interviews (2009-2011)
Introductory meeting with a Product Development Manager - 120 minutes
Product demonstration with Product Development Manager - 60 minutes
Group discussion with 8 Project Leaders - 180 minutes
Ground discussion with 7 Product Development Managers - 120 minutes
Product Leader - 60 minutes
Product Development Manager - 180 minutes
Innovation Group Manager - 120 minutes
CEO – 60 minutes
Internal NZMed documents
Business plans for projects (2010)
Vision and Values statement (2010)
Code of conduct (2010)
Performance evaluation policy (2010)
Remuneration policy (2010)
Risk management policy (2010)
Investor fact sheet (2010)
External NZMed documents
NZMed Annual reports from 2003 to 2011
NZMed presentations
Presentation to Society of Investment Analysts (21 November 2001)
Macquarie Equities 2003 emerging leaders conference (9 May 2003)
UBS Australasian Med Conference (26 October 2004)
NZX SciTech Seminar (1 August 2006)
Company's Med Presentation at Macquarie Securities Technology and Innovation Day (4 October 2010)
Websites
NZMed's company website

These MCS were then discussed in interviews with the top management along with discussions around what their role was, their daily activities, their involvement with the innovation activities of the organization and their perspectives in relation to innovation practices. The final interview stage involved group discussions with the project managers to get an understanding of the consistency of their actions, perspectives and enacted values we deduced from the earlier interview data.

In line with an interpretative research methodology (Willmott, 2008), the intent of the interviews was to seek the organization actors' understanding of the micro-level processes within the organization's innovation practices. Hence, priority was given to interviewees' interpretations and perceptions of their lived experience. Other than the introductory meeting, all the interviews were recorded and transcribed. However, the introductory meeting as well as all follow-up conversations were documented and analyzed in the same way as the transcribed interviews.

The interview data was corroborated through an analysis of company documents. A large range of documents and presentation slides relating to innovation projects were reviewed and analyzed by the researchers along with information provided on the company's website. Firstly,

these were used to develop an understanding of the company and its activities. Secondly, they were used to corroborate the interview data such as the existence of the MCS, the espoused values and innovation practices encoding the MCS.

Data was analysed using a thematic approach with the help of NVivo. The use of this software is said to increase effectiveness and efficiency of the analysis process (Gibbs, 2007). The first step of data analysis involved coding the data. As explained by Gibbs (2007), coding is how you define what the data you are analysing is about. So, 'coding is a way of indexing or categorizing the text in order to establish a framework of thematic ideas about it' (Gibbs, 2007, p. 38). Where themes emerged from the interview data, a data-driven coding approach was adopted. Some of the common themes that emerged included decoupled routines, difference in perspectives of top management and project level organization members relating to formalized MCS as well as the firm's ability to collaborate, perceptions relating to relational risk and trust. These are discussed in more detail in the following sections.

4. Findings

> 'Getting an innovation process right once is possible through luck – the skill comes in being able to repeat the trick' Bessant (2003, p. 761).

The purpose of this section is to understand the relationship between the MCS (LoC) and micro-level processes at NZMed. Even though the way in which this company started was a classic example of open innovation, as they leveraged the expertise of external parties to develop their first product, this concept had not been formally adopted in the firm at the time of this research. Consequently, the term open innovation was a neither part of the top management's everyday vocabulary, nor was it mentioned in management and strategic documents, annual reports, shareholder announcements, or even on the company website. Instead, the belief was that NZMed was able to reduce risks associated with new product introductions by using in-house capabilities to rapidly produce prototype products suitable for trial use and sale (NZMed, 2001). However, seeking input and collaborating with external parties during the innovation process were common practices used by project level organization members. That is, they frequently sought ideas and technologies from external parties to solve product designs and development problems. Despite the lack of a formal drive to implement open innovation, the practice of seeking external input in the firm's innovation process had been successfully repeated time and time again at the project level.

The fact that NZMed had engaged in many successful external collaborations suggested its innovation process comprised factors that had helped the firm overcome the challenges of seeking external input and enabling open innovation-type activities. Hence, using the insights from institutional theory shows how the innovation process in NZMed was managed to identify factors that had enabled the continued use of this practice in the firm.

4.1 Micro-level processes encoded on activities

Open innovation is when organization members in the innovation team seek input from somebody who is from outside the company as part of their innovation project. During the interviews at NZMed, the organization members both at the top management and project level explained that NZMed has had some very successful innovation projects, where it had sought

input from external sources such as end-users and medical professionals, research institutes and universities as well as suppliers and potential suppliers.

As presented in the introduction, there are two dimensions of open innovation: inside-out and outside-in (Chesbrough *et al.*, 2006, 2014; Chiaroni *et al.*, 2011; Gassmann *et al.*, 2010). NZMed has not been engaging in inside-out activities. As explained by one of the product development managers, '*While a number of patents acquired by (NZMed) are not used because they do not fit the current business strategy, these patents are still acquired and retained in the firm as the company strategy might change and these patents might become useful'.* However, from our data we can see that NZMed's project level organization members have frequently engaged in outside-in activities by seeking to leverage the expertise of external parties during their innovation projects. These open innovation practices at NZMed consisted of non-pecuniary activities (Dahlander and Gann, 2010), which did not immediately result in financial rewards for the external party, as these activities involved end-users and medical professionals or suppliers and potential suppliers.

At the time of this research, seeking ideas for new products or improvements to existing products along with seeking advice and feedback on conceptual designs or quality of products from end-users and medical professionals was an integral part of NZMed's R&D model. As explained by the group manager:

> *Top management at (NZMed) insist that the engineers involved in R&D be out there interacting with the users and potential users of their products. They insist that engineers go out into the hospitals, understand what is happening, try to understand the market and come up with new ideas.*

The reasoning behind this is that by being out in the field, the engineers are able to think practically, identify potential issues that may arise, get a feel for what will work and what will not. The group manager illustrated this with an experience he had speaking with an engineer from another company:

> *I had an interesting experience with someone who had been a chief designer of a competitor's product and I asked him about his product and said, 'do you not think this particular thing might happen when it is in use'. And he said 'oh I do not think so'. And I said 'in ICUs this happens all the time'. And he said 'oh I do not know I have never been into intensive care'. Which to us is amazing, we would not let anyone start to design something without having ever gone to hospitals. So, it is a different philosophy.*

NZMed's organization culture encouraged organization members to interact with end-users and medical personnel. As stated by the CEO:

> *We work hard to encourage collaborations and access to clinicians and ultimately their patients because it is impossible to determine what the needs might be, how we can improve care and then test the ideas without access to the clinicians.*

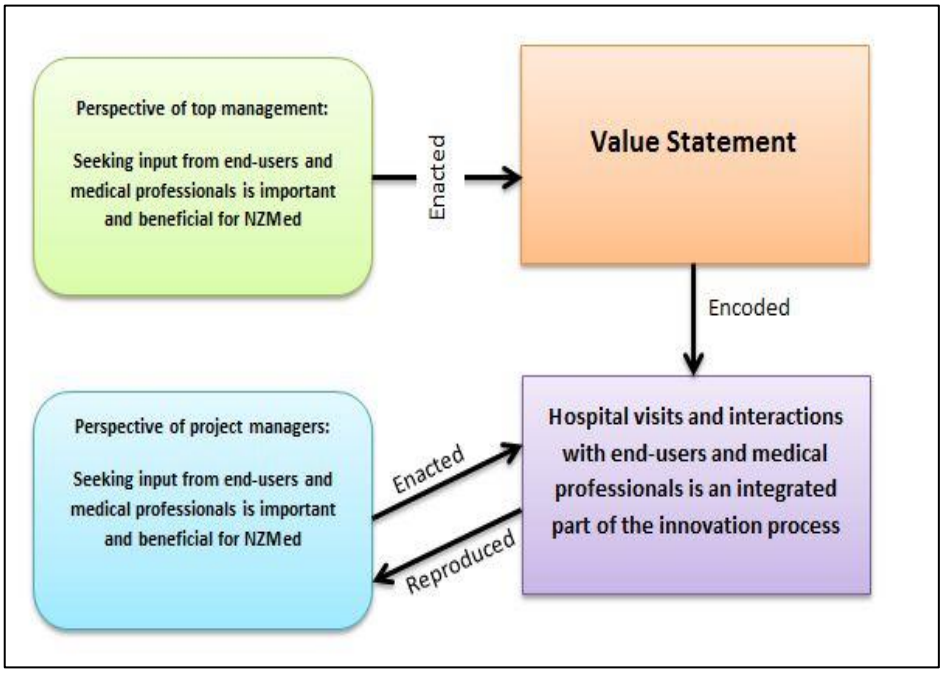
Consequently, project level organization members routinely visited hospitals and sought input from these stakeholders in areas they were working in as they needed to understand the needs of the end-users in order to come up with products that will meet the company's vision of improving patient care and outcomes. According to the group manager, NZMed had developed close working associations with a number of hospitals and clinicians. These associations

offered the firm valuable opportunities to test emerging technologies and have access to world-class medical expertise. This is because it enabled NZMed to test the clinical efficacy of their prototypes in a hospital environment, investigate patient responses, and test the reliability of the product before seeking U.S. and European regulatory approvals, and committing to high volume manufacturing and commencing worldwide distribution. It also enabled NZMed to make modifications to prototypes in response to these processes, and start the next cycle of testing, within a relatively short period of time (NZMed, 2001).

NZMed's value statement, which was frequently mentioned during formal meetings, was displayed in the company's reception area, and was on the company website as well as in every year's annual report. This value statement also emphasized the importance of understanding patient and end-users' needs. The purpose of this value statement was to communicate with the organization members top management's belief that it was beneficial and important to interact with end-users and medical professionals to understand their needs.

Consequently, from the interview data and as shown in Figure 1, it can be inferred that organization members both at the project level and at top management level shared the view that seeking input from end-users and medical professionals was important and beneficial for the firm, and effort should be made to develop and maintain long-term trusting relationships with these stakeholders.

Figure 1: Impact of value statement on the micro-processes of product innovation



This view had been encoded into the value statement by top management, while the project level organization members enacted this view through their frequent hospital visits and interactions with end-users and medical professionals. As both groups shared this perspective, the routines of project level organization members were consistent with the value statement and as a consequence of the reproductions of these routines, seeking input from these external parties was second nature and part of the innovation process.

As explained by the group manager, NZMed's location was very helpful in management's endeavours to develop long-term relationships with hospitals. NZMed was the largest player in their region with the other local firms in this field not being direct threats due to both their size and their different areas of specialization. Thus, NZMed did not have direct competitors locally, which meant NZMed did not have to compete for exclusive arrangements with hospitals to gain access to clinicians and patients. Instead, as in one case, the hospital approached NZMed's top management and offered to work with NZMed organization members. As explained by the group manager:

> *They approached us probably 20 years ago and said we would love to work with you. Is there something we can do to work together and that is how our relationship with them started and that is one of our strongest and most enduring external relationships*.

This belief was shared by top management and was evident from the interview with the CEO. Management at this level were confident that they would have a steady flow of relevant project ideas coming to them from their highly skilled employees and people interested in working with NZMed. Hence, there was no need to invest large amounts of resources in searching for these opportunities.

4.2 Micro-level processes not encoded on activities

While NZMed had been successful in attracting some good opportunities, collaborations with research institutes such as universities and research institutes were rare, which the organization members at the project level attributed to the top management's views on IP ownership as epitomized by this quote from the group manager:

> *For us there is a fairly narrow range of situations where we see the ability for open innovation and that tends to come down to an intellectual property issue. That is, whether we can ring fence the IP and make sure that we do not open ourselves to a situation where there is a dispute about who owns the IP*.

The top management's hard line on IP ownership had been a hurdle for open innovation practices around radical or semi-radical innovation[5] as it made it difficult for organization members to find external parties such as universities and research institutes who were willing to work with them. As explained by the CEO:

> *Historically we have found it quite difficult to work with entities in (country) as our view is that we own the IP but that is not necessarily the other organization's view. So, in the end we just walk away and say sorry we are paying for it, it is ours. We own the IP. It is fine if they do it independently and take the risk and fund it themselves. Then come and sell us the IP. That is fine. But if we are paying for all the costs associated*

[5] Semi radical innovation is in-between incremental and radical innovation and involves substantial changes to either the business model or the technology an organization has used in the past (Akroyd and Maguire, 2011).

with it, we expect to own the IP and quite often it is difficult to get an agreement on that.

The CEO reiterated that if there were opportunities where they came across somebody who was not from within the organization but had parallel interests and was working in areas applicable to NZMed, management did not have a problem with the project level organization members pursuing those opportunities in collaboration with the external party. However, the primary rule for the organization members was to establish the ownership of IP upfront. The CEO believed there was no point in going on with something if they did not know where the IP was going to reside. This view was also shared by the group manager who stated:

As much as possible the responsibility is pushed down to the organization members where we say to the people, if you want to engage with someone external, tie up the IP, make sure that you have this covered from a legal perspective and then whatever you do after that is up to you. So, I guess what we are heading towards is having some sort of over-arching agreement in place early on and we would like that to be very simple, very straight forward and again just covering IP.

To support the project level organization members with this, NZMed had legal and IP people in-house whom they could turn to for help in negotiations and preparation of contracts. On the IP ownership note, the group manager also stated that NZMed did not license out its IP and they tried very hard not to license from other organizations as well. The reason for this was top management's belief that it was easier to own and manage the IP themselves as the interactions can become quite complex otherwise. This was explained by the group manager as follows:

There are a couple of reasons for (NZMed's) hard line on IP. Firstly, if you start putting royalties on a product, that compromises your margin and you end up in a situation where if you take a product for argument sake and it had a 10% margin on it and you used three pieces of someone else's IP. If they all asked for 2% royalty, then all of a sudden, your margin has gone to 4% and it is not looking viable anymore… The other issue is just around the management of who owns what parts of that IP… So, I can only think of a couple of very rare exceptions where we have not insisted on owning the IP. That would be our default position to insist on that before we began even preliminary discussions.

These top management views on IP, which had been formalized into rules around confidentiality and IP ownership, had resulted in very few instances where organization members persisted in collaborating with large external parties such as universities and research institutes. However, the rules on IP ownership had not hindered collaborations at the project level with another set of external parties that is, suppliers or potential suppliers, as explained in the next sub-section.

At the time of this study, project teams frequently approached suppliers and potential suppliers and sought input into problems they identified for the projects they were working on, such as the one described below. However, this routine practice of seeking input from this group of external parties did not enact the formalized rules around IP as discussed above. Instead the project level organization members by-passed the process of holding upfront discussions about IP ownership, as they believed IP ownership was not an issue in most cases.

Interviews with project leaders and product development managers suggested that while they empathized with top management's concerns regarding confidentiality and profit margins, they also recognized the hindrance these rules presented for their ability to seek valuable knowledge from external parties. As explained by the project leaders, the IP negotiation processes were very time-consuming that resulted in lengthy unproductive debates. These processes delayed the team's development efforts and impacted on their time-to-market measures. As discussed above, NZMed's interest was to own and manage the IP themselves to avoid operational complexities and loss of margins. However, most of the bigger research institutes, which could provide valuable knowledge and research prospects for NZMed, tended to also want ownership of the IP. This resulted in a breakdown in communication, as exemplified by one of the project leaders:

> *Look at our relationships with universities. It is classic because there is IP involved and they are developing stuff for us and they get really tricky. You get lawyers involved and the whole thing shuts down. It is exactly what has happened with various universities over time. The way to start up again is avoid the lawyers completely and try and avoid IP so it is not a problem.*

Consequently, the project leaders explained that when they believed they did not have the expertise in-house and required help from external parties, they first determined what they needed help with. In other words, as explained by the project leaders, during the conceptual design stage they identified specific items they needed to develop for their projects, for example, extrusion, different types of tubing, or clips. Then they went with a very specific requirement to someone they thought had the expertise to help them develop it, rather than just having a broad conversation about what the organization members were roughly thinking about doing. The project level organization members believed that one of the advantages of external collaborations was that external parties with expertise could drive the collaborations, bringing in pre-existing knowledge rather than NZMed organization members trying to learn from the beginning. Therefore, things that external parties were able to figure out in a couple of days would probably have taken a lot longer if attempted in-house. Hence, the general consensus among project level organization members was that it made more sense to collaborate with external parties on things that were not the firm's core business, as this allowed them to work on aspects of projects that they had strength in.

The consequence of the organization members' approach was that the engineers needed to do a lot of the research work in-house before they approached an external party for help with development. While this approach worked for incremental and semi-radical innovation where the engineers had some knowledge in that or a related area, it restricted the company from exploring the more radical opportunities, as with these opportunities, the external researchers generally did not want to surrender their IP too easily as they wanted to keep control of the invention. However, NZMed's organization members believed this was not in NZMed's best interest; hence, they tended to work on radical opportunities in-house while collaborating with local suppliers or potential suppliers on small specific development problems where IP ownership was not an issue.

The project managers indicated that they preferred working with small local vendors because they could frequently meet the vendors face-to-face and resolve issues in a timely manner, as opposed to dealing with someone in another country. The project leaders explained that

NZMed's projects tended to require a lot of prototyping and the teams preferred to be able to physically see the prototypes before they proceeded. They believed this would be difficult or very time consuming if they were dealing with foreign companies. As stated by one of the project leaders, '*We prefer to have them locally, prefer to have them English speaking, prefer to actually go there, sit down with them and look at the problem and that is hard when they are not in (country)'.*

With the associations they had with local vendors, the project teams were able to visit the vendors, or the vendors came to NZMed on an as-needed basis. That frequency of face-to-face interactions was the foundation of trust that they had built with these external partners. As stated by one of the project managers:

> *We have been in situations where people have offered us to develop specific tubes, but they want two hundred thousand dollars to develop it or something. We do not trust them. We do not know them from a bar of soap. We have no confidence that they could even do it. So, the discussion does not even start. You just go I will try and find something else.*

Hence, the general perception among project managers and project leaders was that they could trust the local vendors and build good working relationships with them because they could interact with them face-to-face and resolve any issues as they arose. In addition, one of the project managers suggested that they also considered the size of the vendors when seeking input as reflected in this comment:

> *We prefer to work with vendors that are small enough to care about us but big enough that they can stand on their own. We do not want [the situation that] if we change and stop buying their things, they would go out of business. It is preferable that we are not the biggest customers and that they are prepared to work with us and not that you just get what you get.*

Moreover, as NZMed was the largest player in the sector, it had the power to leverage off local vendors whose interests were scoring a supply contract with a big manufacturer. Having a company like NZMed as one of their customers would immensely benefit these vendors' operations. NZMed's project level organization members strongly believed that this commercial motivation enticed the vendors to help NZMed project teams with their development issues without any regard to IP ownership. As stated by one of the project leaders when describing some of the collaborative projects he had worked on, '*They had commercial motivation that we would be buying in large quantities later and that is probably the most common way we do it at the moment'.* As NZMed organization members tended to approach vendors that had the expertise to deal with the specific problem they wanted external input on, the solutions provided by these vendors were usually incremental innovations of the vendors' processes, for which obtaining patents was difficult and not necessary. Obtaining such patent for these small local vendors was very costly and imposing them would have been close to impossible. So, for these vendors the cost of IP ownership outweighed the benefits. Consequently, the absence of conflict of interest over IP ownership enabled NZMed project teams to develop and maintain collaborative relationships with small local vendors for over a decade and this was likely to continue in the future.

Despite the fact that this routine of collaborating with local vendors was decoupled from the IP rules, NZMed's top management did not condemn the practice. As commented by the CEO:

> *We would be delighted to have collaborations if they worked. We are not fundamentally opposed to it at all but our experience has not been good in finding external innovators for lack of a better word that are aligned with what our particular needs are*.

In other words, top management at NZMed had identified the search for suitable partners whose interests were aligned with NZMed as a challenge for external collaborations. This is consistent with the findings from previous studies looking at challenges of open innovation (van de Vrande *et al.*, 2009; van der Meer, 2007; West and Gallagher, 2006). However, despite this challenge the project team members were able to collaborate successfully with suppliers and potential suppliers to fulfil the needs of the innovation projects. The project leaders believed that in most of these cases it came down to the fact that external parties collaborating with them got some benefit for helping them to develop.

As explained by the project leaders, they did not need to follow any formal processes or procedures to find or approach external parties. The project teams found the firms that they believed were helpful through their own sources or through searches on the internet. There was no centralized group that helped the teams with this activity. The problem with this was that there were people within NZMed that held valuable information such as suppliers that had worked for them in the past that were helpful and ones not to approach. This information could have been helpful, but until recently they were unable to share it with the relevant people, as it was not done systematically.

The organization members started the process of collaboration by talking to people that they believed might have the expertise they needed for their project; for example, extrusion companies with different technologies or tube suppliers. At this stage there was no arrangement to pay the external parties or enter into any formal arrangements. However, when searching for external expertise the project managers operated on the basis that NZMed was a large company; one of the identified companies would be the potential supplier, and so, the external companies had commercial motivation to work with NZMed to research and develop an item. Consequently, as suggested by a number of the project leaders, they had in the past persuaded external parties to enter into an arrangement by conveying to them that NZMed was a big player, so collaborating with them would be worth their while. For instance, in explaining one of the projects the project leader stated, '*We said to them that if it works out then the production is yours'.* While this strategy convinced some external parties to work with NZMed on that project, as pointed out by another project leader, '*That is a really dodgy thing to say because that would be an engineer making the commitment who has got no control over future purchases'.* A third project leader added to this, saying:

> *The external party can pretty much trust you [the engineers] that you are going to put the business with them because you have been through the pain and the heartache with them. The only problem is that in two years' time when you are doing something else and someone is trying to reduce the cost of the product, they do not have any of that loyalty.*

This could destroy the trust that one group of engineers had developed. While the advantage of the above approach to NZMed was that project managers could start collaborating almost

immediately as opposed to going through long discussions and paperwork to put a contractual agreement in place, the problem with this approach was that it created false expectations that could result in NZMed damaging its reputation and compromising future collaborations. As explained by one of the project leaders, this problem had already arisen in one of the divisions of NZMed where a number of the suppliers came back and expressed their anger because they basically spent all their time developing products in collaboration with the project team and then in the first year of production, the manufacturing was outsourced to an overseas company that offered a cheaper price. As a result, the external collaborators felt cheated as they did not benefit from the collaborations at all.

Therefore, the project level organization members' view was that the ideal situation for NZMed was where a project team was able to easily approach external parties who were willing to work with them without entering into a formal contract at the outset. However, they also agreed that these arrangements should be based on trust and the possibility of future collaborative projects with these external partners should not be compromised. The following comment by the group manager adequately summed up the view of project level organization members:

> *We are not looking so much for what I would describe as a transactional-based approach. We are looking for a more relationship-based approach. So, for example, we would, or I would prefer, and I think this represents the company's view to a large extent, we would prefer to have an arrangement where we are working together with a researcher, without tying ourselves down to very specific project goals, milestones, etc. because to be innovative as a company you need to be prepared to follow things as they develop.*

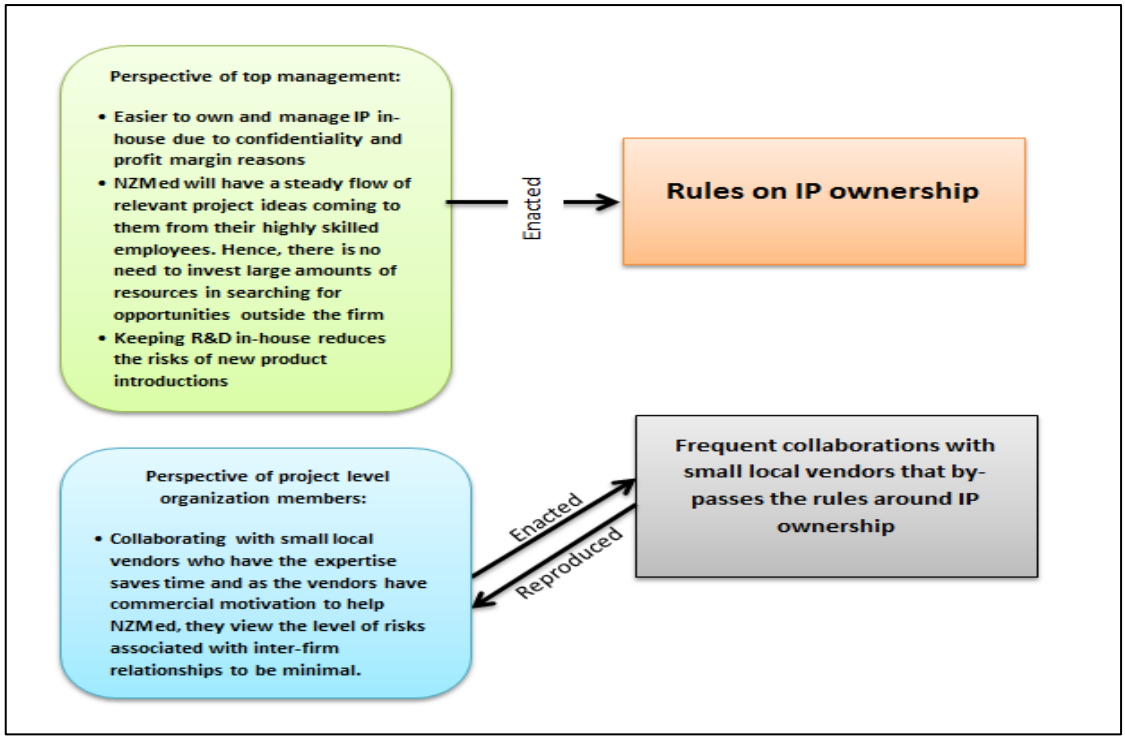
One of the project managers suggested that the key to building these trusting relationships was being upfront and saying to the external parties during initial discussions that:

> *We will make it worth your time while we are doing the project and we may give the manufacturing opportunity to you for a specified period of time; however, we cannot guarantee the results. In that way it is a bit more formal without putting everything down on paper during initial R&D work.*

The project level organization members agreed that when selecting external partners, they needed to find firms or people that were willing to work with NZMed and that had certain competencies. The project level organization members added that these external parties actually had to be willing to widen their own competencies so that NZMed could collaborate with them on different projects that required competencies in their field of expertise. For example, an extrusion partner should have been able to help NZMed with extrusion problems relating to various materials. They also needed to be capable of dealing with different problems because, as stated by a project leader, '*The only reason we are going to someone else is because we do not have the capital equipment and the expertise behind that here. Otherwise we would jump on and try it ourselves'.*

Thus, where the perspectives of the top management and the project level organization members differed, and the project level organization members had the ability to by-pass the formalized rules implemented by top management, decoupled routines emerged (see Figure 2).

Figure 2: Impact of IP rules on the micro-processes of product innovation



4.3 Micro-level processes and MCS

To address the underlying research question around understanding the influence of formalized MCS on the micro-level processes at NZMed requires the analysis of the formalized MCS that applied to the innovation function at NZMed. Therefore, drawing on Simons' (1995) LoC we examine the MCS which is outlined in Table 2 and discussed below.

4.3.1 Belief Systems - As shown above, the top management's view was that organization members at the project level needed to understand the current and future needs of end-users in order to fulfil the company's vision to develop devices that could improve patient care and increase NZMed's growth opportunities. Therefore, top managers insisted that the organization members interact with end-users and medical professionals. This was seen as a core value for the firm and was documented in the company's value statement. This value statement was seen as a belief system put in place to guide the behaviour of organization members. It did not tell the organization members what to do but it highlighted the values that the organization members needed to exhibit in their day-to-day activities.

The project managers and the leaders argued that the existence of a value statement that highlighted the importance of understanding the current and future needs of patients had resulted in the organization members at all hierarchical levels recognizing the need for project level organization members to build a strong relationship with hospitals. This recognition was depicted in the routine visits to the hospitals by project level organization members where they interacted with patients and medical professionals to enhance their learning and product improvements.

Table 2: MCS relevant to NZMed's product innovation

Key Constructs	Management concerns at NZMed	Levers of Control	Formalized MCS in the Innovation Function
Core Values	Understand the current and future needs of end-users to develop devices which could improve patient care and increase NZMed's growth opportunities.	**Belief Systems**	**Values Statement:** - This statement outlined the basic values believed to be fundamental to NZMed's success, which was frequently communicated to the employees, was displayed in the company's reception area and was on the company website as well as included in every year's annual report.
Risks to be avoided	Valuable information leaking to competitors allowing them to capitalize on it by taking away NZMed's market share Committing to business arrangements that would compromise the quality of their product and reduce profit margins.	**Boundary Systems**	**Rules around confidentiality and IP ownership:** - NZMed's default position was to own all the IP related to their products as this avoided operational complexities and NZMed did not have to share the profit margins. Therefore, teams working on a project involving IP needed to get a written agreement on IP ownership (approved by NZMed's legal team) before they engaged in any further discussions with an external party. - All external parties working with NZMed needed to sign confidentiality agreements to avoid classified information leaking out to competitors.
Critical performance variables	Product quality and compliance with regulatory requirements. Dealing with technical problems with the project on a timely basis. Ensuring R&D costs were within acceptable levels that NZMed could afford.	**Diagnostic control systems**	**Design control tests:** - These tests were designed to meet the critical performance variables around quality that NZMed needed to comply with as outlined by the relevant regulations. **Formal project reviews:** - Frequent face-to-face meetings between project teams and other relevant parties to discuss progress of the project, issues and ways to solve the issues. **Budget** - The budget was used by top management to make decisions regarding projects they could afford to undertake and also to monitor revenue and expenses to ensure they were in line with expectations.
Strategic uncertainties	Changes in the market and competitor technological advancements that could derail the company's vision.	**Interactive control systems**	**Business Planning Process** - This process involved macro-level analysis to identify any changes in the market and determine the business plan including the selection of projects to be carried out during the year.

Moreover, as explained by the project leaders, healthy collaborations at the consumer end of the value chain had given project level organization members the confidence to seek input from external parties at the supply end of the value chain as well. The view among the organization members was that by seeking input from external parties they were learning and increasing their knowledge. This contrasted with the view identified by previous studies where the organization members believed they possessed all the required knowledge to develop their products and services (Biswas and Akroyd, 2022; Chesbrough and Crowther, 2006). Unlike the findings of previous studies, there was no evidence of any internal resistance among the project level organization members at NZMed that challenged the use of open innovation

practices involving end-users and small local suppliers. However, there was a difference of opinion between the top management and the project level organization members in relation to the rules on IP.

4.3.2 Boundary Systems - The second set of formalized MCS identified at NZMed was the rules around confidentiality and IP ownership. These MCS acted as boundary systems to set the limit on what organization members could do to protect the firm from the risks of valuable information leaking to competitors and the risk of committing to business arrangements that could compromise the quality of NZMed's products and/or reduce profit margins. The purpose of these rules was to eliminate external partners that did not share NZMed's interests. However, the discussions with project leaders, product development managers, and the group manager all suggested that there was a difference between the project level organization members organization members' routines in relation to seeking external input from suppliers during the innovation process, and the expected action as per these formalized rules around IP as they sought input from local vendors without going through the formal IP negotiations first. In other words, the routines (Quinn, 2011) were decoupled from the formalized MCS (Ribeiro and Scapens, 2006). While the rules on IP required collaborations to be based on contractual agreements determined through a negotiation process carried out prior to any project discussions with external parties, the organization members at the project level tended to bypass the process of negotiating contractual agreements and instead attempted to build long-term associations based on trust and mutual understanding.

As discussed above, this decoupling was not due to tensions and conflicts among organization members as found by Ribeiro and Scapens (2006) and Nor-Aziah and Scapens (2007). Instead, in line with Cruz *et al.*'s (2009) finding, the decoupling was the consequence of multiple logics informing the consciousness of organization members. For instance, top management's logic in formulating the rule was that going through the formal negotiation process and entering into a contractual agreement would avoid operational complexities at the later stages of the innovation process. However, the project level organization members' logic was that if they were approaching small local vendors with specific development requirements where IP ownership was not an issue, there was no point in going through the lengthy formal process. This was because, firstly, the formal process caused unnecessary delays in their development time and, secondly, as they were dealing with innovation there was high uncertainty around whether the project would proceed to the next stage of development. Therefore, the later stages of the innovation process that top management was concerned about might not have even eventuated. In that case, going through the lengthy negotiation process would simply have been a waste of time and resources. Consequently, the difference in logic between top management and project level organization members had resulted in the organization members circumventing the formal rules around IP and establishing relationships with external parties based on trust and mutual understanding. The reproduction of these actions over time had been recognized as a routine that was decoupled from the formalized rules, which continued to be enacted by the organization members.

However, it is important to note that although these decoupled routines existed in the firm, the formalized rules on confidentiality and IP ownership were not entirely redundant. As explained by the project managers, organization members enacted these rules when they perceived IP ownership was an issue or when they believed the threat of sensitive information leaking into

the public domain was high. However, these actions were rare relative to the routine of seeking input from external parties by bypassing the formalized rules.

4.3.3 Diagnostic Control Systems – These formalized MCS included the design control tests, formal project reviews and the annual budgeting process. NZMed was operating in the medical devices industry. That meant that NZMed needed to comply with several regulatory and industry requirements to ensure the product launched in the market was of satisfactory quality. Recognizing the consequences of failing to meet these requirements, top management at NZMed had integrated these regulatory and industry requirements into these design control tests. The importance of these tests was appreciated by the project level organization members and was encoded in their routines at the design control stage. Some of these tests were also used by project leaders when selecting external parties they had not previously worked with to ensure the quality of their product was not compromised.

There were two types of formal project reviews. Firstly, the design reviews where the project team met with an independent manager, one quality engineer, and a regulatory engineer at particular milestones to discuss the progress of the project and ensure that everything prior to that milestone was complete and acceptable. The requirements of this MCS were encoded in the routines enacted by the project level organization members at the design control stage of their innovation projects. Secondly, NZMed had project reviews that the project level organization members referred to as '*deep dives*'. At these meetings, the project managers and the group manager met with the top management including the CEO (and occasionally the Chairman of NZMed) where they discussed the innovation projects that were in NZMed's innovation pipeline. The discussions centred around the progress of current projects, any issues that may have come to light and ways those issues could be resolved. Similar types of project review meetings were also held with innovation partners on a regular basis. Although there were no formalized rules around these reviews, the project level organization members' logic was that by regularly meeting the representatives of the external partners face-to-face, they were able to identify and deal with any issues such as technical problems, on a timely basis. These meetings also allowed the parties to build trust and a mutual understanding.

The final diagnostic control system was the formal annual budgeting process. The project level organization members argued that the annual budget was not an impediment to their work. The CEO explained that, this was because top management believed that while the budget was useful for managers for decision-making as well as monitoring revenue and expenses, they also believed that being required to rigidly adhere to the budget would be a distraction for project level organization members, taking their time away from their day-to-day activities. This view was exemplified in the following comment from the group manager:

> *We are keeping a close eye on R&D expenditure at a higher level but we trying not to tie up every individual manager worrying about every last dollar sort of thing and I think it is working well.*

Therefore, while the budget process was part of the routines performed by top management, the actions of project level organization members did not directly involve the use of the annual budget. As explained by one of the project managers, the only time they were reminded of the existence of the budget was if the teams were very close to exceeding the funds allocated to the R&D divisions, which only happened on rare occasions. Therefore, the annual budget was not directly involved in the routines of project level organization members.

4.3.4 Interactive Control System - Another formalized MCS was the business planning process. This process was an interactive control system that allowed top management to identify and respond to strategic uncertainties such as changes in the market or advances in competitors' technologies and product offerings. This process was performed as per the formalized requirements once a year, when the projects to be carried out that year were selected. However, the interactions project level organization members had with external parties such as end-users and medical professionals also helped them identify issues that had strategic implications for NZMed. As these issues required urgent response, an alternative path of project approvals had also been applied which was complementary to the formalized MCS and viewed as being an effective way of dealing with the emerging uncertainties in a timely manner.

5. Discussion and Conclusions

The findings from this case study show that the conformity of micro-level process in relation to the MCS (Simons' LoC) was dependent on the enacted values and perspectives of the project managers, including their interpretation of the effect that MCS had on their ability to meet organizational goals. In particular, we found that when the espoused values reflected in the MCS were aligned with the enacted values and perspectives of the project management, the everyday innovation practices of the project teams encoded the MCS. However, where the top management's perspectives and the project managers' perspectives differed, the project managers adapted innovation practices which they believed were necessary to achieve the best outcomes for the company.

Unlike previous studies which suggest a misalignment between espoused values and enacted values can be toxic for an organization, unhealthy for the culture and negatively affect performance (Marie Schuh *et al.*, 2006; Gray *et al*, 2017; Howell *et al.*, 2012), we found that the misalignment helped the organization maintain a high level of innovation, build long-term trusting relationships with suppliers which improved organizational performance. The project teams demonstrated that bypassing the MCS could speed up the innovation process which helped to launch products faster and reduce costs. This allowed more projects to be carried out resulting in more innovative products being added to the firm's product offering which contributed to their steady growth. This finding contributes to our understanding of the interrelationship between control levers in Simons' (1995) LoC framework as even when MCS are not encoded on organization members the awareness of the different control levers can still have an effect on how organization members carry out their activities which can influence goal achievement.

We found that even in instances where the micro-level processes did not conform to the MCS e.g., the rules around IP negotiations, the existence of these mechanisms at least made organization members informally evaluate the risks they needed to avoid. For instance, where possible, project teams restricted their search of collaborative partners to local organizations that were geographically isolated from the competitors. This allowed them to minimize the risk of confidential information leaking to competitors despite them bypassing the legal confidentiality and IP negotiation process. While on the face of it, the micro-level processes did not conform to the MCS in place, the MCS still influenced the micro-level processes. This finding implies that research evaluating the effect of MCS and how they change, needs to be careful of false negative situations, whereby micro-level processes may appear to be decoupled

and interpreted as the MCS having no effect when, despite being decoupled, the MCS can informally still shape the micro-level processes of organization members.

The decoupling phenomenon is not new to the management control literature as studies have found that organization's MCS are not always coupled with the organizational routines (Lukka, 2007; Nor-Aziah and Scapens, 2007; Quinn, 2011, 2014). However, we contribute to this research by showing how it might be possible to distinguish between rules which show how things should be done and routines showing how things are actually done in practice (Lukka, 2007; Nor-Aziah and Scapens, 2007; Quinn, 2011, 2014; Sawabe and Ushio, 2009).

Another issue faced by researchers when trying to use institutional frameworks relates to the ambiguity surrounding the definition of routines (Burns and Scapens, 2000; Quinn, 2014, 2011). Burns and Scapens (2000) suggests that routines are not action per se and are largely tacit which makes them difficult to observe and compare. Hence, our findings may also offer a pathway for researchers examining the influence of MCS on micro-level processes and the decoupling phenomenon.

Our theoretical view draws on the institutional logics literature (Ancelin-Bourguignon *et al.*, 2013; Cruz *et al.*, 2009; Lounsbury, 2007) and Burns and Scapens' (2000) processual view of organizational routines and their institutionalization (Cruz *et al.*, 2009; Lukka, 2007; Ribeiro and Scapens, 2006; ter Bogt and Scapens, 2019). This literature proposes the study of both actors and their practices. Apart from the criticisms in the literature regarding the conceptualization of routines, we argue that the use of actions instead of routines as the unit of analysis may help the analysis of these situations because the people who are doing the activities can more easily describe their actions. Moreover, in organizations like NZMed, actions relating to functions like innovation are documented to keep track of what activities were performed, in case they need to replicate the activities, or undertake an audit for quality assurance purposes. Hence, researchers can utilize a number of data sources including interviews, document analysis and observations to identify the actions that constitute the practices.

We also acknowledge that each individual may have different beliefs and views. The project managers may disagree with each other's views, but their actions constitute the micro-level processes that represent the dominant view among the group. Similarly, the members of the top management group may have separate views and ideas, but for them to be visible in the MCS there needs to be consensus among them. For instance, the CFO or CEO would need to get the other top managers to agree on any changes to the MCS before they can be actioned.

In conclusion, we found that by separating the MCS from the practices of project teams enabled us to focus on the gap between the design and use of MCS and the micro-level processes of organization members. This helped us recognize the existence of different perspectives within the organization and the impact these different perspectives had on the micro-level processes within the organization. This principle is aligned with the institutional logic literature that provides evidence of the co-existence of multiple logics within an organization informing the consciousness of the organization members and leading to practice variations (Cruz *et al.*, 2009; Lounsbury, 2008). The literature on institutional logic suggests that the consciousness of organization members is influenced by unquestioned norms, assumptions and beliefs existing at the macro-social level (Ancelin-Bourguignon *et al.*, 2013; Lounsbury, 2008).

However, in this study we show that the organization's MCS and organization members' interpretations of the MCS also influence the perspectives of organization members.

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