HOW MANAGEMENT CONTROL PRACTICES ENABLE STRATEGIC ALIGNMENT DURING THE PRODUCT DEVELOPMENT PROCESS

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ABSTRACT

Purpose – *This paper examines how the management control practices of organization members enables the alignment of product development projects with potentially conflicting corporate strategies during the product development process.*

Methodology/approach – *Using an ethnomethodology informed research approach we carry out a case study of an innovative New Zealand food company. Case study data included an internal company document, interviews with organization members from new product development (NPD), marketing and finance functions as well as an external market analysis document focused on our case study company and its market.*

Findings – *Our case study company had both sales growth and profit growth corporate strategies which have been argued to cause tensions. We found that organization members at our case study company used four management control practices to enable the alignment of product development projects to these strategies. The first management control practice was having the NPD and marketing functions responsible for different corporate strategies. Other management control practices included the involvement of organization members from across multiple functions, the activities they carried out, and the measures used to evaluate project performance during the product development process.*

Research limitations/implications – *These finding add new insights to the management accounting literature by showing how a combination of management control practices can be used by organization members to align projects with potentially conflicting corporate strategies during the product development process.*

Practical implications – *While the alignment of product development projects to corporate strategy is not easy this study shows how it can be enabled through the use of a number of management control practices.*

Originality/value – *We contribute to the management accounting research in this area by extending our understanding of how organization members use management control practices during the product development process.*

Keywords: Management control; product development; strategic alignment; corporate strategy; functional strategy; performance measures

INTRODUCTION

Research has shown that product development[1] is an essential process for the survival and renewal of organizations (Brown & Eisenhardt, 1995; Schoohoven, Eisenhardt, & Lyman, 1990). A review of the product development literature reveals that the alignment of product development projects with corporate strategy is a critical success factor (Acur, Kandemir, & Boer, 2012; Cooper & Edgett, 2001; Edgett, 2013; Ernst, Hoyer, & Rübsaamen, 2010; Khurana & Rosenthal, 1998). Thus, strategy should form the basis for the selection and management of product development projects (Danila, 1989; De Maio, Verganti, & Corso, 1994; Hall & Naudia, 1990; Wheelwright & Clark, 1992).

Creating and maintaining strategic alignment in practice has been shown to be challenging (Simon, Hatch, & Youell, 2008). This is because multiple strategies often compete for managers' attention within an organization (Dodd & Favaro, 2006). Corporate strategies [2] "concerned with the organization-wide decisions that focus on achieving competitive advantage" (Slater, Olson, & Finnegan, 2010, p. 228) need to be linked to functional activities so that strategy can help guide and inform the practice of organization members as they carry out their activities (Hunger & Wheelen, 2010).

Organizations, though, often have corporate strategies that are in conflict with each other. A common tension is that of profit growth verses sales growth. What many organizations find is that "going for more growth damages profitability, and working toward higher profitability slows growth" [3] (Dodd & Favaro, 2006, p. 62). Thus, not only do organization members need to align product development projects with corporate strategy they also need to manage the potential conflicts caused by these strategies.

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[1] Product development has been defined as "ideas and policies leading to the development and launch of new products and services" (Kahn, Barczak, Nicholas, Ledwith, & Perks, 2012, p. 182).

[2] Corporate strategy has been defined as "how a company creates value by differentiating its products or services from its competitors" (Simons, 1992, p. 44).

[3] A recent example of this is General Motors who according to Nagesh & Stoll (2015, p. B1) are focused "on improving profit margins, not chasing market share."

In this paper we use an ethnomethodology informed research approach to better understand how organization members can achieve alignment between product development projects and corporate strategies during the product development process. In particular, we aim to show how organization members use management control practices to enable the alignment of product development projects with potentially conflicting corporate strategies. To do this we carry out a case study which examines the practices of five organization members at 'FoodCo' (a pseudonym), an innovative New Zealand food manufacturing company.

Our results indicate that organization members at FoodCo used their management control practices to enable strategic alignment by assigning NPD and marketing functions responsibility for different corporate strategies so that a single function did not have to deal with this potential conflict. Organization members then used their management control practices to enable the alignment of projects to these strategies at different product development process stage-gates.[4] This included the involvement of organization members from across multiple functions, a number of formal yet flexible product development activities, and the use of strategy focused financial and non-financial project performance measures.

The remainder of the paper is organized as follows. The next section introduces our ethnomethodology informed research approach. We then present an overview of the literature which this study builds on. This is followed by an overview of our case study data. We next present our case study findings. The final section discusses our findings and concludes with some limitations and suggestions for future research.

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[4] Stage-Gate ® is the registered trademark of Stage-Gate Inc. We use the term 'stage-gate' in a generic way to signify the different stages and gates of our case companies' product development process.

RESEARCH APPROACH

It has recently been argued that asking 'how' questions can add value by providing descriptions of novel contexts to show how organization members get things done in practice (Anteby, Lifshitz, & Tushman, 2014). According to Laurier (2003, p. 1) ethnomethodology informed studies are good at examining 'how' questions as they focus on "how things get done by members of particular settings with the resources they have at hand."

In this paper we use an ethnomethodology informed research approach which focuses on "developing and refining concepts induced from the field" to show how "practices are organized" (Parker, 2012, p. 57). Our ethnomethodology informed approach differs from a traditional ethnography informed approach[5] in a number of important ways. In particular ethnomethodology does not follow ethnography's "reliance on rules, definitions and meanings to provide causal explanation of order as defined by the analyst" (Pollner, & Emerson, 2001, p. 126). Instead ethnomethodology insists that "order and orderliness… are indigenously produced and appreciated features of social life" (Pollner, & Emerson, 2001, p. 126). For this reason ethnomethodology "is concerned with how members of society go about the task of seeing, describing and explaining order in the world in which they live" (Pollner, & Emerson, 2001, p. 126). Thus, this paper is focused on how organization members understand their practices not how the practices of organization members can be analyzed using an ethnography informed social theory.

Our ethnomethodology informed approach is based on the writings of Garfinkel (1967, 2002, 2006). Garfinkel developed ethnomethodology through an examination of the role of 'accounts' which he learnt about during his undergraduate studies in accounting at the University of Newark (Rawls, 2002). One class in particular "theory of accounts" which "dealt with double entry bookkeeping and cost accounting" inspired his understanding of

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[5] For a comprehensive review of the differences between ethnomethodology and ethnography see Pollner and Emerson (2001).

practice as it showed how order is produced by making things "accountable to superiors and other agencies in a variety of complex ways" (Rawls, 2002, p. 10). For this reason ethnomethodology focuses on how the practices within particular contexts are organized so as to make them accountable to others (Garfinkel, 2002).

To examine how things are made accountable ethnomethodology believes in the "objective reality" (Rawls, 2002, p. 2) of social facts, which Garfinkel (2002) argues can only be understood by organization members in their local context. It is important to note that the ethnomethodology meaning of 'objectivity' is not defined in terms of a specific set of methods for collecting data but in terms of making sure that the phenomenon is adequately described (Sharrock & Anderson, 2012). For this reason ethnomethodology "does not have the kind of concern for methods of data collection which are so prominent in the methodological literature" (Sharrock & Anderson, 2012, p. 107).

Following an ethnomethodology informed research approach, we collect data using a case study method focused on the practices of five organization members involved in the development of new products. This provides us with the context specific knowledge necessary to show how these organization members understand the order created by their management control practices so as to make themselves accountable to other organization members.

The use of an ethnomethodology informed research approach is growing in the management accounting literature. Jönsson and Macintosh (1997) have stated that ethnomethodology could play a valuable role in understanding how practices work in actual organizations. This has led to a number of recent accounting papers using an ethnomethodology informed approach (see for example; Akroyd & Maguire, 2011; Balzli & Morard, 2012; O'Grady & Akroyd, 2015).

To gain this perspective we collect and analyze case study data from an organization which develops many new products each year. Our data includes an external and an internal

document as well as interviews with five organization members who were involved in product development activities. Our focus is on how these organization members go about understanding the order created by their management control practices which enabled the alignment of product development projects with potentially conflicting corporate strategies during the product development process.

To connect our ethnomethodology informed research approach to mainstream management accounting discourses we frame this paper around the management accounting and product development literatures.

LITERATURE REVIEW

Cooper, Edgett, and Kleinschmidt (1998) argue that the main role of strategy during product development is to guide the actions and efforts of organization members. They show that product development projects need to be 'on-strategy', meaning each project should fit with corporate strategy. For example, if the corporate strategy is market share, then the majority of its product development projects should be designed to grow the business.

Management accounting research has shown that management controls can be useful tools in uncertain environments such as product development (Chenhall & Morris, 1986; Dent, 1990; Kren, 1992; Simons, 1987). Uncertainty during the product development process is caused by a lack of control over the outcome-input relationship, market-related uncertainty, technology-related uncertainty and project scope (Davila, 2000). While many actions and decisions must be made to launch a new product, the profitability of the product and the value and desirability of its features will not be known until it is launched. Thus, complexity in this context arises from the pluralistic requirements of multiple functions which are involved during the product development process (Jørgensen & Messner, 2010).

At a broad organizational level research has shown that firms seek strategic alignment between their corporate strategies and functional activities through the use of various management controls (Simons, 1995, 2000; Tucker, Thorne, & Gurd, 2009). It has been noted that researching management control in a product development setting should not be limited to traditional accounting control practices but needs to include a much broader set of organizational processes (Davila, 2000) which focus on the practices of organization members that take place during the product development processes (Davila, Foster, & Oyon, 2009).

The use of a stage-gate product development process is a common practice in many organizations (Song, Song, & Di Benedetto, 2009). A recent review of "the contemporary art of cost management methods during product development" by Wouters and Morales (2014, p. 259) shows that there have been only six management accounting papers in the 40 journals they survey that have been published on the stage-gate process. We aim to extend our understanding of the use of management control in this setting by showing how the involvement of organization members from different functions, the activities they carry out, and the performance measures used evaluate projects can enable alignment between product development projects and potentially conflicting corporate strategies.

The following sub-sections review the management accounting and product development literatures relating to the involvement of organization members, the activities that they carry out, and project performance measures, which have all been shown to be useful management control practices during product development (Akroyd, Narayan & Sridharan, 2009; Bonner, Ruekert, & Walker, 2002; Davila, 2000; Hertenstein & Platt, 2000, Poskela & Martinsuo, 2009).

Involvement of organization members during the stage-gate process

The involvement of organization members from across multiple functions during the stage-gate process has also been shown to be an important management control practice (Danila, 1989; Hertenstein & Platt, 2000; Souder & Mandakovic, 1986; Taggart & Blaxter, 1992). Hertenstein and Platt (2000) argue that the activities which organization members are involved in during product development can affect both strategy formation and implementation. In order for organization members to fulfil these roles during the stage-gate process they need to be in a position where information about strategy and strategic change can be easily communicated in a timely manner. Moreover, receiving strategic updates improves resource allocation, as organization members can focus resources on strategically important activities (Danila, 1989).

Jørgensen and Messner (2010), show that the involvement of organization members from across multiple functions was critical to the implementation of strategy set by senior managers. In their case study organization members from different functions had different perspectives on how to achieve the strategy. Communication between them was critical in clarifying which perspective would be given priority. Once the organization members were clear about the strategic priorities they were able to implement the new strategy. Thus having organization members from across multiple functions has been argued to help achieve project transparency (Jørgensen & Messner, 2010).

Product development activities during the stage-gate process

The product development activities that take place during the stage-gate process are used for guiding products from ideation to launch (Cooper, 1993). Stage activities focus on the development and testing of new product ideas while gate activities involve senior managers using decision criteria to make decisions about which projects are given funding for the next

stage (Davila & Wouters, 2007). Firms can choose the stage and gate activities they feel are necessary for the context in which they operate (Product Development Institute Inc., 2012; Akroyd et al., 2009).

Davila (2000) argues that the main role that project activities play during the stage-gate process is to supply the information needed to reduce project uncertainty. Akroyd and Maguire (2011) support and extend this finding by showing that activities at the stages can help reduce uncertainty, while gate activities promote goal congruence[6]. Griffin (1997) found that firms which include strategic activities during their stage-gates have a higher probability of producing successful new products which align with their strategy.

While the activities that take place during the stage-gate process have been shown to be important to provide a structure to organize priorities and establish communication during the product development process, research has shown that flexibility is also important (Jørgensen & Messner, 2009). It has been argued that the flexible use of project activities can help structure the relationship between tasks and provide the basis for specific definitions of what is expected during stage-gates processes (Jørgensen & Messner, 2009). Davila et al. (2009) also discuss how both incremental and radical product innovation need formal stage-gate activities and tools that structure project execution. They argue that activities need to be flexible enough to take advantage of unexpected opportunities that arise but strong enough to maintain the desired direction. Additionally, flexibility is needed to deal with situations when product development projects do not go according to plan (Adler & Borys, 1996). For example, product testing activities may reveal problems with the product design or a competitor may release a similar product necessitating a review of the project to consider if there is still a good market opportunity.

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[6] Goal congruence has been defined as effectively aligning employees' self-interest with the organization's interests, so that employees work towards organization goals (Flamholtz, 1983).

Not all research concerning the use of stage-gate product development activities has shown positive results. Nagji and Tuff (2012), for example, argue that having a stage-gate process may harm radical innovation projects as these projects may get negative reviews at gates before they are properly examined. They argue that organization members should be encouraged to challenge early reviews and experiment with new ideas for radical product innovation to occur (Nagji & Tuff, 2012).

Project performance measures used during the stage-gate process

Simons (2000) discusses the importance of performance measurement for the successful implementation of strategy and shows that effective performance measurement acts to both formalize strategy and as a communication channel to inform employees about strategy. Performance measures can also be used to monitor and provide feedback on strategy implementation (Simons, 2000). During the product development process performance measures help communicate corporate strategy to organization members. Additionally, there is evidence that performance measures also provide feedback on the implementation of strategy (Akroyd & Maguire, 2011; Jørgensen & Messner, 2010; Hertenstein & Platt, 2000).

Jørgensen and Messner (2010) found that companies often create a formal set of rules used at decision gates to assure financial accountability. During the stages the calculation models were seen as problematic so organization members used non-financial measures to refine their understanding of the consequences of their decisions. While a general understanding of the need to be profitable influenced behaviour in their case study firm, the limitations of the financial model left room for organization members to have discussions and express different ideas (Jørgensen & Messner, 2010).

Akroyd and Maguire (2011) contribute further insight into project performance measures. Their case company used performance measures to align projects with their sales

growth strategy early in the project selection process. For example, the initial idea screen decision gate meeting started with a reminder that potential project ideas needed to be consistent with the corporate sales growth strategy. Later on senior managers used five performance measures to evaluate project ideas in relation to the sales growth corporate strategy. In this way, the firm ensured all its product development projects were aligned with their sales growth strategy from the very start.

Research has also shown that many firms use a combination of both financial and non-financial performance measures (Davila, 2000; Griffin & Page, 1996; Hertenstein & Platt, 1997; Jørgensen & Messner, 2010; Langfield-Smith, 1997; Sjoblom, 1998). Davila (2000) finds evidence that organization members place higher reliance on non-financial measures than financial measures. The logic being that good performance in non-financials can drive good financial performance.

Sjoblom (1998) suggests that while financial measures can be used to identify some problems, they have limited usefulness in operational decision making because financial indicators are lagging measures and therefore not good indicators of future performance. The time lag between costs being incurred to develop product development projects and the launch of products into the market makes it hard to measure the performance of projects in financial terms (Hertenstein & Platt, 1997; Langfield-Smith, 1997). The organization members in the case study by Jørgensen and Messner (2010) acknowledged the limits of the financial quantification of the benefits and costs of projects, due to their inherent uncertainty and complexity. Organization members dealt with this through an iterative process which accounted for both benefits and costs (Jørgensen & Messner, 2010).

The study by Hertenstein and Platt (2000) highlights additional problems with performance measurement used during the product development process. The authors found that most organizations did not have project performance measures which linked to their

strategy. This was disconcerting considering prior management accounting literature provides evidence that the best performance measures were those linked to strategy (Kaplan & Norton, 1992; Langfield-Smith, 1997; Nanni, Dixon, & Vollmann, 1992). In their interviews, product development managers believed there should be a greater emphasis on both non-financial and financial performance measures, including measures which linked project performance to strategy (Hertenstein & Platt, 2000). Davila and Wouters (2007) support Hertenstein and Platt's (2000) findings that measuring project performance is challenging and the solutions that have been proposed fall short of fulfilling senior managers' needs. Consequently, Davila and Wouters (2007) highlighted this as an area which would benefit from further research.

Summary of literature review

In summary, one stream of research has shown the importance of the link between corporate strategy and the actions of organization members. This research argues that the activities that organization members carry out can influence both strategy formation and implementation (Cooper et al., 1998; Hertenstein & Platt, 2000; Jørgensen & Messner, 2010). Another stream of research has shown that a number of management control practices are useful during the product development process. These include the involvement of organization members from across multiple functions, the product development activities they carry out, and the performance measures used to evaluate projects (Akroyd & Maguire, 2011; Davila et al., 2009; Jørgensen & Messner, 2009; Hertenstein & Platt, 2000; Song et al., 2009).

From this review we have identified a number of open questions. These include; the effect that multiple corporate strategies have on the activities organization members carry out during the product development process; understanding how organization members measure project performance; the link between financial and non-financial performance measurement and strategy during the product development process; and finally the role that organization

members from different functions play during the product development process to link product development projects with corporate strategy.

Based on this review we aim to contribute new insights to these questions through the use of an ethnomethodology informed case study showing how organization members use management control practices (including; the involvement of organization members, the activities they carry out, and the measures used to evaluate project performance) to enable the alignment of product development projects with multiple, potentially conflicting, corporate strategies.

CASE STUDY DATA

Our case study focuses on the activities of five organization members at 'FoodCo' (a pseudonym), an innovative private New Zealand food manufacturing company. At the time of our study FoodCo had an annual turnover of approximately NZ$145 (US$100) million with assets of NZ$85 (US$57) million so would be classified as a mid-sized company (The Economist, 2012). FoodCo has been operating for over 100 years and is the New Zealand market leader in a highly competitive market where it competes against both large multinational companies and small local companies. FoodCo was selected because it was actively involved in product development and innovation is seen as a critical success factor in the food industry (Winger & Wall, 2006).

Data for this case study (see Table 1 for details) includes an external Euromonitor International document which analyzed FoodCo and the market it operates in, an internal FoodCo document as well as interviews with the NPD manager, two NPD technologists, a marketing brand manager and the management accountant which were carried out in August and September 2012. The NPD manager reported directly to the General Manager and had direct day-to-day interactions with NPD members. The management accountant was involved

in strategy formulation with the senior management team (see Table 2 on page 16) and strategy implementation through interacting with NPD technologists during the product development process.

Table 1: Case Study Data

FoodCo interview data	**5 hours**
NPD manger	1 Hour
NPD technologist	1 Hour
NPD technologist	1 Hour
Marketing brand manager	1 Hour
Management accountant	1 Hour
FoodCo document	**12 Pages**
Euromonitor International document	**58 Pages**

Interviews were semi-structured, guided by a set of questions about the product development process. Open-ended questions were asked which enabled the researchers to adapt the interview to the expertise of each person without diverging from the overall purpose of the study. Furthermore, semi-structured interviews were carried out to avoid the researchers imposing predetermined views on the interviewees and to allow the interviewees to speak freely. During the interviews additional questions were asked to follow up on comments made by the interviewees or to ask questions about documents shown to us by the interviewees. The recordings were later transcribed in order to better understand what had been said and to gain a more comprehensive view of the practices of these organization members.

Even though we only interviewed five organization members they represent a high percentage of the employees involved in the development of new products at FoodCo and included; the NPD manger, two of the three NPD technologists, one of the three marketing brand managers and the management accountant. After the interviews were transcribed the

interviewees checked the content of the transcripts and provided us with follow up information. While we acknowledge that our interview data sample is small we were able to verify interview data with both an internal FoodCo document and an external document from Euromonitor International. The internal FoodCo document contained information about FoodCo's strategy (shown in Figure 1) and stage-gate product development process (shown in Figure 2). The Euromonitor International document contained information about FoodCo's market performance, including market share data for every category between 2010 and 2014.

We used NVivo (version 9) to organize our data around the product development process stage-gates. We used an open coding process which focused on the corporate strategies used at our case study company (Parker, 2012). The analysis revealed a number of strategies which enabled us to check for consistency within the data. The strategies were then compared to the external Euromonitor International document and the internal company document to triangulate the results (Modell, 2009). Finally, the authors followed up with the five organization members we interviewed to see if there were any potential issues. In this way the researchers were able to check on the internal consistency of the data which we believe improves the credibility and validity of our findings (Denzin, 1978). In the following section we report on our analysis.

CASE STUDY FINDINGS

Based on our ethnomethodology informed research approach this section focuses on how five organization members understand the order created by their management control practices during the stage-gate product development process at FoodCo. We start with a discussion of FoodCo's market conditions to understand the context in which these organization members carried out their activities. We then examine FoodCo's functional and corporate strategies and show how assigning responsibility for different corporate strategies to the NPD and marketing

functions was a management control practice. Finally we show how alignment between product development projects and corporate strategies was enabled through the use of three management control practices; the involvement of organization members from across multiple functions, the activities they carried out, and the performance measures used to evaluate projects (see Table 3 for a summary of the findings).

FoodCo's market conditions

According to the Euromonitor International (EI) document, the retail volume and growth rates in FoodCo's main market segment in New Zealand have shown slow growth in recent years. EI explain that while this is partly due to the maturity of the industry the market segment performance was also influenced by growing competition from related niche products. Competition from these products has led a number of companies to expand into related market segments in recent years. EI show the types of products that competitors have released into the market and explains how FoodCo has taken a different approach to this competitive threat. Instead of just creating new niche products, FoodCo has also used advertising to show consumers how they can make niche type products by mixing FoodCo's current products with other nutritious ingredients. For example, EI explain how FoodCo partnered with leading fruit companies to promote the benefits of eating their products with fruits rich in Vitamin C.

This has enabled FoodCo to continue to lead their market segment with an overall value share of 31% as well as take the lead in a number of related niche market segments. EI states that FoodCo offers a wide selection of product types and flavour variants under its brand names. According to EI FoodCo's main brand is an iconic brand in New Zealand and has long been associated with local sports stars. Despite the fact that it is not a typically child focused brand it has continued to benefit from advertisements that specifically targets

children. This promotional initiative aims to improve the health of children in New Zealand by encouraging them to participate in events held around the country.

EI also tracked FoodCo's new product launches and show that they helped the firm gain market share in both sales volume and value during the time this study was carried out.

Corporate strategies at FoodCo

Given these tough market conditions, FoodCo had just completed a new five year strategic plan. FoodCo's NPD manager and the management accountant were both members of the strategic planning group that formulated the new plan. The management accountant reported to the commercial manager (CFO) while the NPD managers reported directly to FoodCo's General Manager (GM) (see Table 2).

Table 2: The Management Reporting Structure of FoodCo

Senior Management Team	Functional Members
General Manager (GM)	
NPD Manager	NPD Technologists
Marketing Manager	Marketing Brand Managers
Commercial (Finance) Manager (CFO)	Management Accountant
Product Category Manager	
Sales Manager	

(Source: FoodCo document)

According to the NPD manager;

"I report to the GM… the GM looks at the big overall [strategic] measures. We have our [NPD strategy] and I liaise with marketing in terms of their [marketing strategy] expectations so we know what the parameters are for this year."

The NPD manager explained that the corporate strategy focused on four main areas;

"Sales growth, profit growth, supply chain excellence and delighting our customers and consumers. They are the four main things. We have performance measures for these areas."

Each of these corporate strategies (except 'supply chain excellence') was then linked into either the NPD function strategy or the marketing function strategy (See Figure 1).

Figure 1: Corporate and Functional Strategies at FoodCo

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                    ┌─────────────────────────────────┐
                    │       Corporate Strategy        │
                    │          Sales growth           │
                    │          Profit growth          │
                    │      Supply chain excellence    │
                    │  Delighting customers and consumers │
                    └─────────────────────────────────┘
                         │                      │
                         ▼                      ▼
  ┌──────────────────────────────┐  ┌──────────────────────────────┐
  │     NPD Function Strategy     │  │   Marketing Function Strategy  │
  │ To launch financially viable  │  │  To grow brand portfolios with │
  │ new products on time and      │  │  a focus on product, promotion,│
  │ within scope                  │  │  price and place (4P's)        │
  │                               │  │                                │
  │   Links to Corporate Strategy │  │   Links to Corporate Strategy  │
  │ Financially viable - Profit   │  │  Grow portfolios - Sales growth│
  │ growth                        │  │  4P's - Delight customers and  │
  │ On time - Delight customers   │  │  consumers                     │
  │ Within scope - Delight        │  │                                │
  │ consumers                     │  │                                │
  └──────────────────────────────┘  └──────────────────────────────┘
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(Sources: Based on information collected from the FoodCo document and Interview data)

The short term corporate strategy was set by the senior management team based on the new five year strategic plan for the company. The aim was for functions to be guided by their own strategies so as to help the organization achieve its overall corporate strategy.

NPD aimed "to launch financially viable new products on time and within scope" (*FoodCo document*). The 'time' and 'scope' parts of the strategy linked to the corporate strategy of delighting customers (retailers) and end consumers. This shows how important it was for new products, which generated about 25% of FoodCo's turnover (*FoodCo document*), to fit consumers' tastes and be delivered to customers (retailers) on time while at the same time being financially viable. As discussed in the following sections, being on time was

critical as one of FoodCo's main customers only introduced new products twice a year, so hitting those dates was critical to getting products to end consumers.

The NPD manager was part of the senior management team. Being part of this team meant that the NPD manager was always up-to-date with changes in the firm's corporate strategy. This was important as she was responsible for all the product development projects and worked closely with marketing to keep informed of any changes in the market or new product launches of their competitors which affected their product strategies.

> "I work really really closely with marketing to make sure what product development are doing is really aligned in terms of vision for the brands. So it falls into the strategy and the brand portfolio and then the products really and then the individual projects." (*NPD Manager*)

To increase the flow of information the NPD manager held progress meetings with the NPD technologists which enabled the communication of strategic changes to NPD members. Even though the NPD manager was part of the senior management team - which facilitated opportunities for communication between NPD and senior management - the communication of strategy was still seen as an area that needed improvement in FoodCo. According to the NPD manager;

> "I will put my hand on my heart and say it is something we could do better… people know what they are doing but it is making sure the bigger picture is communicated. That is a hard thing to do… it takes time."

To support the increased need for information flow between the senior management team and NPD technologists, the management accountant had been invited to play a larger role in the company.

> "There are a lot of big things happening. And [senior managers] need to get our advice on what impact it is going to have on the business." (*Management accountant*)

During the new five year strategic planning meetings the management accountant was asked to give his input to the GM and other senior managers.

"We had a five year high level strategy meeting for the company… It was mainly just the GMs and senior people, so I was lucky to sit in on that. It largely affects us so it was quite good" (*Management accountant*)

While NPD's role in the organization was to develop new products which delighted customers and consumers, and contributed to profit growth, it was the marketing's role to find new opportunities in the market place. Thus, marketing had their own strategy which guided their activities.

The marketing strategy focused on supporting the portfolio growth of FoodCo's brands as well as the 4P's - product, promotion, price and place. Marketing then built this strategy into their marketing plans and brand strategies. As stated by the marketing brand manager;

"So in terms of our marketing process. We go through a brand planning process, every financial year we will sit down and write our brand plan, that's starting at the top line strategy and then falls into your 4P's so what you want to do on a product, promotion, price and place or distribution. And from there your yearly activity falls out of it, so specifically what you do… launch a new product… Whatever I do with my brands I have to support the growth of our wider portfolios."

The marketing strategy of portfolio growth was linked to the sales growth element of FoodCo's corporate strategy. According to the marketing brand manager;

"Growth, sales growth is definitely I would say one of the bigger ones, I mean the brand is doing well if it is growing."

As FoodCo delivered its product to end-users through distribution channels such as supermarkets, it continuously engaged in the promotion of their brands in order to keep a high level of interest in FoodCo's products and maintain shelf-space. Failure to achieve shelf-space levels at supermarkets would lead to a drop in sales and market share as the end consumers would not have access to FoodCo's products.

In summary, this section showed that marketing and NPD members focused on different parts of FoodCo's corporate strategy. This division of potentially conflicting corporate strategies could be seen as the first management control practice organization

members used to enable strategic alignment. The following sub-section examines the stage-gate product development process to show how organization members used other management control practices to align product development projects with potentially conflicting corporate strategies.

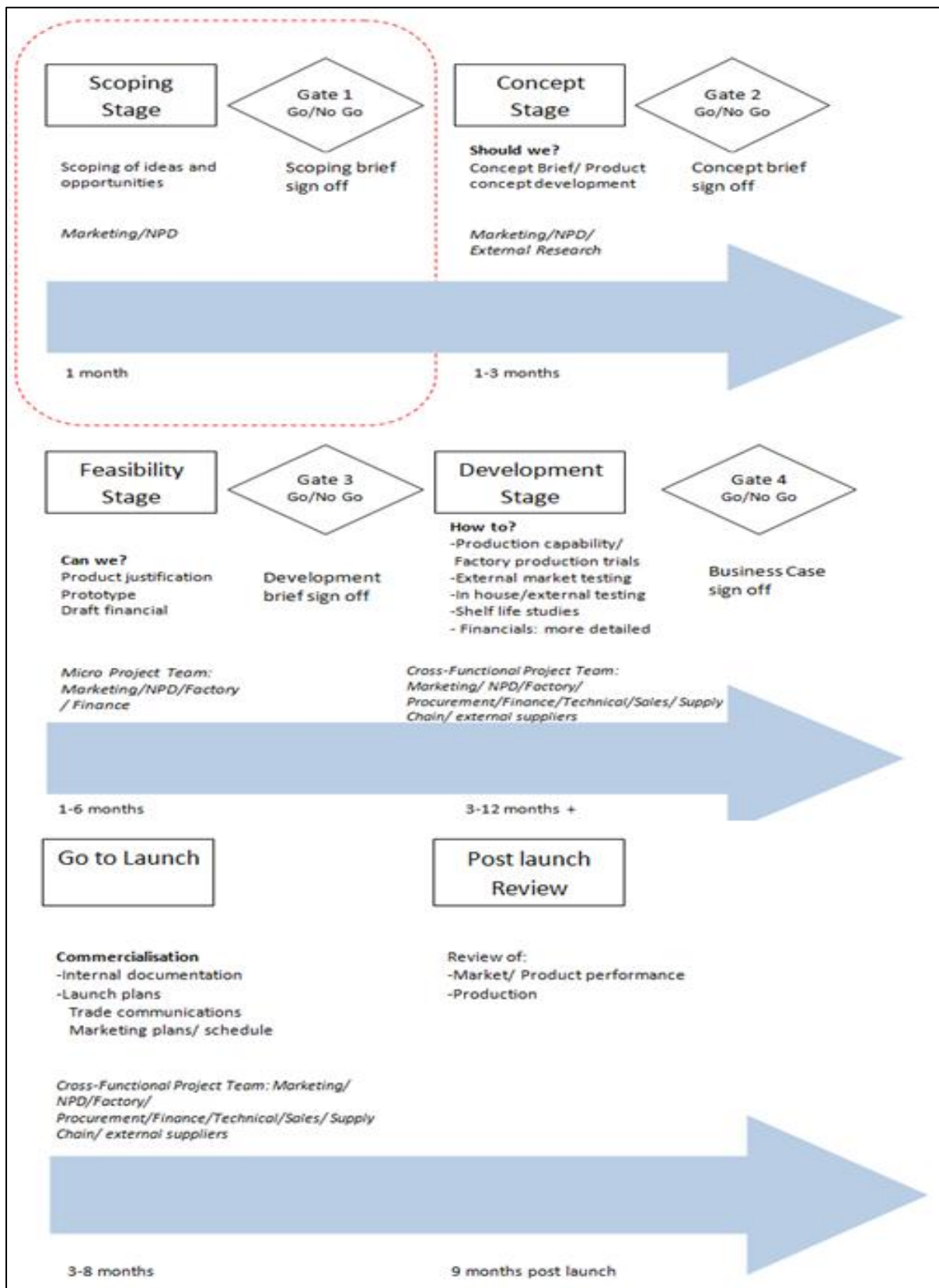*Management control practices during the stage-gate product development process*

The stage-gate product development process provided the guidelines for how new products were developed at FoodCo (see Figure 2). However, the amount of time spent at each stage-gate varied significantly between projects, as it depended on the type of project being developed.

> "We have got three [stage-gate] processes, there is a full process which is all of these (points to the stage-gate process – Figure 2) and that is for (radical) step-change. The light [process] tends to be a concept brief, a development brief and a business case… there is even an express [process] which is basically just do your business case. You make the call. Most of them [projects] sit in the light process, which is the concept, development and business case." (*NPD Manager*)

The full stage-gate process was only used for radical step-change innovation, which used emerging technologies, the design of a new brand, or entry into a new market. These projects had more novel elements and thus had greater uncertainty and challenges with potentially significant investments.

The light stage-gate process was for incremental innovation, which were mainly line extensions of existing brands that used existing factory facilities. There was also an express stage-gate process. These projects included small changes in product formulation or packaging, which only required the completion of a business case which was carried out during the 'Development Stage' and evaluated at Gate 4 (see Figure 2). The NPD manager explained that while the stage-gate process at FoodCo was controlled manually, they had templates with pre-defined project performance measures that the senior management team used at decision gates to make resource allocation decisions.

Figure 2: FoodCo's Stage-Gate Product Development Process

Scoping Stage

Scoping of ideas and opportunities

Marketing/NPD

1 month

Gate 1
Go/No Go

Scoping brief sign off

Concept Stage

Should we?
Concept Brief/ Product concept development

Marketing/NPD/ External Research

1-3 months

Gate 2
Go/No Go

Concept brief sign off

Feasibility Stage

Can we?
Product justification
Prototype
Draft financial

Micro Project Team: Marketing/NPD/Factory / Finance

1-6 months

Gate 3
Go/No Go

Development brief sign off

Development Stage

How to?
-Production capability/ Factory production trials
-External market testing
-In house/external testing
-Shelf life studies
- Financials: more detailed

Cross-Functional Project Team: Marketing/ NPD/Factory/ Procurement/Finance/Technical/Sales/ Supply Chain/ external suppliers

3-12 months +

Gate 4
Go/No Go

Business Case sign off

Go to Launch

Commercialisation
-Internal documentation
-Launch plans
  Trade communications
  Marketing plans/ schedule

Cross-Functional Project Team: Marketing/ NPD/Factory/ Procurement/Finance/Technical/Sales/ Supply Chain/ external suppliers

3-8 months

Post launch Review

Review of:
-Market/ Product performance
-Production

9 months post launch

(Source: FoodCo document)

As outlined by the NPD manager;

> "We always review the market opportunity to make sure it is still valid, the strategic fit and importance, the competitive rationale, technical feasibility, financial reward versus costs, the legal review and obvious show stoppers...and the timeline."

The following sub-sections review each of the stage-gates that made up FoodCo's product development process. We describe the management control practices of organization members which include the organization members involved, the activities they carried out, and the performance measures used to evaluate projects at decision gates. At the end of each sub-section we summarize the findings to show how these management control practices enabled the alignment of product development projects with potentially conflicting corporate strategies.

The scoping stage-gate

FoodCo separated this stage-gate from the other stage-gates by a dotted line in Figure 2 as only radical step-change product development projects originated here. During the 'Scoping Stage' marketing brand managers and NPD technologists carried out activities focused on examining new technical ideas and new market opportunities. According to a marketing brand manager:

> "We initiate new product development [at this stage]. Depending on the strategy of our brands and what we want to do with it [NPD technologists] will play a part in it, especially with my brands. I do a lot of [radical step-change] innovation work."

Marketing brand managers and NPD technologists met often over a one month period each year to discuss a number of new technical ideas and market opportunities. The result of these discussions was a 'Scoping Brief' project report which focused on potential sales growth opportunities in FoodCo's target markets, which was a marketing strategy. This meant that all radical step-change product ideas were intended to grow market share in the current market or new niche markets. As explained by one of the NPD technologists,

"In the formulation of the [scoping] brief itself we will already start to have discussions with marketing, so while they are building the brief we are feeding them information and we try to make something workable. Because there is no point them giving us a brief and we say hey look we can't do it. Or if you really want us to do this I think we need new equipment, it will probably be a three year timeline kind of thing so we like that upfront, rather than for them to write a [scoping] brief that's not very useful. So by the time the [scoping] brief is being issued it's more or less ready for sign off."

The 'Scoping Brief' project report also contained information about nutritional scope requirements. This was important for NPD as part of their strategic focus was to deliver products 'within scope'. According to an NPD technologist, scope at this stage involved mainly nutritional requirements:

"So, marketing might say we want to have a heart tick endorsement or they might say they want it to deliver so many % of dietary fibre, any nutritional aspect, or they want only natural products to be used, no preservatives no additives."

The NPD manager believed that a good understanding of the scope of a project was necessary to delight customers and consumers.

"…delighting our customers and consumers, that is the most important [at this stage]. If you do not do that, then the others do not follow." (*NPD manager*)

Once a "Scoping Brief" project report was complete it was reviewed by the NPD manager and the marketing manager. It was evaluated at 'Gate 1' where a 'Go/No Go' decision was made by the marketing manager. Once the marketing manager had signed off on the brief a marketing brand manager and an NPD technologist started developing new product concepts.

To summarize, during the scoping stage-gate the management control practices of organization members focused on selecting NPD and marketing members to carry out project scoping activities which the marketing manager evaluated. These management control practices enabled strategic alignment by focusing attention on different corporate strategies. Marketing, who focused on sales growth opportunities and NPD, who focused on delivering specific nutritional scope requirements. Since NPD did not carry out product costing activities at this stage-gate there was no tension between their profit growth strategy and marketing's sales growth strategy.

The concept stage-gate

All radical step-change and light product development projects went through this stage-gate. During the 'Concept Stage' marketing brand managers and NPD technologists carried out activities which were focused on developing different product concepts. These were then written into a 'Concept Brief' project report which at this stage was quite broad. As explained by a marketing brand manager,

> "It can include the big strategic insight and the concept but you would not go as specific as saying I want this pack size and this flavour variant."

Marketing brand managers and NPD technologists worked together to develop concepts. According to the NPD manager;

> "We work really closely with marketing. We have a plan so we know what we are working on is based on the marketing strategy."

At this stage project scope was evaluated by an external research firm to get consumer feedback about the product attributes.

> "It's a consumer check, to make sure we should be going down this road… It's insight driven, we do it through an external agency we may do strategic brainstorming days and then we will take those concepts. If the insight doesn't resonate then you won't get your consumer interest in buying." (*NPD Manager*)

The final 'Concept Brief' project reports were written by marketing brand managers. These reports included information about market growth opportunities (a marketing strategy) and project scope (an NPD strategy) which was based on the external research results. The focus on sales growth opportunities and project scope was still important as this was the first stage for light product development projects and the first opportunity for radical step-change projects to get external research.

Once a "Concept Brief" project report was complete it was reviewed by the NPD manager and the marketing manager. It was then evaluated at 'Gate 2' where a 'Go/No Go' decision was made by the marketing manager. Once the marketing manager had signed off on

the brief it was given to an NPD technologist who started to work on the product feasibility stage. According to the marketing brand manager;

> "Assuming that the [concept] brief is then approved it will go to someone from (NPD). They would then start picking the brief apart and using their knowledge and their skills and their insights to come up with some different flavour ideas or format ideas.

To summarize, during the concept stage-gate the management control practices of organization members focused on selecting NPD and marketing members to carry out project concept activities which the marketing manager evaluated. These management control practices enabled strategic alignment by focusing attention on different corporate strategies. Marketing, who focused on sales growth opportunities and NPD, who focused on delivering the required product scope attributes to consumers. Since NPD did not carry out product costing activities at this stage-gate there was still no tension between their profit growth strategy and marketing's sales growth strategy.

The feasibility stage-gate

Radical step-change and light product development projects went through the feasibility stage-gate. The activities carried out during the 'Feasibility Stage' were focused on justifying the product concept. This was done using a 'Micro Project Team' which included organization members from NPD, marketing, the factory and finance (represented by the management accountant). The output of this group was a 'Development Brief' project report. Depending on the product it took from one to six months for projects to go through feasibility.

NPD activities focused on building product prototypes that were then tested by marketing. According to the marketing brand manager;

> "We would say (to NPD) yes we like that, that and that. And then they will go to the lab and make up different samples. And that's when they come back to us again and we try them and say what we think."

Since marketing and NPD had developed the 'Concept Brief' together, NPD could be assured that the brief was aligned with their scope strategy and marketing's sales growth strategy. Thus, when the NPD technologists received a 'Concept Brief' they would immediately start developing a number of new product concepts. During this process the marketing member of the project team started to work on the 4P's (product, promotion, price and place) of each project to make sure the new product could compete in its market segment.

The management accountant was also a member of the project team and represented the finance function. According to the NPD manager;

> "There has got to be some financial viability so accounting is brought in quite early on [at this stage]."

A stretch gross profit (GP) margin target had been set for new and existing products by the senior management team. This was a new initiative which had come from the new five year strategic plan (*FoodCo document*). The senior management team thus gave a lot of attention to GP margin when they evaluated projects at the feasibility gate. According to one of the NPD technologists;

> "Our [performance] measurement of course is to deliver to the brief [at feasibility], that's how we are measured. So if the brief says, deliver to that GP (margin)… we are monitoring waste, we are monitoring that it delivers to the formulation, to the bill of materials. Delivering to the hours, to flow rates, all those things that are put in the costing, we must make sure it achieves. Or otherwise GP (margin) shifts."

The activities of the management accountant focused on working with the NPD technologists at this stage on product costings;

> "When it comes to costings, it is usually with (NPD technologists) because they are actually doing the recipe. So usually we will deal with them. But often (the NPD manager) gets involved, especially if they have questions, (the NPD manager) will come along to the meetings, and ask those questions too. Often it gets discussed within the weekly product development meeting too, which brings together all parts of the business really, so it is quite cross-functional." (*Management accountant*)

The NPD technologists knew that for projects to be successful they needed to have strong financials so they valued the interactions with the management accountant. These interactions

gave the management accountant a broad understanding of product development projects. This enabled the management accountant to communicate ideas that had been discussed during project team meetings with the senior management team, thus enabling another communication channel between product development activities and senior managers.

For light product development projects the management accountant would start off by looking at the costing of a similar product and then would work with NPD, marketing and factory team members to gain an understanding of the new product requirements. The management accountant would then adapt the costing to reflect the required amount of ingredients, the time needed for production and the subsequent overhead allocation. The expected revenue would be estimated by marketing who would base their estimates off past experience and observations of current market trends. Research would need to be carried out by members of the project team if new raw materials or equipment was required, in order to get an idea of the cost involved.

The factory used the product prototypes to determine machine specifications which the management accountant then used to make draft financials. Marketing then used these new product prototypes to carry out market research such as taste testing and focus groups. While the price that marketing set for the product (one of their 4P's) had an effect on the GP margin calculation, it did not seem to cause tension between the NPD and marketing functions as marketing also knew that GP margin was a key project performance measure. According to one brand manager

> "I am not measured on it specifically but I am not allowed to launch anything that is not over the [GP margin] target."

Once a 'Development Brief' project report had been completed it was presented to the senior management team at "Gate 3" where they would make a "Go/No Go" decision. The senior management team included the GM along with the marketing, product category, commercial, NPD and sales managers. The performance measure used by the senior management team at

this gate was GP margin (an NPD strategy) but they also reviewed marketing's 4P's (product, promotion, price and place). According to the management accountant;

"Largely it is GP (margin). That is what it really seems to come down to."

If a project did not have a high enough GP margin the senior management team would send the project back to the project team. The management accountant understood there was a problem with evaluating products based on the GP margin without considering capacity and stated that;

"You are going to miss out on a lot of opportunities, especially when our factory at the moment is not at full capacity. And why not take on things that are going to give you money towards overheads anyway."

The management accountant recognised that if new products did not get approved when the factory had spare capacity these fixed costs would just get allocated to other products.

"If we've got capacity why not use it… especially with a new product (understanding) what kind of impact that will have on the factory in terms of fixed overheads - they are fixed anyway."

The project team then worked together to come up with ways to improve the GP margin. According to an NPD technologist;

"I think [senior managers] look at GP (margin), we need to send a message to our accountants. Because our bosses are not interested in how we arrive at the GP, they just look at GP. So we need to bring the factory boss and the accountants to come aboard and see what they can do to give a variable GP. If it cannot be done it cannot be done but usually if they look hard enough it can be done."

This shows that while the GP margin was an important measure for evaluating product development projects organization members at FoodCo understand that it was not a perfect measure so they worked together to make sure that good projects would have a high enough GP margin to get approved. The 'Development Briefs' that were approved by the senior management team at the gate were passed onto NPD where NPD technologists started working on the development of new products.

To summarize, during the feasibility stage-gate the management control practices of organization members focused on forming micro project teams, determining the activities for them to carry out, and the performance measures used to evaluate projects. Micro project teams were cross-functional and included organization members from NPD, marketing, the factory and finance (the management accountant). The project team members focused on building product prototypes and justifying product concepts. The senior management team then evaluated projects based mainly on their GP margin. These management control practices enabled strategic alignment by keeping attention focused on different corporate strategies. Marketing, who focused on the 4P's (product, promotion, price and place) and NPD, who focused on profit growth (GP margin). Since both product price and cost are necessary to calculate GP margin there was the potential for tension between marketing (who managed the price) and NPD (who managed the cost) at this stage. This was managed by not allowing marketing to launch new products that did not meet the GP margin target set by senior managers.

The development stage-gate

All three types of product development projects (radical step-change, light, and express) went through the development stage-gate. The activities that took place during the 'Development Stage' were focused on determining the design features of a new product. This was done with a 'Cross-Functional Project Team' which included organization members from NPD, marketing, the factory, procurement, technical, sales, supply chain, external suppliers and finance (represented by the management accountant). The output of the activities carried out by this group was a 'Business Case' project report which was evaluated by the senior management team at 'Gate 4' who made the 'Go/No Go' decision. Depending on the project it took from three to twelve months for projects to go through the development stage-gate.

This was the only stage that 'Express' projects went through. The activities carried out for these projects were focused on ingredient or packaging changes concerned with decreasing product cost. According to the NPD manager;

> "Sometimes there are cost down projects that are quite important. I know it is not really NPD but it does involve a fair amount of formulation review and process review in the factory to see if we can get costs out. For example, testing another ingredient, a cheaper replacement that tastes the same and does the same thing and has the same quality - at all times the sensory cannot be compromised, that's the critical one. You cannot compromise on a sensory platform."

Once a product design had been developed NPD worked closely with the factory to run production trials for radical step-change and light product development projects. At the same time marketing activities focused on external market sensory tests for all project types to prove the design. NPD and sales also carried out shelf life studies, while the management accountant did more detailed financial analysis.

During the development stage project teams continually checked the key project performance measures. While the senior management team had set a GP margin target of XX%, no recent product development projects had actually been able to hit the new target. According to the management accountant;

> "None of the costings I have done so far [this year] have hit XX% and [some projects] still seem to go through just because with the complexity of a product like (A), it's almost impossible, unless they are going to cut back to just core components. There's going to be a bigger focus [later] this year on getting NPD to see how they can improve the manufacturing process; things like cutting out intermediates, reducing labor and overheads. Mainly labor as they produce the product, coming up with different ways to do that."

Once the 'Business Case' project report had been completed it was presented at a senior management team gate meeting. We found a greater number of performance measures used by the senior management team at this gate. Financial measures again focused on GP margin (NPD strategy) but also included payback period which provided another view on profit growth. According to the NPD manager;

> "Here at [FoodCo] they (new products) have to breakeven by the end of year one. Depending on how innovative it is the payback period is going to be longer."

Payback period was especially important for getting new capital expenditure approved as senior managers wanted to know if it could be paid back within a year. Non-financial measures included timeliness to market (NPD strategy), project scope (NPD strategy), and market focused sensory results (marketing strategy). Thus, while GP margin and payback period were still important measures non-financial measures such delivering on time and within scope (NPD strategies) were also critical decision factors.

> "[At this gate its] about timeliness to market. Because we do have these review dates and you have to make sure that you meet them as best you can. So the key is meeting the dates… and you have to make sure it is within scope." (*NPD Manager*)

Delivering on time was important as one of FoodCo's main customers (a retail chain) only took new products twice a year. For this reason project team members constantly monitored the progress of their projects against the timelines to ensure they were going to meet these launch dates as they did not want to miss these windows.

> "Timings on the process can vary significantly dependent on the project scope. Trade (retail chain) buy-in is essential early on because we have a great new product… retailers may not think it is that great and you really have to have the retailers on board because they are your access to the consumer." (*NPD Manager*)

Consumer sensory results (a marketing strategy) were also a key non-financial performance measure as delighting customers and consumers was a corporate strategy. This was carried out by an external sensory provider. Each project had to reach a specified result, "for example more than 60% of the consumers surveyed must have selected either liked very much or extremely liked the product" (*marketing brand manager*). If the sensory hurdle was not met the project team had to go back and review or re-formulate the product.

> "Delivering the sensory experience whilst maintaining high nutritional credibility is really important for [FoodCo]. We really try and make sure that everything we do tastes great. It is all about whole food and natural minimally processed." (*NPD Manager*)

These financial and non-financial performance measures provided checks and balances for the project team during the development of new products and ensured that the senior management team evaluated the projects based on factors that were deemed important for achieving corporate strategy as well as helping to reduce the uncertainty and risk associated with developing new products. According to the NPD manager;

> "The process does mitigate risk. Launching a new product is really expensive. By the time you add up all the trials and the marketing investment, it can cost over $2 million to launch something and you have to be pretty sure it is going to work."

When a 'Business Case' was approved by senior managers at the gate meeting it was given to the project team to prepare the product for launch.

To summarize, during the development stage-gate the management control practices of organization members focused on forming cross-functional project teams, determining the activities for them to carry out, and the performance measures used to evaluate projects. These cross-functional teams included organization members from NPD, marketing, the factory, procurement, technical, sales, supply chain, external suppliers and finance (represented by the management accountant). These members carried out activities to determine the design features of new products. The senior management team evaluated projects based on financial measures (GP margin and payback period) as well as non-financial measures (timeliness to market and project scope) and reviewed the 4P's (product, promotion, price and place) with a particular focus on the sensory results. These management control practices focused attention on different corporate strategies. Marketing, who focused on the 4P's (product, promotion, price and place) and NPD, who focused on profit growth (GP margin and payback period) as well as timeliness to market and project scope. While the price that marketing set for new products had an effect on the GP margin calculation it did not seem to cause tensions between the NPD and marketing functions during this stage-gate.

Go to launch

This stage was focused on preparing the required factory, sales and marketing plans to launch new products. This could take anywhere from three to eight months and was carried out by the same cross-functional project team which carried out the product development activities during the development stage. We did not examine this part of the stage-gate process as organization members did not need to justify these projects in relation to corporate strategies.

DISCUSSION AND CONCLUSIONS

The literature has shown that a stage-gate product development process plays an important role during the development of new products (see for example, Akroyd & Maguire, 2011; Davila, 2000; Davila et al., 2009; Griffin, 1997; Hertenstein & Platt, 2000; Jørgensen & Messner, 2009; Jørgensen & Messner, 2010; Song et al., 2009; Wouters & Morales, 2014). In this paper we use an ethnomethodology informed research approach to build on these studies by examining how five organization members used management control practices to align product development projects with potentially conflicting corporate strategies during the stage-gate process at FoodCo.

The following discussion of our case study findings focuses on: 1) How potential conflict was managed and strategic alignment enabled through assigning functional responsibility for different corporate strategies during the state-gate process: 2) How organization member involvement enabled strategic alignment during the stage-gate process: 3) How the activities that organization members carried out and the reports they produced enabled strategic alignment during the stage-gate process: 4) How performance measures enabled strategic alignment during the stage-gate process. We then summarize these findings by showing how these four management control practices changed during the stage-gate process from a focus on the sales growth corporate strategy during the first half of the stage-

gate process (scoping and concept stage-gates) to the profit growth corporate strategy during the second half of the stage-gate process (feasibility and development stage-gates) to enable strategic alignment between product development projects and corporate strategy. Finally, we conclude with the limitations of the study and suggestions for future research.

Functional responsibilities and corporate strategies

Strategic alignment was first enabled by assigning marketing and NPD functions responsibility for different corporate strategies (see the 'Functional Responsibilities and Corporate Strategies' column in Table 3). This can be seen as a management control practice as it enabled managers at FoodCo to influence the activities of NPD and marketing members and got them to focus on activities that were important for the success of the company.

It has been argued in the literature that having both sales growth and profit growth corporate strategies can cause tensions (Dodd & Favaro, 2006). At FoodCo this was managed by making the NPD function responsible for the profit growth strategy and the marketing function responsible for sales growth strategy. This created both a separation between the two strategies but also a link between the corporate and functional strategies (Hunger & Wheelen, 2010). While the sales growth and profit growth strategies were separated into the functional strategies of NPD and marketing the corporate strategy that focused on "delighting customers and consumers" was integrated into both the NPD and marketing functional strategies, each with a slightly different focus. Marketing focused on the 4P's (product, promotion, price and place) and sensory experience of consumers while NPD focused on delivering products 'on time' and 'within scope'.

Table 3 - Summary of Findings

STAGE-GATE PRODUCT DEVELOPMENT PROCESS (project process time)	FOUR MANAGEMENT CONTROLS USED BY ORGANIZATION MEMBERS AT FOODCO				
	Functional Responsibilities and Corporate Strategies	**Organization Member Involvement**	**Organization Activities and Project Reports**	**Project Performance Measurement**	**STRATEGIC ALIGNMENT ENABLED BY**
Scoping stage-gate (1 month)	Marketing (sales growth) NPD (within scope)	Involved NPD and marketing members	NPD and Marketing focused on finding new technologies and market opportunities (Scoping Brief Reports) which were evaluated by the marketing manager	The marketing manager evaluated projects for their the potential for sales growth and fit with nutritional scope requirements	Focusing on sales growth opportunities which fit specific product scope requirements
Concept stage-gate (1-3 months)	Marketing (sales growth) NPD (within scope)	Involved NPD and marketing members	NPD and Marketing developed and tested product concepts and carried out external consumer research (Concept Brief Reports) which were evaluated by the marketing manager	The marketing manager evaluated projects for their potential for sales growth and fit with consumer focused product scope attributes	Focusing on sales growth opportunities which fit consumer focused product scope attributes
Feasibility stage-gate (1-6 months)	Marketing (4P's) NPD (profit growth)	Involved micro project team members who came from NPD, marketing, the factory and also included management accountant	Micro project teams carried out product feasibility activities which included draft financials (Development Brief Reports) which were evaluated by the senior management team	The senior management team evaluated projects based mainly on a financial measure (GP margin).	Focusing on profit growth measured by GP margin
Development stage-gate (3-12 months)	Marketing (4P's) NPD (profit growth) NPD (within scope) NPD (on time)	Involved cross-functional project teams members who came from NPD, marketing, the factory, procurement, technical, sales, supply chain, external suppliers and also included the management accountant	Cross-functional project teams carried out development activities which included financial and non-financial information (Business Case Reports) which were evaluated by the senior management team	The senior management team evaluated projects based on financial measures (GP margin and payback period) and non-financial measures (timeliness to market, project scope and sensory results).	Focusing on profit growth measured by GP margin and payback period with specified timeliness to market, project scope and sensory results

Organization member involvement

While the involvement of NPD and marketing members as well as cross-functional project teams during the stage-gate process was expected, the high level of involvement by the management accountant in both corporate strategy planning activities as well as product development activities during the stage-gate process was a surprise (see the 'Organization Member Involvement' column in Table 3).

Our findings show that the involvement of the management accountant during the feasibility and development stage-gates enabled strategic alignment through the influence they had on both strategy formulation and strategy implementation. Thus, the management accountant was able to facilitate product development activities in a clear, timely manner so that the other project members could implement the corporate strategies through their product development activities.

In addition to this, the management accountants' position in the organization enabled the flow of feedback about strategy implementation back to the senior management team. This feedback was influenced by the involvement of the management accountant during the feasibility and development stage-gates which Hertenstein and Platt (1998) have argued could play an important role during the stage-gate process.

Organization activities and project reports

The activities that organization members carried out and the project reports they produced also enabled strategic alignment during the stage-gate process (see the 'Organization Activities and Project Reports' column in Table 3).

At the scoping and concept stage-gates the activities organization members carried out and the reports they produced focused on finding new technologies and market opportunities. This involved marketing and NPD activities which focused on scoping ideas and opportunities

which resulted in product concepts that had a chance to grow sales (a marketing strategy) while being delivered within scope (an NPD strategy). Once the marketing manager felt that a project was capable of delivering sales growth and was within scope the project then went on to the feasibility and development stage-gates. Since FoodCo considered only radical step-change projects at the scoping stage this may have encouraged organization members to experiment more with new ideas which could counteract the negative influence that Nagji and Tuff (2012) argue could be a limitation of using a stage-gate process.

At the feasibility and development stage-gates organization members from multiple functions came together to form project teams. The activities that these project teams carried out first focused on building prototypes and drafting financial information at the feasibility stage then examining production issues, market reactions, and making detailed financial reports at the development stage. Project reports were then sent to the senior management team who evaluated projects based on a number of key performance measures.

Project performance measurement

Project performance measurement was another management control practice used by organization members during the stage-gate process. These performance measures helped both senior managers and project teams maintain strategic alignment of product development projects with corporate strategy throughout their development (see the 'Project Performance Measurement' column in Table 3).

As proposed by Simons (2000), the performance measures in FoodCo were used to inform project teams about corporate strategies. Because of this the details of strategy did not need to be communicated to organization members as strategically aligned performance measures enabled their activities to stay aligned with corporate strategies.

The project performance measures also provided senior managers with feedback on the performance of product development projects, which they used to assist them in their project evaluations at the decision gates. The financial measures used to evaluate product development projects were GP margin at the feasibility gate and GP margin and payback period at the development gate. While the non-financial performance measures used were timeliness to market, delivering within project scope and the sensory results. This contributes to the call by Davila and Wouters (2007) for additional research on performance measures in product development which fulfil organization members' needs and adds to our knowledge about the role of accounting during the stage-gate process (Wouters & Morales, 2014).

Strategic alignment enabled by

In summary, the four management control practices at FoodCo enabled strategic alignment and managed potential tensions by influencing the focus of organization members on different corporate strategies at different stage-gates of the product development process (see the 'Strategic Alignment Enabled By' column in Table 3).

While sales growth was a marketing strategy organization members only focused on it during the scoping and concept stages. During the feasibility and development stages marketing focused on the sensory data and the 4P's (product, promotion, price and place) to support the profit growth strategy. NPD, on the other hand, focused on delivering products within scope during the scoping and concept stages to support the sales growth strategy but changed their focus to the profit growth strategy during the feasibility and development stages. By doing this organization members were able to concentrate on corporate strategies which would otherwise have been in conflict with each other (Dodd & Favaro, 2006).

For this reason limiting the potential for tension at FoodCo did not stop with assigning different corporate strategies to the NPD and marketing functions. These functions would

have found it difficult to work together during the stage-gate process if they were simultaneously trying to achieve different strategies. Thus, in addition to assigning functional responsibility to different corporate strategies, the involvement of organization members, the activities they carried out and the project reports they produced, as well as the performance measures used to evaluate projects were management control practices that helped organization members focus on different strategies during each stage-gate which enabled the strategic alignment of product development projects with multiple corporate strategies during the stage-gate product development process.

Conclusions and future research

In conclusion, we show how management control practices at FoodCo were used to enable strategic alignment between product development projects and multiple strategies, some of which had potential conflicts. In particular this paper contributes to the literature by extending our understanding about how strategic alignment can be achieved during product development when there is tension between corporate strategies.

As this study presents insights at an operational level it is relevant to practitioners, especially management accountants involved in the stage-gate product development process, NPD managers, members of product development project teams and senior managers involved in evaluating product development projects. This case study could also help management accountants and managers gain new understandings about the use of management control practices and how they can enable the alignment of product development projects with corporate strategies.

In particular, our findings show that organization members from across multiple functions carried out product development activities during the stage-gate process. At FoodCo the corporate strategy was divided between the NPD and marketing functions which enabled

these organization members to focus on different strategies at different process stage-gates. This helped them to avoid tensions between strategies and build alignment between product development projects and corporate strategies.

As with all research this study has limitations. One of our main limitations was access to data. Since FoodCo was a private company we were only able to get one company document and interviews with five organization members. We were able to supplement this internal company data with an external document from Euromonitor International which had information about FoodCo's strategy and its market performance. We believe, though, that the management control practices of the five organization members we interviewed at FoodCo provides new insights as to how organization members deal with multiple strategies. Moreover it gave us a unique context in which to examine how management control practices enable the alignment of product development projects with corporate strategies during the stage-gate process.

Future studies could investigate how senior managers view this issue and how they allocate resources to product development projects during the stage-gate process. This would extend our understanding of the ways in which project budgets as well as other operational management control practices are carried out and would lead to additional insights into how management control practices enable strategic alignment in this context. Another area of future research could be to examine strategic alignment when an organization changes its strategies or goes through a restructuring. There might also be opportunities to use an ethnomethodology informed research approach to look at strategic alignment in other contexts such as the sustainability practices of organization members.

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