The reconciliation process of market requirements and operations resources – an empirical view

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Abstract

Firms are confronted with the challenge of designing strategy processes, which guide decision-making in a way that leads to high and sustainable performance. The purpose of this paper is to address this challenge, by delivering empirical insights on Slack & Lewis' concept of reconciliation in Operations Strategy from a process point-of-view. We argue that while this concept roots in the alignment literature of Operations Strategy it has not yet been subject to detailed and empirical research. We discuss the development of a survey that examines if and how reconciliation is carried out in companies and how this affects operations performance.

Keywords: Operations Strategy, Empirical Research in Operations Management

Introduction

Ever since Skinner (1969) expressed the need to consider the manufacturing function as a competitive weapon rather than a corporate millstone, Operations Strategy (OS) has evolved into one of the most broadly researched fields in Operations Management. Illustrated by such vivid examples as the success of Ford or Toyota, the link between adequate strategic decisions regarding manufacturing structure and infrastructure and company performance is widely acknowledged. Moreover, the link between the strategic development of the manufacturing function and performance has been subject to numerous studies. Although many contributions focused on various aspects of the development and implementation of specific OS, individual strategy-making still proves to be a challenge for manufacturing firms. Above all, there is still a lack of empirically

grounded studies dealing with the process of strategy-making (Chatha & Butt 2015). However, given the dynamics of the global market and the associated demand on organizational change and flexibility, providing firms with insights into how to formulate, implement, monitor and control strategies is more important than ever. The purpose of this paper is to assist in closing this gap—in particular, we focus on the concept of reconciliation as described by Slack & Lewis (2017). Said concept is an approach to alignment that recognizes the prima facie significance of both, the market- and the resource-perspective on OS and aims at harmonizing implications from the two. Using survey-research, we provide insights into if and how reconciliation is carried out during the strategy process of manufacturing firms and whether a higher degree of reconciliation is associated with higher manufacturing performance.

Literature review & research questions

The body of literature in OS is commonly divided into two broad categories—strategy content and strategy process (Chatha & Butt 2015; Dangayach & Deshmukh 2001). On the one hand, *content* deals with the collection of decisions within the OS domain that are made, deliberately or by default, shaping the long-term direction of the manufacturing function and of the entire company. On the other hand, *process* deals with the way strategies can be conceived, formulated and implemented (Slack & Lewis 2017). Contributions in the content literature are methodologically rich with numerous subthemes and insights in manufacturing capabilities, strategic choices and best practices (da Silveria & Sousa 2010). With only roughly 15% of OS-publications in major journals addressing the strategy process, the theoretical foundations of this category are far less developed (Chatha & Butt 2015). For example, Sousa & Voss (2008) give an account of contingent contextual variables of manufacturing strategy. They identify more than 20 external and internal variables which were shown to have an influence on the effectiveness of strategic decisions. Firms require a strategy process, which can address the interplay of all these variables adequately to achieve superior performance (Donaldson 2001). Additionally, Cagliano et al. (2005) have described strategy-making as highly dynamic, suggesting that firms continuously adjust their strategic goals and decisions. Hence, the sheer number of contextual variables of strategic decisions and the required dynamics in decisions-making also lead to high complexity in the design of strategy processes. Consequently, we argue that developing a stronger theoretical basis regarding the process view on OS are as important as contributions to the content side. Moreover, such research can also provide firms with more practical advice for the design of strategy processes.

Slack & Lewis (2017) provide a simplified four-step-model illustrating the core elements of the operations strategy process. Their model divides the strategy process into: formulation, implementation, monitoring, and control. More abstractly speaking, their model suggests this process to be a rather analytically structured plan-then-act procedure. Kiridena et al. (2009) give an overview of empirical contributions to the OS literature that challenge this predominantly normative view of the strategy process as the executable outcome of a planning exercise. They provide a model of strategy formation that includes the emergent nature as well as the various possible triggers for strategy-making. However, even their complex process model shows some initial stages called initiation and consolidation in which the pattern of decisions and actions that constitute a strategy needs to be conceptualized. Hence, some form of formulation also appears in their model. Note that Slack & Lewis do not deny the complex reality of the strategy process; their research is simply focused on strategy formulation and more specifically the alignment of market

requirements and operations resources over the long-term. This paper adopts this research focus.

Publications on strategy formulation (SF) make for most of the literature concerning strategy processes. Within SF, three main subthemes have been studied: conceptual approaches and frameworks on which to base the formulation, methods used for the formulation itself and, most dominantly, the alignment of OS with other organizational divisions (Chatha & Butt 2015). See also Adam & Swamidass (1989) for a review of the main research perspectives on alignment. Albeit they do not explicitly locate their research in one specific subtheme, we understand the concept of reconciliation from the OS framework by Slack & Lewis (2017) as a contribution to the body of alignment literature in general. Incorporating all perspectives on alignment in a single, broad framework, they posit that OS ought to arise from the alignment of market requirements and operations resources. Furthermore, they state that strategy-making should also cover top-down (i.e. providing top-down goals) and bottom-up (i.e. providing decision alternatives based on operational expertise) approaches. Figure 1 illustrates their framework.

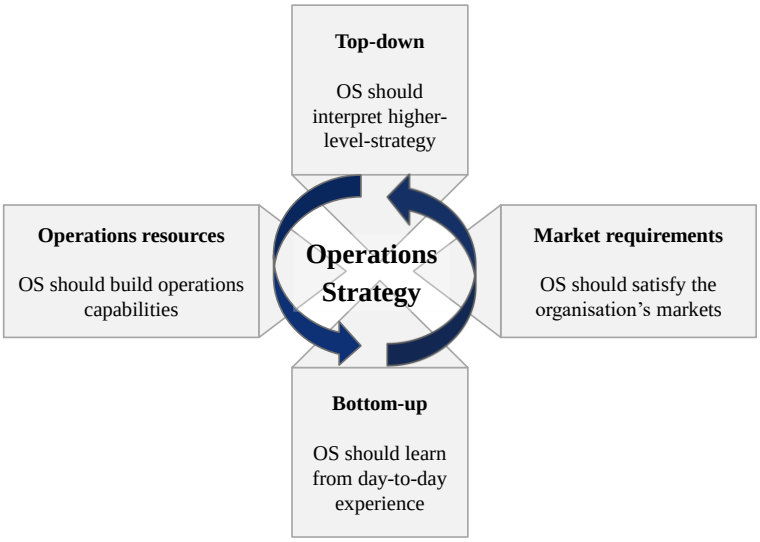

Figure 1 – Operations strategy arises from an alignment of market requirements with operations resources. The illustration is based on Slack & Lewis (2017)

Slack and Lewis refer to their conceptualization of alignment as reconciliation—an approach to alignment that recognizes the significance of both, the market- and the resource perspective on OS and aims at harmonizing implications from the two. The market-based perspective on OS, as advocated by e.g. Kotha & Orne (1989), states that OS should satisfy the organization's market requirements. The resource-based perspective on OS, put forward by e.g. Hayes & Wheelwright (1984), states that operations strategic decisions ought to lead to competitive and unique capabilities. Reconciliation is the approach that guides the design of a collection of decisions that seeks to exploit the interaction between these two in a way that leads to a firm's sustainable competitive advantage.

Given our research-focus on the process of strategy, the purpose of this paper is not to gain insights in distinct strategies resulting from reconciliation. Rather, our interest is in the process of reconciliation itself. There are no empirical studies dealing with

reconciliation, yet. However, there are studies reporting on individual aspects of alignment that are related to the framework by Slack & Lewis. In line with their suggestion to harmonize the market- and the resource-perspective, Ward & Duray (2000) as well as Joshi et al. (2003) make the case for an alignment of OS and business strategy (BS). Their empirical studies show the mediating role of OS on firm performance. Hence, they support the idea of an alignment between operations- and market-sided strategic decision patterns. Similarly, Anderson et al. (1991) discuss the positive correlation between the involvement of manufacturing managers in the formation of BS and performance. The positive effect of alignment seems to be a commonly shared notion. However, Weir et al. (2000) and Sun & Hong (2002) show that only a small portion of firms in their database achieve high levels of alignment. To understand the difficulties of alignment in practice, other contributions examined the process of aligning OS and BS. Berry et al. (1999) develop a framework that uses the market as a center piece for the development of strategies for marketing and manufacturing. They stress the importance of common goals between general and manufacturing management. Cheng & Musaphier (1996) point out that reaching these goals is an iterative process. Regarding the alignment of OS with other functional strategies, primarily contributions that study the effect of aligning OS with marketing relate to the concept of reconciliation. One example being the contribution by Hausman et al. (2002) showing the positive impact of inter-functional harmony between OS and marketing on firm performance. However, they argue that future studies need to examine the communication flows between functions as well as their level of cooperation during the strategy process. Similarly, Weir et al. (2000) indicate the importance of inter-functional communication and cooperation to exploit the benefits of alignment.

In summary, the concept of reconciliation of the market- and resource-based-perspective on OS strongly roots in the alignment literature. However, several key aspects have not been sufficiently addressed. First, there is no empirical study explicitly scrutinizing whether firms carry out reconciliation as a specific form of alignment. Note that reconciliation slightly differs from previous alignment forms in that it puts equal weight on market- and resource-considerations and seeks to exploit the interplay between the two. Hence, there is a lack of practical and theoretical insight whether reconciliation is carried out. Secondly, while previous results suggest that companies struggle with achieving high levels of alignment, most firms can be expected to pursue to some degree. Reconciliation is therefore better described as a continuum, rather than a strict dichotomy. Hence, there is a need to examine the extent of reconciliation in a way that allows to differentiate between its various components. This way, it could be explored in which conditions reconciliation is crucial for a firm's performance and in which it has less effect. Lastly, there is no indication on how reconciliation is carried out. Sack & Lewis suggest a harmonization between the top-down and bottom-up approach to strategy-making. However, apart from suggesting an iterative approach to reconcile the market- and the operations-side, this is not discussed in the alignment literature.

Consequently, our research questions are:

1. Does strategic reconciliation take place in manufacturing firms and if so, to what extent?
2. Do plants with strategies resulting from detailed reconciliation outperform other plants with strategies resulting from less extensive reconciliation and/or plants lacking this alignment?
3. How is reconciliation carried out?

Methodology

We use survey research that allows us to cluster participants according to the level of effort devoted to reconciliation. In research questions one and two, our primary objective is to be able to examine a possible correlation between this level of effort and a respondent's relevant performance measure. Answering research question three, we want to obtain information on how reconciliation is carried out in practice. Our unit of analysis is, at a theoretical level, a manufacturing unit that has authority to make strategic decisions and, on an empirical level, a manufacturing plant.

Survey design

Given the understanding of the concept of reconciliation and its variables to be limited, this study employs an exploratory survey design. A survey was developed adopting the approach of Forza (2002), significant parts of which were created explicitly for this study. The questionnaire was developed in a three-stage-procedure following Moore & Benbasat (1991). First, we designed items related to research questions one and two. Closely sticking to Slack & Lewis (2017), we first described the concept of reconciliation. As stated above, reconciliation is an approach to alignment that recognizes the significance of both, the market-based and the resource-based perspective on OS and aims at harmonizing implications from the two. From the concept, we moved to the nominal definition: reconciliation takes place, if during strategy-making, a plant makes an effort to develop an understanding of the desired interplay between its operations capabilities and its ability to fulfil market requirements. Based on insights from the literature review, we operationalize this definition by measuring the extent of gathering and processing information on both, operations capabilities and market requirements, to develop an understanding of the desired interplay between the two in an iterative manner. Distilled from this, our primary dimensions of the reconciliation process were the gathering and processing of information on operations capabilities and market requirements. These dimensions were subsequently the basis for the formulation of items. Our approach to developing items for research question three was analogous. The operational definition of reconciliation states that plants aim at developing an understanding of the interplay between the two perspectives on strategy. Based on Slack & Lewis and our literature review, we deduced that developing this understanding is undertaken using top-down and/or bottom-up elements in an iterative manner. Consequently, those were the two main dimensions that we used as a basis for item formulation.

Measures & pilot testing

To ensure the validity of items, substantial parts of our survey rely on the IMSS VI questionnaire (http://www.manufacturingstrategy.net/). See Chaudhuri et al. (2018) and Demeter et al. (2017) for the two most recent publications using and describing the IMSS database. In particular, sections on the firm's external and internal environment as well as items measuring firm and manufacturing performance are adopted one-to-one. Items operationalizing the concept of reconciliation itself had to be developed from scratch since there is no empirical study dealing with reconciliation. Items asking for the type and source of information considered, as the team-composition processing this information are used as proxies to determine if a plant can be clustered as a reconciler. We hypothesize, that if a plant gathers an equilibrated quality and quantity of information on operations capabilities and market requirements, using multiple sources and employing a cross-functional team to process this information, it can be clustered as a detailed reconciler. Note that we argue that it is necessary to distinguish between different levels

of reconciliation. Hence, our items represent potential information types that differ regarding their ease of gathering.

We conduct pilot testing with a panel of subject-matter-experts (SMEs). Amongst the panel are manufacturing strategy professionals from global engineering companies, supply chain managers as well as academics familiar and unfamiliar with the field of OS. The testing is carried out in form of standardized interviews. First, we use pilot testing to ensure the face validity and comprehensiveness of our items. Since for some items, we need to ensure that answer options in our questionnaire are validly assigned to represent either market- or resource-based-perspectives, we ask SMEs to map the respective options into either one of the categories. Particularly to address research questions one and two, we heavily involve SMEs in constructing a metric representing the extent of reconciliation. For instance, each panel-member provides a hierarchic classification of the level of effort required to retrieve a certain type of information. Calculating the panel-average of this hierarchy, we are able to assign a certain level of effort associated with retrieving this information. Hence, subsequent answers from participants of the survey can be assigned a relative score. This allows us to construct a metric that represents the balance of gathering information from markets and operations but also the difference in the relative efforts they devoted to gathering information. Items in relation to the third research question are randomized and SMEs are asked to map these items into the categories bottom-up and top-down.

Sample and data collection

The survey research is carried out amongst high-performance manufacturing firms located in Germany. Due to a respective item adapted from the IMSS, we can discriminate regarding the strategic-decision making-autonomy of the respondent to control for likely effects. We deliberately decided not to exclude plants on this basis in the first place. We use a web tool (Google forms) to send out the survey and collect the information. To obtain a statistical power between 0.6 and 0.8, with α=0.05, for a medium effect phenomenon, a number of respondents between 30 and 44 is recommended (Forza 2002).

Common method bias

To mitigate common method bias, different measures are employed. Following Podsakoff et al. (2003) the order of items in the survey is randomized to minimize biased answering based on patterns. Additionally, during pilot-testing and in the survey, participants are not aware of the full research design to avoid answers based on social desirability (Rojo et al. 2018). We rely on previously tested items as much as possible. Finally, we scrutinized the wording of our items regarding their potential inducement of strategic answering behaviour and avoided lengthy statements ensuring uniform formatting.

Findings

We are currently in the process of pilot-testing, aiming for a completed survey to be distributed at the beginning of June.

Conclusion & future research questions

This report on work in progress discusses the development of a survey that examines if and how reconciliation is carried out in companies and how this affects manufacturing performance. First, we argue that the concept of reconciliation, given by Slack & Lewis, can be seen in relation to the alignment literature in OS. We systematically review previous contributions to the alignment literature and identify gaps. Generally speaking,

there is a lack of empirical insights into alignment from a process point-of-view, particularly in broader alignment concepts such as reconciliation. Due to a missing theoretical foundation of reconciliation, there is also a lack of practical insight for decision-makers of OS. Our study contributes to the theoretical discussion, mainly by providing insight in the information exchange and processing that leads to the understanding of an effective interplay between market- and resource-perspective. Thus, there are implications for all manufacturing plants with strategic decision-making autonomy. Due to the exploratory nature of our design, this study has certain limitations that would be mitigated with a more rigorous sampling procedure and a richer data set from an institutionalised survey such as IMSS.

Expanding on the results of this study, future research potential lies in examining the contingency variables of reconciliation. Having studied the reconciliation process and its variations in detail, it would be interesting to understand which contextual circumstances influence these variations. This could be done by conducting in-depth case-study interviews with participants of the survey that showed significant differences in their environmental conditions as well as their use of reconciliation. Such a mixed qualitative and quantitative approach would have the potential to capture reality in a more holistic manner. Very limited research has focussed on devising methods and techniques for supporting alignment processes in practice. Ultimately embedding reconciliation in a larger framework that explains causes for variations in alignment levels, more detailed procedural advice on alignment, and recommendations for economic levels of effort devoted could be a missing link to that.

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