MARKETING – OPERATIONS ALIGNMENT: SCALE DEVELOPMENT AND VALIDATION

BY

MS. KEDWADEE SOMBULTAWEE

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY (BUSINESS ADMINISTRATION)
FACULTY OF COMMERCE AND ACCOUNTANCY
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DISSERTATION

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ENTITLED

MARKETING – OPERATIONS ALIGNMENT: SCALE DEVELOPMENT AND VALIDATION

was approved as partial fulfillment of the requirements for
the degree of Doctor of Philosophy (Business Administration)

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ABSTRACT

Despite the growing importance of a strong strategic alignment between different functions of a firm in relation to retaining competitive advantages, there is still no consensus model of marketing-operations alignment within firms. However, marketing-operations alignment is widely considered a key cross-functional alignment for firms, since this alignment affects a wide range of areas in their operations. The purpose of this study is to advance the state of knowledge regarding cross-functional alignment between marketing and operations. The study used configuration theory as the basis for explaining how and why this internal alignment develops within firms. The objectives of the study included establishing a concept of marketing-operations alignment, developing and validating a measure of marketing-operations alignment in manufacturing firms, and testing of the relationship between marketing-operations alignment and key strategic orientations (customer orientation and competitor orientation). Following establishment of a basic theoretical framework, the dimensions of marketing-operations alignment were established by using case interviews with subject matter experts that identified potential dimensions and relationships. This was followed by a Q methodology process to develop consensus on the dimensions. A survey (n = 419) was used to evaluate the reliability and validity of the factor structure of the marketing-operations alignment construct and the -operations alignment construct and the proposed relationships within the framework. The results of the study validated the marketing-operations alignment construct and the instrument developed to measure marketing-operations alignment in firms by using

structural equation modeling (SEM). This instrument and its underlying theory provide tools for evaluating functional alignment within firms.

Keywords: Marketing-operations alignment, configuration theory, Q methodology, structural equation modeling

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Ms. Kedwadee Sombultawee

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LIST OF ABBREVIATIONS

Symbols/Abbreviations	Terms
EFA	Exploratory Factor Analysis
CFA	Confirmatory Factor Analysis
SEM	Structural Equation Modeling
PCA	Principal Component Analysis
SSL	Sum of Square Loading
CLF	Common Latent Factor
MIMIC	Multiple Indicator Multiple Causes
MOA	Marketing- Operations Alignment
CD	Coordination Decision
LS	Leadership Strategy
IE	Information Exchange
RS	Reward System
PE	Performance Evaluation
CUO	Customer Orientation
COO	Competitor Orientation

CHAPTER 1
INTRODUCTION

1.1 Background

Historically, marketing and operations have been considered to be distinct activities of firms that did not necessarily have a strong connection or clearly aligned objectives and tools (Benhabib, 2003). Instead, operations-led firms chose to distinguish themselves during the period of mass manufacturing through aspects such as physical design or color, and marketing took place following the manufacturing of the goods (Benhabib, 2003; Blenkhorn & Noori, 2011). However, the relationship of operations and marketing began to change in the 1970s and 1980s, when increasingly complex manufacturing processes and competitive markets began to create problems for firms accustomed to manufacturing goods in this manner (Benhabib, 2003; Blenkhorn & Noori, 2011). Blenkhorn and Noori (2011), writing originally in the late 1980s, produced one of the first studies that suggested that firms should use neither a demand-pull model (with operations dictated by marketing) or a technology-push model (with marketing determined by operations choices), but instead should attempt to balance the requirements of both operations and marketing.

This idea was relatively slow to develop, and it was not until the early 2000s that the first exploratory studies of alignment between marketing and operations activities began to be conducted (Hausman, Montgomery, & Roth, 2002). Thus, even though marketing and operations are clearly connected, these two operational and strategic areas of firms have only relatively recently become more closely integrated. However, this integration is highly important for a firm's competitive advantage, as it has been shown to positively influence performance indicators such as plant productivity, return on investment (ROI), and overall financial performance (Lee, Rhee, & Oh, 2014; Swink & Song, 2007).

1.2 Statement of the Problem

Despite the operational and strategic importance of marketing-operations

alignment, no single model or measure having the support of a strong organizational theory has emerged. There are a number of related concepts that fundamentally address the relationship between different organizational functions, such as integration, interface, coordination, and fit (Henderson & Venkatraman, 1999; Malshea, Friendb, Al-Khatiba, Al-Habibd & Al-Habibd, 2017; Narver & Slater, 1990; Parente, 1998; Sombultawee & Boon-itt, 2017; Weir, Kochkar, LeBeau, & Edgeley, 2000). However, none of these alternative concepts have been developed very thoroughly either. Furthermore, these concepts do not encapsulate some important aspects of marketing-operations alignment, such as the concept of three-level alignment at the operational level, which result from long-range planning (Oliva & Watson, 2011). Also, they do not take into account the problems that result from the trade-offs between disparate marketing and operations objectives (Michalek, Ceryan, Papalambros, & Koren, 2006; Sombultawee & Boon-itt, 2018). Thus, none of these alternative models fully encapsulate the concept of *alignment* between different functional operations.

There have been many previous studies on marketing-operations alignment in various industries (Hausman, Montgomery, & Roth, 2002; Marques, Lacerda, Camargo, & Teixeira, 2014; Mollenkopf, Frankel, & Russo, 2011; Nath, Nachiappan, & Ramanathan, 2010; Oliva & Watson, 2011; Tatikonda & Montoya-Weiss, 2001; Turkulainen, Kujala, Artto, & Levitt, 2013; Weir, Kochkar, LeBeau, & Edgeley, 2000; Yalabik, Petruzzi, & Chhajed, 2005; Yu & Ramanathan, 2014). However, these studies are primarily exploratory and have not articulated a complete theory of marketing and operations alignment. Previous instruments used by researchers were mostly used to evaluate organizational performance in a descriptive way and did not undergo thorough validation tests, and earlier studies have not identified a reliable, valid measure for marketing-operations alignment that can be used to assess its influence on the performance of firms. One possible theoretical model that could be used to understand the problem of alignment is configuration theory, which argues that a firm's structures and processes are shaped by the imperatives (or internal and external forces) that it faces (Miller, 1987). Thus, the problem of this research is how marketing-operations alignment can be theorized and measured and what relevance it has for firms. This problem will be addressed through application of configuration theory, and future researchers will be able to use the results to further expand this area of study.

1.3 Research Questions and Objectives

The purpose of this research is to advance the state of knowledge regarding cross-functional alignment between marketing and manufacturing using configuration theory (Meyer, et al., 1993) as the basis for explanation of how and why this alignment develops. Based on this research purpose, the following objectives have been established:

I. To establish and clarify a concept of marketing-operations alignment using configurations theory;

II. To define, develop and validate a measure of marketing-operations alignment, relying on configuration theory, and

III.To empirically test the nomological validity of the relationship of marketing-operations alignment, customer orientation and competitor orientation.

There are several research questions that can be defined based on the research objectives. These questions, and the approach to answering them, include:

1. What does marketing-operations alignment mean within the context of the manufacturing industry, and what are the dimensions of this construct? (Phase I: Literature review and Exploratory (Qualitative) research)

2. How can marketing-operations alignment be measured in accordance with configuration theory (RQ1) in the manufacturing industry? (Phase II: Quantitative research and instrument development)

3. What is the empirical relationship of marketing-operations alignment, customer orientation and competitor orientation in the manufacturing industry? (Phase III: Quantitative research and final instrument test).

1.4 Scope of the Research

The research is focused on the manufacturing sector of Thailand. Approximately 28% of Thailand's GDP was generated from the manufacturing sector in 2014 (World Bank, 2016), which makes it the largest sector in the economy (Cahyadi, 2016). However, manufacturing in Thailand is entering a period of slow growth, with

growth of only 6.5% over the past three years, out of proportion with its high GDP rate (Cahyadi, 2016). This is attributed to low export growth, increased competition from neighboring countries, and political uncertainty (Cahyadi, 2016). Thus, the manufacturing sector is a Thai business sector that would benefit from improved strategic tools.

Therefore, this research is concerned with the alignment of marketing and operations activities and its effect on customer orientation and competitor orientation, and has been conducted within the manufacturing sector. Manufacturing accounts for 16% of GDP globally, and employs 14% of the global workforce. It has also been reported that the manufacturing sector is undergoing significant structural change, with increased competition, changes in demand patterns, and increasing uncertainty. Furthermore, manufacturing supply and demand is increasingly oriented toward the developing world (Manyika, Sinclair, Dobbs, Strube, Rassey, Mischke, & Ramaswamy, 2012). Thus, changes in manufacturing strategy are highly relevant to the industry at this time.

The output of the research is a multi-dimensional instrument designed to assess marketing-operations alignment in the manufacturing sector, which could be used either for academic research or for firm-level analysis and assessment. The study also generated a refined and clarified model of marketing-operations alignment. While the study acknowledges the overlapping and similar models, including marketing-manufacturing interface and other similar models, integrating or incorporating these models into a unitary theory is not a part of this research. This research also does not directly apply the derived instrument to a particular manufacturing industry or sector, although this is a possibility for future research, nor does the study assess marketing-operations alignment in services.

1.5 Contributions of the Research

Currently, academic research on marketing-operations alignment lacks depth and cohesion, with there being a number of competing models and conceptualizations of the general idea. A lack of understanding of how marketing and operations work together within firms was identified in the late 1990s (Parente, 1998), while the first exploratory work into marketing-operations alignment began in the early 2000s (Hausman, Montgomery, & Roth, 2002). To date, there are a number of continuing gaps

in theresearch on marketing-operations alignment.

Another research gap is the actual measurement of alignment or the interaction of different functions and its effect on firm performance (Marques, Lacerda, Camargo, & Teixeira, 2014). In fact, most previous measures have been unidimensional and have not recognized the complexity of the marketing-operations alignment activity. These research gaps mean that, although there is a general understanding of the concept of marketing-operations alignment, it has a weak theoretical base and poor operationalization. This research is intended to make an academic contribution to this area of marketing-operations alignment. The process of the research will clarify the concept of marketing-operations alignment and help to integrate and make explicit where the concept overlaps with – and does not overlap with – similar constructs such as marketing-manufacturing interface based on configuration theory and numerous previous models. By taking on this theoretical challenge, the researcher hopes to clarify and disambiguate the concept of marketing-operations alignment so that it can be used more effectively in academic discourse. Furthermore, by basing this integration on configuration theory and various other models, the research will contribute a single enduring theory of marketing-operations alignment, which can withstand scrutiny. This novel theory will have a critical role to play in how it contributes to any research in the future.

This theoretical clarity, as well as the process of creating and testing the measurement instrument will have benefits for practitioners in marketing, manufacturing and company strategy as well. In addition to the theoretical clarity provided by the analysis, the study has practical significance for strategic analysis implemented within firms. The final output of the study will be a straightforward instrument that can be used to assess the contribution of a firm's marketing-operations alignment toward its performance. This contribution is significant because currently only descriptive instruments exist and they have not been thoroughly validated. Having a single instrument, which is proven to be reliable and valid, can fill a critical gap. Although the instrument will be more easily deployed in academic studies, it can still provide useful guidance for firms' self-assessment of alignment strategy. For example, firms will be able to use this tool to evaluate their functional alignment. This is a unique contribution to the area of practical research, since there has been no previous attempt to develop a

comprehensive measure of functional alignment for marketing and operations using scale development, refinement and validation. The research could also be extended to focus on services, although this is not a goal of the current study.

A further contribution to academic research is the development of a scale of measurement for marketing-operations alignment, which previous studies have failed to identify. The research contributed a step by step development of a marketing-operations alignment scale, which was logically tested using multiple measures for reliability and validity. Measures included initial validation, a wider validation using data collection, construct validation and nomological validation of the instrument. The end result was an effective scale measurement of alignment. Due to the multiple techniques employed, there is assurance that the contribution is an instrument which measures the various constructs appropriately. The focus of this research was not primarily how marketing-operations alignment is practiced, but the emphasis was on how it can be reliably measured. As a result, greater use of the final instrument and differing approaches to the research is possible through further studies. This future research will further enhance our understanding of the practice of marketing-operations alignment in the manufacturing industry.

1.6 Research Structure

This dissertation is arranged across seven chapters, each of which deals with a distinct area of the research development. This chapter has established a brief background of the study and explained the problems, goals, objectives and research questions that will be examined through the research. The next chapter (Review of Literature) presents the outcomes of an extensive literature review, which has assessed the idea of marketing-operations alignment and similar and overlapping concepts. This chapter demonstrates that there are several clear gaps in the conceptualization and understanding of marketing-operations alignment, and furthermore that serious empirical research into this construct only began in the 2000s. It also demonstrates that there is no existing scale or measure that assesses this rather ambiguous concept. The third chapter (Methodology) sets out the researcher's approach to resolving these gaps in the literature. It explains the two-phase mixed methods study that was conducted in order to derive and refine a theory of

marketing-operations alignment and develop and test the accompanying instrument. The fourth chapter presents the conceptual framework of this research as well as the scale development using the Q-sort method. The fifth chapter discusses the methodology for the quantitative study and presents the development of a marketing-operations alignment scale and potential contributions of this study. The outcomes of the primary research are presented in the sixth chapter (Validation of Marketing-Operations Alignment Scale). Finally, the seventh chapter presents the discussion, research implications, research limitations and opportunities for further research.

CHAPTER 2
REVIEW OF LITERATURE

2.1 Introduction

The purpose of this literature review is to introduce, examine and critique the existing literature on marketing and operations alignment, with the ultimate goal of arriving at a theoretical framework of marketing-operations alignment. This chapter will help formulate a response to the first two research objectives, by defining the concept of the marketing-operations alignment within firms and addressing a way to measure marketing-operations alignment. This will help prepare for the third research objective, which is an empirical test of marketing-operations alignment within firms.

This chapter begins with a comprehensive discussion of the concept of alignment that defines alignment and presents an elementary statement of the theory of organizational alignment. It also addresses the use of the alignment concept in management and compares it to similar terms, such as interface, integration, fit, and co-management. The second topic addressed is configuration theory, which is the core theory that will be applied to this study. This section provides an overview of configuration theory and explains how it applies to alignment between marketing and operations theory. The third section of the chapter, which is the most important section, examines previous studies done on marketing and operations alignment in more detail, including the evolution of the concept, a three-level definition of the concept, and the research gaps in marketing and operations alignment. This section also has several additional goals, including defining a measurement approach for marketing and operations alignment, discussing how this alignment works in practice, and examining previous research into the concept. The fourth topic is the research framework, which was developed by the researcher from several previous studies conducted into marketing and operations alignment. The chapter closes with a summary and conclusion of the chapter, which identifies the key research gaps that this study addresses.

2.2 Alignment

2.2.1 Definition of alignment

Although the term *alignment* is often used in the literature on management, it is surprisingly rarely defined explicitly. Furthermore, as Gerow (2011) observed, the definition of alignment is often inconsistent or poorly delineated, and operationalization is also weak and inconsistent. Furthermore, many of the explicit definitions come not from marketing and operations strategy alignment, but from IT-business strategy alignment. This makes it particularly important for this research to arrive at a clear definition of the general concept of alignment in the business sense in order to lay the groundwork for future discussion.

There are several commonly shared aspects of these definitions, particularly the sense of aligning the strategic goals and structures of two disparate units in conjunction with each other (Nadler & Tushman, 1983; Palmer, 2007; Rosemann & vom Brocke, 2015). However, there are also some differences. A number of authors have discussed alignment as primarily a strategic practice (Nadler & Tushman, 1983; Henderson & Venkatraman, 1999; Ullah & Lai, 2013), while others use a process-based view (Rosemann & vom Brocke, 2015) or a capability-based view (Taxén, 2010). Thus, some degree of integration of these definitions is required to address a shared perspective. Following Henderson and Venkatraman's (1999) assertion that alignment is dynamic, they combine the strategy, process, and capability-based views of other authors, inferring that alignment is both a long-term strategic activity and a day-to-day process of capability and resource utilization. The working definition of alignment used in this study, following the model of Nadler and Tushman (1983) and extending the coverage to these functional areas, is: The extent to which the strategies, processes, and capabilities of one business unit within an organization are consistent with the strategies, processes and capabilities of one or more other business units, in order to enable a firm to act consistently and fully utilize its available resources. Table 2.1 summarizes the various definitions of alignment.

Definition	Authors
"… the degree to which the needs, demands, goals, objectives and/or structures of one component are consistent with the needs, demands, goals, and/or structures of another component."	Nadler and Tushman (1983, p. 119), cited in Gerow, Thatcher & Grover (2015, p. 467)

Definition	Authors
"Our concept of strategic alignment is based on two fundamental assumptions: One, economic performance is directly related to the ability of management to create a strategic fit between the position of the organization in the competitive product-market arena and the design of an appropriate administrative structure to support its execution… Two, we content this strategic fit is inherently dynamic."	Henderson and Venkatraman (1999, pp. 472-473)
"… the proper positioning or adjustment of resources in relation to each other."	Palmer (2007, p. 981)
"The management of dependencies between capabilities such that these capabilities fit the business's strategic intents."	Taxén (2010, p. 277)
"… the state in which business and IT executives and managers understand and are committed to each other's long-term plans, goals and objectives."	Ullah and Lai (2013, p. 18)
"… the tight linkage of organizational priorities and enterprise processes enabling continuous and effective action to improve business performance."	Rosemann and vom Brocke (2015, p. 113)

Table 2.1 Summary of previous definitions of alignment

2.2.2 Theory of organizational alignment

The type of alignment discussed in this research is organizational alignment, or alignment within the boundaries of the organization. One of the gaps in the literature is the incomplete work on a general theory of organizational alignment.

Organizational alignment has been identified to have a number of roles in an organization's success Powell (1992) identifird some (thought not all) type of organizational alignment as a competitive advantage, or a resource or capability that offers firms an advantage over competing firms in the marketplace, and also identified a number of organizational alignments that are associated with what he termed supernormal profits, or profits above the average for the industry. These organizational alignments include internal structural fit, size-structure fit, industry-structure fit, and fit between a firm's size, structure and planning competencies (Powell, 1992). A much more recent study has confirmed the role of organizational alignment (this time focused on IT-strategy

alignment) in relation to the strategy achievement and financial performance of firms (Wu, Straub, & Liang, 2015). A process-based view of alignment also found that it contributed to effective resource utilization and firm performance (Huang, Yang, Lien, McLean, & Kuo, 2010). Additionally, it was found that process alignment contributes to the dynamic capabilities of firms, and thus is a stronger influence on performance than organizational learning (Huang et al., 2010). This finding relates back to the definition of alignment offered by Henderson and Venkatraman (1999), which emphasized the development of dynamic capabilities. Thus, organizational alignment can be tentatively said to have a positive relationship to the performance of firms.

While the effects of organizational alignment are relatively well-studied, there are still some serious gaps. One comprehensive study pointed out that, at the time it was conducted, most research on organizational alignment related to vertical alignment (such as alignment between strategic and operational activities), rather than horizontal alignment between different units or functions within firms (Kathuria, Joshi, & Porth, 2007). A more recent article shows that the scope of organizational alignment is expanding, with what the authors termed a crowdsourced strategy increasing the flow of information from the bottom of the organization to the top (Gast & Zanini, 2012). This suggests that the emphasis on vertical alignment has remained and that horizontal organizational alignment has not been addressed in sufficient detail to build a comprehensive theory, a problem that other authors have also identified (Wu, Straub, & Liang, 2015).

2.2.3 The alignment concept in the management field

Alignment is a concept that is used in multiple, varying and often confusing ways in the field of management, often with reference to a variety of different concepts or ideas (Gerow, 2011). This makes it difficult to assess the precise role of alignment in management practices. Kathuria, Joshi and Porth (2007) noted that early research into alignment was almost entirely related to vertical strategy-process alignment; for example, the alignment of manufacturing processes with a firm's sales strategy. Even this research reflects the lack of a shared operational definition of alignment, as very similar studies often resulted in conflicting findings due to inconsistency in operationalization (Kathuria, Joshi, & Porth, 2007). This lack

of consistency in the literature makes it difficult to trace the development of the concept of alignment in the field of management theory.

However, there is some evidence relating to how the concept of alignment is used in practice today. For example, Storbacka (2012) examined the process of strategic account management. The goal of this research was to examine the design of the program and its alignment with the actual business practices associated with it. Strategic account management is critical for firms because strategic accounts are highly complex and demanding, and are critical for a firm's success. The author found that there was actually insufficient alignment between program design and account management practices, resulting in lost firm performance (Storbacka, 2012).

Another use of the alignment concept is through models such as the Balanced Scorecard, which are designed to create alignment by associating a firm's strategies, tactics and operational practices (Kaplan & Norton, 2006). This is a type of vertical alignment, which as Kathuria et al. (2007) have noted, is dominant in the academic literature as well. Thus, the most common practice of alignment within the management field is the vertical alignment of strategy and process.

2.2.4 Comparison to similar terms

There are a number of terms in the management literature that are used with a meaning that is similar to *alignment*. Table 2.2 offers a selection of such terms, how they are defined, and how they differ from the use of *alignment* as meant in this study. As this discussion shows, the actual difference between these terms is minimal, with the amount of variation consistent with the observed variation for the term *alignment* itself (Gerow, 2011). Thus, while this research does prefer the term *alignment*, the terms *integration*, *interface*, *coordination* and *fit* are considered to be synonyms and the research studies that uses these terms have not been excluded. Where there are variations in terminology, these are noted to ensure that the concept under discussion is clear.

Term	Source	Definition	Difference from Alignment
Integration	Weir, Kochlar, LeBeau and Edgeley (2000)	Use of strategic goals to drive firm processes and activities (vertical integration) and integration of business unit activities (horizontal integration).	A broader concept of interdepartmental coordination that includes strategy and goal alignment (included in the alignment concept) and business processes activities, for example order management and product design.
Interface	Parente (1999)	A system of communications and feedback between two functions within an organization at the operational, tactical and strategic level, enabling coordinated action	Relates to the internal system's function rather than strategic alignment.
Coordination	Narver and Slater (1990, p. 22)	"The coordinated utilization of company resources in creating superior value for target customers." Coordination relates to use of resources in the same direction without replication.	Does not relate specifically to alignment of units, either horizontally or vertically.

Term	Source	Definition	Difference from Alignment
Fit	Henderson and Venkatraman (1999)	The extent to which the strategies and processes of one unit are consistent with those of another, and can work together to accomplish the intended goals.	Very similar in intent and orientation.

Table 2.2 Terms related to *alignment* in the academic literature

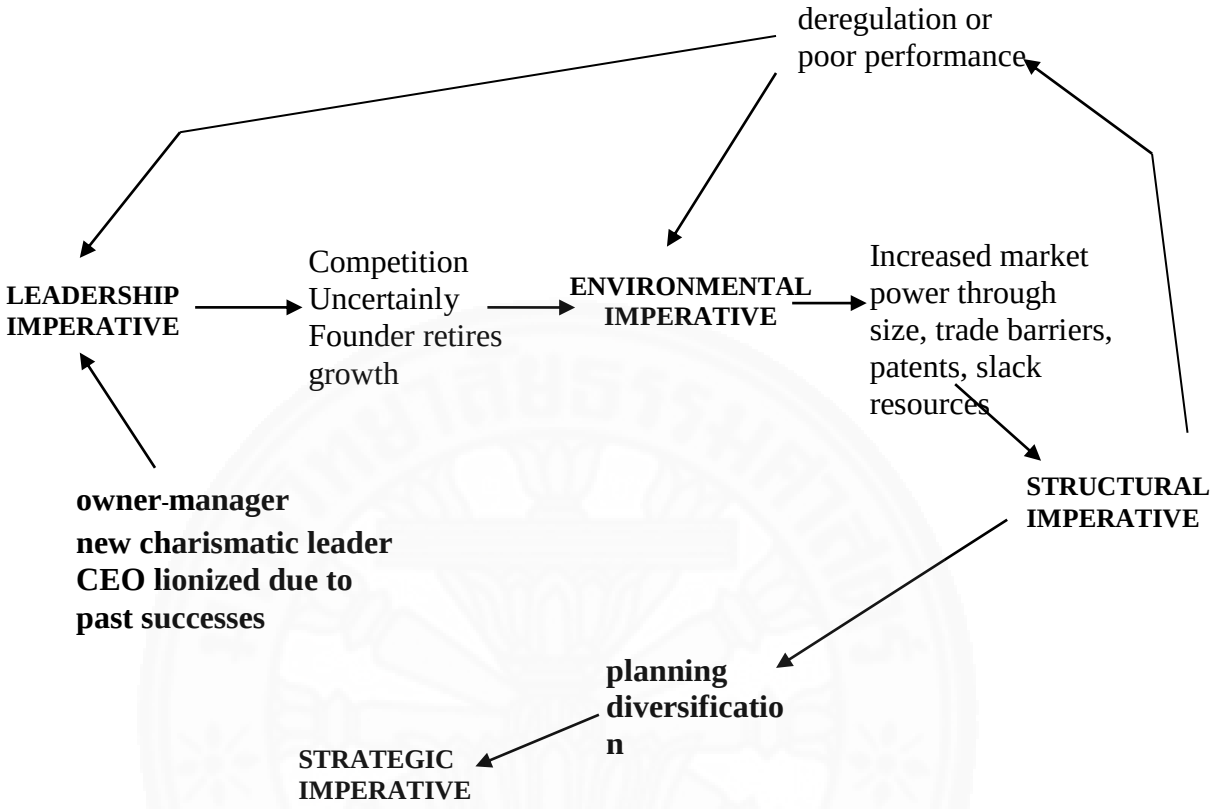
2.3 Configuration Theory

The development of the concept of marketing and operations alignment in this research is based on the underlying principles of configuration theory.

2.3.1 The origins and structure of configuration theory

Miller (1987) initially proposed configuration theory as a way to explain how organizations respond to external and internal forces, which he termed *imperatives*. The imperatives "drive or organize many elements of a configuration, are the most resistant to change, and probably must change before most meaningful transformations can take place (Miller, 1987, p. 686)." The main imperatives that Miller (1987) identified include the environment (the main external imperative), and organizational structures, leadership, and strategies (internal imperatives). In configuration theory, Miller (1987) stated that the organizational configuration, or its structure, goals and strategies, are the outcomes of the defined imperatives and are contingent upon these imperatives. However, each of these imperatives was hypothesized to have different influences on firms, and these influences could in some cases be difficult to determine. For example, a firm in a highly competitive environment may evolve extensive market intelligence structures and an internal meritocratic structure, while one in a less competitive environment may be less responsive and more driven by traditional structures (Miller, 1987). Miller (1987) also posited that

imperatives would have different effects throughout a firm's life cycle, with shifts in the imperatives influencing shifts in the firm's life cycle and processes (Figure 2.1).



Common Transitions Between Imperatives during the Life Cycle

Phase of Cycle	**Birth**	**Growth**	**Maturity**	**Revival**
Factors initiating Imperative	**Founding CEO** **Small size** **Centralization** **Charismatic leader**	**More dynamic market** **Broader scope** **Founder retires** **More competition**	**More monopoly power** **Trade barriers** **Market stabilization** **Less competition** **Patents** **Slack resources**	**Deregulation** **Poor performance** **Diversification** **Turnaround** **Strategic Planning**
Resulting Imperative	**Leadership**	**Environment**	**Structure**	**Strategy** **Leadership** **Environment**

Figure 2.1 Links between ae firm's life cycle and imperatives and effects on a firm's configuration (Miller, 1987, p. 690)

Miller (1990) refined his model of configuration theory by adding additional structures. For example, in response to the critique regarding change, he

modified the approach of change to specify that while first-order change occurs relatively easily within an organization, second-order change is more complex and would only happen in response to changes in imperatives, 1990). He also clarified that the potential configuration of organizations was in theory limitless, but in practice was strongly limited by the likelihood of different organizational effects (Miller, 1990). In this work, several common organizational configurations were explicitly identified, which was not done in previous work. His typology of organizational configurations included the bureaucracy (characterized by strict structure and encouraged by factors such as corporate culture, technological demands and strongly formalized procedures); the adhocracy (an open system, adaptable organization operating in a highly changeable market); the simple type (small, informal, flat, and centralized organizations with little internal structure, typical of startups and small family firms); and the diversified form (in which organizational activities are divisional and different products or markets are pursued independently) (Miller, 1990). Each of these organizational forms is associated with a different environment and set of operating conditions, structure and internal organization.

2.3.2 Critiques and gaps in configuration theory

There are a number of areas that were not explored in detail during the initial statement of configuration theory by Miller (1987). For example, he noted that most studies to date had focused on the effect of individual imperatives, and had not yet addressed hybrid imperatives, for example the interaction between environment and firm structure (Miller, 1987). Other critiques of the model emerged afterward. For example, in a critique acknowledged later by the original author, configuration theory as originally stated was said to be simplistic and to lack a depth and breadth of understanding of how an organization's configuration and its strategy could be entwined (Miller, 1996). Another critique that has not been responded to in the Miller (1987 and subsequent) model of configuration theory is the lack of emphasis on organizational values as a potential imperative (Hinings, Thibault, Slack, & Kikulis, 1996). This limitation means that configuration theory considers the organization primarily as the product of its leadership, rather than considering the involvement of other members. This is a significant problem with the theoretical model.

An additional critique of configuration theory is the emphasis on classification, rather than description, of organizations. While this critique was particularly important in early periods, it continues today. Miller (1996) noted that most work in configuration theory was devoted to the development of typologies and taxonomies of firm configuration, which were by necessity limited and could not encompass all possible outcomes. Instead, he suggested at that time that configuration and its connection to imperatives should be considered as a quality of firms and a potential source of competitive advantage (Miller, 1996). This was once again suggested in later development of the theory, as it was not yet a focus of the academic literature (Miller, 1999). It is this approach that we are most interested in in this research. Miller (1999, p. 33) defined configuration in this sense as "the degree to which an organization's elements are orchestrated and connected with a single theme." This definition can be seen to be very similar to the definition of alignment, as identified above. Under this model of configuration, an organization with a very strong unifying theme is likely to have clearer strategies and procedures and stronger coordination between resources and activities (Miller, 1999). Thus, the strength of the orientation of the organization toward this theme underlies its overall level of organizational alignment and fit, and ultimately affects its performance.

2.3.3 Similarity to other theories

Miller's (1987) formulation of configuration theory is not the only such theoretical statement that has been derived; in fact, there have been a number of statements of configuration theory, which addressed different dimensions and aspects of organizational configuration and posit different effects (Meyer, Tsui, & Hinings, 1993). Some examples include Miles and Snow's (1978) model of organizational fit and Mintzberg's (1979, 1983) organizational configuration typology. However, Miller's (1987) specification of configuration theory is preferred here because it is the model that most consistently addresses the role of organizational configuration in terms of change and organizational performance.

Meyer, Tsui and Hinings (1993) stated that these configuration theories have strong commonalities, and essentially all of them address the factors related to firm organization and performance. However, configuration theory is distinct from its

predecessor, contingency theory, in that it is not reductionist and does not look at change as a gradual or progressive activity. Instead, change is viewed as an episodic, paradigm-breaking event, after which the organization regains equilibrium in response to the new imperatives in place (Meyer, Tsui, & Hinings, 1993). Thus, the variations of configuration theory are similar, though Miller's (1987) statement is, in this author's opinion, the most parsimonious of such models. However, it is distinct from similar theories such as contingency theory, making it useful in its own right.

2.3.4 Tests of configuration theory

Although configuration theory as described above is a reasonable model for how organizations are configured and how they perform, it is still important to consider the empirical evidence and how well the theory works in practice. Several meta-analysis studies and individual studies have examined the effectiveness of configuration theory, either alone or in comparison with another theory, in explaining firm performance. However, there is relatively little evidence from recent years regarding the relationship between organizational configuration and performance.

One study compared two interpretations of configuration theory, including Mintzberg's (1978, 1983) theory, which proposes a typology of organizational configurations, and Miles and Snow's (1978) model, which proposes that fit between organizations and their environment is the most important factor (Doty, Glick, & Huber, 1993). The authors conducted a survey of organizational configuration and performance, and found that Mintzberg's (1979, 1983) model did not explain performance significantly, while Miles and Snow's (1978) fit-based model was more effective. This supports the use of fit-based configuration theory, such as Miles and Snow (1978) or the more fully elaborated model proposed by Miller (1990) in conducting research on organizational alignment. A study that compared inductive (open) and deductive (typology-based) approaches to explaining hospital performance found that the deductive-based approach was more effective as well (Ketchen, Thomas, & Snow, 1993).

One meta-analysis examined 40 papers based on configuration theory that addressed the connection between firm configuration and firm performance (Ketchen et al., 1997). The most important finding of this research was that the extent of influence of configuration on firm performance depended strongly on how configuration was

defined and measured. The analysis showed that configuration influenced firm performance (average effect size = 0.276); however, there was no indication of significant difference between inductive and deductive configurations, a finding that contradicts Ketchen et al (1993) Single industry studies and longitudinal also showed stronger effects. Thus, this study mainly provided support for a narrow focus and longitudinal research design, with weak support for firm configuration as the main determinant in firm performance (Ketchen et al., 1997).

A more recent study used configuration theory as the basis for identifying organizational configurations in business venture units (Hill & Birkinshaw, 2008). The authors identified four common organizational profiles for business venture units, based on a mixed methods research project in the early 2000s. A major difference was found between exploration-oriented units (which seek to discover new businesses) and exploitation-oriented units (which put a large amount of time into developing new businesses). The authors found that exploitation-oriented units had longer survival times and higher profits than exploration-oriented units (Hill & Birkinshaw, 2008). Obviously, these findings are specific to the business venturing industry, since it has distinct imperatives, especially in terms of its operating environment. However, it does provide support for the continued utility of the configuration theory as a framework for understanding firm success. However, problems with the broad definition of configuration and inconsistent operationalization continue to be a challenge to understanding configuration theory and its effect on firms (Cao, Huo, Li, & Zhao, 2015). Thus, there is still additional work to do in understanding the role of configuration theory in firm performance.

2.3.5 Configuration theory and organizational alignment

Configuration theory has been used as the underlying theoretical basis for other studies related to organizational alignment. Doty, Glick and Huber (1993), as discussed above, is one such study. Another such study was conducted by Vorhies and Morgan (2003), who examined the organizational fit (or alignment) between the overall business strategy and the marketing organization, and then studied the effect of this fit on performance. The authors used Miles and Snow's (1978) typology of organizational configurations (prospector, analyzer, and defender) in order to identify the organization's

strategic approach, and then examined how well the marketing organization's structures and tasks fit with this performance. The authors found that the more a firm's marketing structure deviated from its ideal type, the lower marketing performance it achieved (Vorhies & Morgan, 2003). However, this is a very reductive model of firm configuration, and the effects were weak. It did not address, for example, the effect of different cultural environments, which has been shown to influence firm configuration and the effect of variance (Bensaou & Venkatraman, 1995).

Another study used configuration theory to examine performance in the electronics industry (Kabadayi, Eyuboglu, & Thomas, 2007). In order to conduct their study, the authors used the most effective firms in a given environment to inductively derive a configuration model they proposed was best suited to a competitive environment. They then compared the configuration and performance of other firms and examined channel performance across these markets. The authors found that the firms with a configuration closest to the market leaders were the most competitive (Kabadayi, Eyuboglu, & Thomas, 2007), which is not a surprising finding. The authors also found that linkages between the strategy and a firm's processes and organizations influenced its performance, particularly those in highly risky or uncertain environments (Kabadayi, Eyuboglu, & Thomas, 2007). This finding is more useful for the present study since it points to the importance of an internal fit between various components as a means of increasing competition in the environment. Furthermore, this study demonstrates that specific firm configurations, which include the organizational alignment of these firms, are more effective than others. Taken together, there is evidence that configuration theory confirms the importance of organizational alignment.

2.4 Marketing and Operations Alignment

This research is mainly concerned with one specific type of horizontal organizational alignment: marketing and operations alignment. This section examines the history and evolution of the concept, defines it, and identifies the research gaps in relation to marketing and operations alignment. It then examines potential measurement scales to address the concept, examines marketing and operations alignment in practice and finally reviews previous research conducted on the concept.

However, this research is also concerned with the strategic orientation of firms, which can be briefly defined as the leading factor that influences a firm's strategic decisions such as innovation, production, and market development (Gatignon & Xuareb, 1997). Two key firm orientations that are relevant for this research have been identified, namely *customer orientation* and *competitor orientation*. These dimensions are different elements of a firm's market orientation, or the process by which the firm identifies market needs and aligns its activities to meet them (Kohli & Jaworski, 1990).

Customer orientation (also called consumer orientation) refers to a market orientation in which a firm acts to identify and satisfy the needs of its customers in the long term (Deshpandé, Farley, & Webster, 1993). Customer orientation was originally understood as a characteristic of individual employees, for example salespeople (Saxe & Weitz, 1982). However, by the time Deshpandé, Farley and Webster (1993) discussed customer orientation in the context of Japanese automobile manufacturers, the concept had expanded to include the strategic decisions of firms. Customer-oriented firms identify and understand the needs of their customers, and then use this information to direct their innovation activities (Gatignon & Xuareb, 1997). As a result, the customer-oriented firm typically has a high level of knowledge about its core markets and is a source of innovative products and services to meet the needs of these markets. The literature suggests that customer orientation may be a particularly successful market orientation for small and medium enterprises (SMEs), as it makes the best use of limited resources (Carlos Pinho, 2008; Chao & Spillan, 2010).

Competitor orientation (also called competitive orientation) refers to a market orientation in which the firm acts to identify and respond to the choices of its competitor, rather than directly to customers (Gatignon & Xuareb, 1997). Although it seems counterintuitive, a competitor orientation can help a firm compete in several situations, including allowing the firm to identify and take advantage of opportunities that have not been served by other firms or by improving on a competitor's value to consumers (Grinstein, 2008). At the same time, a competitor orientation that is followed too closely can cause a firm to imitate competitors and accept a less advantageous market position (Grinstein, 2008). Competitor orientation is also associated with marketing capabilities, which have a direct effect on a firm's performance (Grinstein, 2008).

The second concept of concern is operations. Operations refers to the activities that firms undertake to deliver value to their customers (Slack & Lewis, 2011). In a manufacturing firm, operations could encompass new product development, manufacturing, distribution and inventory management, and related activities. Slack and Lewis (2011) identified five generic operational objectives, including quality, speed, dependability, flexibility and cost, which may be undertaken by firms to meet specific operational goals. Operations is linked to market orientation because the operations processes of firms are the tools they use to meet the needs of customers under their choice of market orientation strategy (Slack & Lewis, 2011). For example, a firm that uses a customer orientation strategy may devote more of its resources and align its activities to discovering and meeting customer needs directly, while a competitor-oriented firm will focus more on competitors (Slack, 2011).

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2.4.1 Evolution of marketing and operations alignment

Recognition of the problem of marketing and operations alignment began in the 1960s, after Lawrence and Losch's (1967) study of organizational subsystem differentiation and integration, in which it was found that there was a significant gap between production and sales sub-systems, with little integration of goals or concerns. At that time, widespread mass production meant that there was little concern for operations management, but this changed with Skinner's (1974) identification of increasing competition and the need for operations strategy. In this study, the author pointed out the lack of focused strategies and shared goals and policies as a reason for the crisis in productivity that was causing at least some manufacturers to fall behind the competition (Skinner, 1974). However, Shapiro (1977) showed that simply having shared goals was not enough to align marketing and operations strategies and processes. Instead, these types of organizations were often fighting against ingrained perceptions and internal organizational cultures that resulted in disparate worldviews (Shapiro, 1977). A number of areas of potential conflict between the operations of these firms were identified, including capacity planning and long-range forecasting; production scheduling and short-range forecasting; delivery and distribution; quality assurance; product line variability; cost controls; new product development; and post-sales service facilitation (Shapiro, 1977). This study was important because it pointed out the depth of the problem of

marketing and operations alignment, demonstrating that it was not simply a matter of shared overall goals. However, this was not an insoluble problem; for example, the product-process matrix was an early tool offered to integrate the marketing and operations considerations of firms (Hayes & Wheelwright, 1979).

By the mid-1980s, it was becoming clear that firms had to create and deliver value in order to compete in the marketplace (Porter, 1985), a realization that reinforced the importance of marketing and operations working together rather than separately. The first models of a marketing and operations interface were introduced in the late 1980s to early 1990s (Eliashberg & Steinberg, 1987; Eliashberg & Steinberg, 1993; Hausman & Montgomery, 1993; Lee & Kim, 1993; Karmarkar, 1996). These early studies typically focused on joint decision processes and/or the effect of different decision priorities, and did not yet focus on the effect on the overall performance of firms.

Research into marketing and operations interface or integration grew rapidly in the early 2000s. This research included examination of the role of integration in customer value creation (Sawhney & Piper, 2002); development of integration frameworks and identification of three levels of integration concern (Malhotra & Sharma, 2002), and examination of the influence of marketing-operations interface on joint activities such as new product development (Calantone, Tamer Cavusgil, & Zhao 2002). Piercy and Rich (2004) identified the role of the marketing-operations interface in another emerging organizational form, that of the lean enterprise. There was further development and morecomplications occurred during the intervening period, for example, studies that identified key issues in the relationship between marketing and operations functions and how they could be resolved (Piercy, 2007; Piercy, 2010). In summary, while there has been a steadily increasing awareness of the importance of marketing and operations alignment, the bulk of the research on this topic comes mainly from the early 2000s and later. Furthermore there are still significant remaining questions, such as the specific characteristics and requirements of marketing and operations alignment (Dixon, Karniouchina, van der Rhee, Verma, & Victorino, 2014; Marques, Lacerda, Camargo, & Teixeira, 2014). Several of these remaining questions are the concern of the current research.

2.4.2 Definition of marketing and operations alignment

Given the extent of the development of the concept of marketing and operations alignment outlined above, it is necessary to clearly define what is meant by this concept. Most studies that have addressed marketing and operations alignment have not specifically defined the concept that they were referring to, or used standard definitions of interface or organizational alignment. This is related to the multiplicity of definitions of alignment and related terms, which persists as a problem of the definition and modeling of the concept (Tang, 2010). However, a few authors have offered meaningful definitions of the concept that are useful here.

Table 2.3 provides a summary of various definitions found in the literature. Some of these definitions are for marketing-operations interface, while others specifically relate to marketing and operations alignment. For the purposes of definition, these two concepts are similar enough to include both. One of the obvious trends in these definitions is the use of three levels (strategic, tactical and operational). This is consistent with the general principles of long-range planning and cross-functional integration, which typically span all three levels of organizational activity (Oliva & Watson, 2011). However, there are differences in the integration processes and activities at these levels. As one author explained, "According to Parente [1998], contact between the actors is more direct at the operational level, because shorter time adjustments are needed in this context. On the tactical level, individual characteristics are not at the center of the interaction, while individual and functional integrations are in the spotlight at the strategic level" (Paiva, 2010, p. 380). Thus, while these different integration levels are related, there will be various considerations and concerns at each level.

Another characteristic of the definitions is that there is integration and even interdependence between the two organizational functions, which in turn requires the marketing and operation functions to work together and collaborate (Hausman, Montgomery, & Roth, 2002; Malhotra & Sharma, 2002; Gattiker, 2007; Piercy, 2007). However, there are also some areas with a clear delineation of the responsibilities of each of the organizational functions. This is most visible in Erickson's (2012) definition, which outlines the responsibilities of each unit. In contrast, Paiva (2010) delineates activities and processes that are the joint responsibility of both groups. The operational definition of marketing and operations alignment used in this study, based on these definitions as well

as the operational definition of organizational alignment, is:

The extent to which the operations, tactics and strategies of the marketing and operations units within an organization are consistent, and the extent to which the marketing and operations units work together interdependently to achieve short-term and long-term business goals."

Definition	Source
"… the ability of manufacturing and marketing to work together in strategy implementation"	Hausman, Montgomery and Roth (2002, p. 242)
"Alignment between the marketing and operations strategy"	Malhotra and Sharma (2002, p. 215)
"Interdependence between marketing and manufacturing…"	Gattiker (2007, p. 2896)
"Close collaboration between marketing and operations…"	Piercy (2007, p. 173)
"Key decision areas, which are dependent on cross-functional integration between manufacturing and marketing. These areas include strategic planning integration, strategic or visionary forecasting, demand management and operational integration."	Paiva (2010, p. 380)
"The strategic interaction between the two	Erickson (2012, p. 326)
critical functions of marketing, which is responsible for creating demand for a firm's product, and operations, whose role it is to manufacture the product…"	

Table 2.3 Summary of definitions of marketing and operations alignment

In addition to the definition of marketing and operations alignment, in this study it is important to also understand the meaning of market orientation. The most credible and robust definitions of market orientation have been provided by Narver and

Slater (1990) and Kohli and Jaworski (1990). Market orientation is firstly defined as: "the organization culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for buyers and, thus, continuous superior performance for the business… Market orientation consists of three behavioral components – customer orientation, competitor orientation and interfunctional coordination – and two decision criteria – long-term focus and profitability" (Narver and Slater, 1990, pp. 20-34). The other prominent definition of market orientation is: "the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments and organization-wide responsiveness to it" (Kohli and Jaworski, 1990, pp. 1-18).

While the definition of Kohli and Jaworski (1990) speaks to market orientation as a fulfillment of a marketing concept, the definition put forward by Narver and Slater (1990) is more robust, as it focuses on market orientation as an all-encompassing organizational culture. Moreover, Kohli and Jaworski's (1990) definition is one established from mainly a market perspective, but Narver and Slater's definition takes into account a behavioural perspective founded on culture. Kohli and Jaworski refer to the business philosophy of the marketing concept and consider market orientation to be the implementation of that concept or philosophy. However, the definition of Narver and Slater (1990) goes further so as to consider market orientation as an underlying culture of the organization, which will significantly influence marketing-operations alignment and ultimately the performance of a firm. As a result, for the purposes of this study, the definition established by Narver and Slater (1990) will be supported.

2.4.3 Marketing and operations alignment research

As previously mentioned, there are a number of gaps in the research on marketing and operations alignment, which are long-standing. For example, although marketing and operations (particularly manufacturing) were identified as an obvious dyadic function pair for enhancing customer value creation in the 1980s, the process and function of alignment was not explored at that time (Karmarkar, 1996). Parente (1998) pointed out that there was a lack of understanding of the characteristics and functions of the marketing and operations alignment and how it actually worked within the organization. Hausman, Montgomery and Roth (2002) identified a gap in the research

relating to the actual behavioral and operational practices that facilitate or prohibit effective alignment between marketing and operations concerns. This has continued to be the case in later research, with a number of research gaps still persisting (Tang, 2010). For example, Marques, Lacerda, Camargo and Teixeira (2014) stated that it was still difficult to determine how marketing and operations actually interact at the strategic, tactical and operational levels, and how these interactions lead to improved firm performance.

An emerging area of study focuses on the decision processes and tools used in the joint decision making and goal setting of the marketing and operations functions, such as sales and operations planning (S&OP) and enterprise resource planning (ERP) (Feng, D'Amours, & Beauregard, 2008; Gattiker, 2007). This research indicates that the problem identified by Parente (1998), which is a poor understanding of the actual processes used to align marketing and operations, persists, although there is increasing knowledge about what types of tools can be used (Marques, Lacerda, Camargo, & Teixeira, 2014). For example, there is a general lack of understanding of the role of marketing and operations alignment in lean organizations and how the lean organization configuration influences this alignment process (Piercy & Rich, 2004). Given that many of these tools are no longer new, it is surprising that these research gaps have persisted, although this is consistent with the general lack of developmental research into the theory of organizational alignment and configuration theory generally. Thus, looking at what firms actually do and how these activities fit with a firm's strategies is an opportunity for additional research.

Furthermore, there is evidence of a gap in the research regarding the role of organizational structure and configuration and its influence on the marketing and operations interface of Lee, Kozlenkova and Palmatier (2015). These authors have pointed out that most of the studies that even address organizational structure take into account a very limited set of variables, and do not consider the complex interplay of the environment and internal structure that can influence organizational activities. This gap extends to whether or not the firm-level strategies actually fit the configuration and external conditions of a firm (Lee, Kozlenkova, & Palmatier, 2015). This is one of the research gaps that the present study has chosen to address, by using configuration theory as the basis for understanding the marketing and operations alignment process.

There are a number of reasons that may cause these research gaps to persist. One reason is that marketing as an operational function has had difficulty in justifying its strategic importance, particularly because of poor definition and measurement of marketing results (Klaus, Edvardsson, Keiningham, & Gruber, 2014). This situation has limited the importance of the marketing and operations alignment as an area of research interest, since marketing itself is not of major interest. Another issue that has facilitated the continued research gap in marketing and operations alignment is that the concept of alignment itself is poorly operationalized and is defined in various ways (Gerow, 2011). This lack of strong definition and operationalization makes it difficult to directly compare findings or to understand exactly what should be studied. For this research, the third objective relates directly to the final gap identified, which is the definition and measurement of marketing and operations alignment, as discussed below.

A further research gap is the lack of development of marketing-operations alignment as a multi-dimensional construct, rather than as a unidimensional one. Most studies have not identified the specific aspects of marketing-operations alignment that could be considered as dimensions of an overall construct. However, there have been some studies that have identified that marketing-operations alignment *is* a multi-dimensional construct, which incorporates different aspects of the function's activities. Analysis by Piercy (2007) identifies some of the areas where conflicts can arise in marketing and operations functions. Some of these conflicts include differences in the performance evaluation and reward systems of the functional units, differing leadership strategies and goals, and operational failures such as a failure to effectively coordinate decisions and exchange information between leadership in an organization (Piercy, 2007). A follow-up study conducted by Piercy (2010) identified several ways in which the functional coordination between the marketing and operations functions of small and medium firms could be improved. The recommendations of this analysis indicated that aligning performance evaluation and reward systems was critical for effective alignment. The author also determined that clear and aligned strategic goals and leadership activities are also important. Finally, specifically addressing the need to exchange information and make coordinated decisions between the departments is identified as key factors in the effective functional orientation (Piercy, 2010). From these studies, there are five possible dimensions that can be identified for marketing-operations alignment, which include

leadership strategy, coordination of decisions, information exchange, and alignment of performance evaluation and reward systems between departments.

2.4.4 Measurement scales for marketing and operations alignment

The second objective of this research is to define, develop and validate a measure of marketing-operations alignment based in configuration theory. This section begins the work of this objective by reviewing existing measurement scales and instruments that have been used to assess marketing and operations alignment and reflecting on their coverage (operational, tactical and strategic levels) and their consistency with configuration theory. The instruments reviewed are summarized in Table 2.4. In some cases, the full scale is not listed, particularly Gerow (2011), whose work used an extensive multi-item scale for each of the constructs involved. For details of these instruments and their adaptation, please see subsequent chapters.

One of the most extensive alignment measurement efforts was undertaken by Gerow (2011), who constructed a measurement scale intended to measure IT and operational strategy alignment. This instrument is not directly applicable to the current study, because it was used to measure a different type of alignment. However, the author did include strategic, tactical and operational concerns within the model, and had an extensive model of interactions between the IT and operations business functions and the overarching business strategy (Gerow, 2011). Thus, this scale serves as a strong model for developing a similar scale for marketing and operations alignment. Gerow, Thatcher and Grover (2015) have further refined these scales, but the refinements are more predominantly oriented toward IT-strategy alignment, and thus would require additional work to redevelop for the marketing and operations alignment.

Another strong model for this study is offered by Paiva (2010), who assessed strategic, tactical and operational concerns in her study on the link between marketing and operations alignment, firm leadership priorities and performance. Paiva (2010) used a small number of items (3) in the marketing and operations alignment scale in order to assess the total level of internal coordination and problem solving. Although this approach is similar to the simple operationalization used in the studies discussed below, it differentiates itself by focusing on multiple levels of a firm's operations, and is thus considered a preferable approach. Gerow's (2011) work, along with Paiva's (2010)

scales, offer guidelines for assessing all three levels of operations, although there is room for integration of additional items from other scales.

The approach of Hausman, Montgomery, & Roth (2002) was much more straightforward, using single-item Likert scale proxy variables to address the marketing-manufacturing interface. A very similar approach was used in another study, which unusually addressed the interaction between three departments (marketing, research and development, and operations) (Olson, Walker, Ruekert, & Bonner, 2001). Hausman, Montgomery and Roth (2002) noted that this was consistent with the exploratory goals of their study, but also acknowledged that it was a limited approach. Another issue is that these items were primarily strategic, with limited operational items only related to working together and for morale. In contrast, Olson, Walker, Ruekert and Bonner (2001) primarily examined tactical aspects of cooperation between the units and shifts. While this limited approach is useful for exploratory research, it does not provide the functional assessment or the level of analysis desired in this study.

Unlike most other scales, Sawhney and Piper (2002) almost entirely studied the operational level of marketing and operations interaction, with their assessments primarily oriented toward marketing-operations interface quality. These items are useful in terms of their orientation toward quality, not merely quantity. However, they are somewhat limited in that the items relate to a manufacturing context only. This is an opportunity for future improvement and an area that could be expanded with additional research.

Although the studies above offer guidelines for measurement of marketing and operations alignment, there are still likely to be challenges with implementing and validating such a scale. For example, scale development may be based on inadequate definitions of the underlying construct or may not be adequately validated against these constructs. There is also the disadvantage that using existing instruments can limit the inclusion of new or surprising aspects of the construct, which could perpetuate the limited constructs (MacKenzie, Podsakoff, & Podsakoff, 2011). Another problem is that most existing scales in this area, including the scales reviewed above, were developed for large organizations in specific industrial environments (Piercy, 2010). This could limit their application in different industries or areas of concern. Thus, the scales above cannot simply be used as they are, but must be considered as a starting point for scale development and validation for the construct.

Furthermore, the summary below shows that while there is ample focus on alignment at the strategic level, and some assessment of alignment at the operational level, the tactical middle is largely missing. This is important because, recalling Paiva's (2010) discussion of the operational, tactical, and strategic levels of the marketing and operations interface, the tactical level is where processes and procedures are defined, and where broader strategic concerns and personal relationships are no longer operable; thus, this may actually be the most vulnerable level of the marketing and operations integration activity, particularly if it is not supported externally.

The resulting scale will differ from the scales described above and listed below in several ways. Some of the other scales measured alignment between different areas of firms, which is not fully and directly relevant for this particular study. The scale being developed is primarily intended to measure marketing-operations alignment. Not all of the scales previously identified considered all levels of operations, including strategic, tactical and operational. In fact, two of the previous studies identified only considered one level of operations, i.e. the operational level. The scale under development is not restricted to firms of a particular size or within a specific environment or industry. In contrast, the scales identified from previous studies are specific to large firms operating within industrial environments. However, despite the differences between the identified scales and the one being developed, it is still critical to review them in their entirety to assess how they can be adapted. The work of integrating and developing these scales is explained in subsequent chapters, along with the resulting instrument.

Measurement scale	**Sources**	**Strategic level**	**Tactical level**	**Operational level**
- Intellectual Alignment (8 items) - Operational Alignment (6 items) - Cross-domain Alignment (6 items) - Business Alignment (12 items, 2 subscales) - IT Alignment (6 items)	Gerow (2011) Gerow, Thatcher and Grover (2015)	√	√	√

Measurement scale	Sources	Strategic level	Tactical level	Operational level
- Performance (8 items)				
- Marketing importance to strategy - Manufacturing importance to strategy - Marketing and manufacturing working together - Profit - Competitive position - Morale of manufacturing personnel - Morale of marketing personnel	Hausman, Montgomery and Roth (2002)	√		√
- Dyadic cooperation scales between departments (Marketing, R&D, Operations) and shifts (early, late)	Olson, Walker, Ruekert and Bonner (2001)			√
- Manufacturing and marketing integration - Joint activities to develop new products/services (S) - Joint activities to improve coordination between manufacturing and marketing - (T) - Cooperative activities for problem solving (O) - Cooperative - Managerial priorities Business performance - Order entry system stores order information, completion time and capacity information	Paiva (2010)	√	√	√

Measurement scale	Sources	Strategic level	Tactical level	Operational level
- Marketing consults operations before special feature requests are accepted. - Marketing consults operations before early delivery requests are accepted.				

Table 2.4 Summary of existing scales for marketing and operations alignment

2.4.5 Marketing and operations alignment in practice

In addition to definition and measurement issues, there arises the question of what benefit marketing and operations alignment offers to firms in practice. Surprisingly, there is limited research into how firms can actually benefit from marketing and operations alignment, leaving some gaps in the research on this topic. For example, one research study pointed out that most research into the marketing-operations interface (their chosen synonym) only addressed production and forward logistics, and did not address returns management (Mollenkopf, Frankel, & Russo, 2011). In fact, the only previous study that could be found in this area is a theoretical economic analysis (Yalabik, Petruzzi, & Chhajed, 2005). This is a critical gap because of the importance of returns management to customer satisfaction, particularly in an online or catalogue-based retail situation where efficient and effective returns are critical (Mollenkopf, Frankel, & Russo 2011). A summary of the hypothetical situation is as follows: "Marketing is the creation of customer demand; operations management is the supply and fulfilment of that demand… When the two are in conflict, one often sees a mismatch in demand and supply, leading to production inefficiencies and unsatisfied customers. When they are in sync, we frequently see an improved firm competitiveness and profit" (Ho & Tang, 2004, p. 429). However, this assertion is made without any evidence, and it is often unclear what kinds of marketing and operations alignment are used in practice and how these alignment practices influence the outcomes of firms (or even if they do). Thus, there is a significant research gap in this area.

Some authors have addressed these critical points. For example, Dixon, Karniouchina, van der Rhee, Verma and Victorino (2014) examined the importance of coordinating the marketing and operations strategy in a services firm (which is another area where there is a significant research gap). The authors pointed out that services are unlike manufacturing in that the customer is involved in the production of the service, which the authors termed *co-production*. Furthermore, customers can become dissatisfied if their experience is inconsistent with what they were promised as a service from the marketing information. Therefore, extensive coordination between marketing and operations was found to be essential to ensure customer satisfaction in co-production situations such as service situations (Dixon, Karniouchina, van der Rhee, Verma, & Victorino, 2014). Another key insight is that marketing and operations alignment can be facilitated by technological tools, such as ERP systems, particularly at the operational and tactical levels (Chen & Chen, 2008; Gattiker, 2007). One author points out that the ERP serves as a means of translating strategic objectives into operational goals, and furthermore can be used to translate operational goals of one department to another (for example, the marketing department's sales orders can be translated into production orders on the operations floor) (Gattiker, 2007). Thus, technology should be considered to be part of the marketing and operations interface.

Marketing and operations alignment is not without costs to firms. Erickson (2012) points to the concept of transfer pricing as a way to conceptualize the costs and benefits of the alignment for both the marketing and the operations functions within firms. He notes that even under conditions of strategic alignment, the two functions may continue to have conflicting goals (for example, ensuring customer satisfaction versus controlling costs) (Erickson, 2012). Thus, each interaction within the alignment process incurs a transfer price, which represents the lost opportunities of cooperation and coordination versus enforcing the function's dominant interest, which is offset by the gains (Erickson, 2012). Using economic theory, another set of authors demonstrated that return strategies must be balanced between marketing and operational concerns in order to avoid lost revenues or excess costs (Yalabik, Petruzzi, & Chhajed, 2005). These are highly technical analyses that draw on game theory and economic analyses to understand the interaction between a firm's functions and its role in establishing strategic goals, but the point is well made that marketing and operations

alignment does represent a compromise on the part of both departments in order to achieve common goals. More research into the costs and benefits of alignment in firms would be helpful in the development of an increased understanding in this area.

2.4.6 Previous studies on marketing and operations alignment

The final goal of this chapter before presenting the research framework for the study is to review the previous studies on marketing and operations alignment. These studies provide methodological guidance and a general summary of what types of findings could be observed from the current research. The studies reviewed for this research are summarized in Table 2.5. These studies do not always have consistent findings. For example, Nath, Nachiappan, & Ramanathan (2010) found that a firm's marketing capability was the most significant influence on the performance outcomes. This finding is consistent with other commentary that centralizes marketing as the main provider of updated information, which helps the strategies and assumptions of other departments avoid becoming outdated (Wind, 2005). However, Yu and Ramanathan (2014), conducting a very similar study, found that a firm's operational capabilities are also important because they influence retail efficiency. Thus, the precedence of operational and marketing capabilities is not certain. Furthermore, other studies have implied that the influence of marketing and operations alignment on a firm's financial performance may be relatively modest (Hausman, Montgomery, & Roth, 2002; Nath, Nachiappan, & Ramanathan, 2010). In many ways, this makes sense, since there are many factors (not all of which are under the control of firms) that could influence a firm's financial performance. However, it is a good reminder that while marketing and operations alignment will positively influence the performance of firms, it will not necessarily drive it.

Most authors did not explicitly use configuration theory in their examination. However, one study touched on the importance of a firm's configuration as an influential factor in the marketing and operations interface. These authors studied a project-based firm, in which the internal structure and interaction with the environment necessitates close coordination between marketing and production activities (Turkulainen, Kujala, Artto, & Levitt 2013). Although this is not a complete assessment of the role of the marketing and operations interface in all firm configurations, it does provide evidence

that some firms may have more rigorous demands than others. Other researchers also found that the environment and firm interactions could influence the outcomes of the product development process (Tatikonda & Montoya-Weiss, 2001). Previous studies highlighted the positive relationship between marketing-operations alignment and customer orientation and competitor orientation using dynamic capability. The research outcome of a study conducted by Hilman and Kaliappen (2014) demonstrated that market performance improves when customer and competitor orientation is exercised. A comparison of customer orientation and competitor orientation determined that an emphasis on customer orientation is even more beneficial than a focus on competitor orientation. However, this particular finding is not consistent with all previous studies, as the results have been found to be varied. Further studies, such as the one conducted by Zhou, Brown, Dev & Agarwal (2007), found differences in the influence of customer orientation compared with competitor orientation. Customer orientation gives a more positive influence in developed markets, while a greater focus on competitor orientation yields higher performance results in developing markets.

In summary, the research on marketing and operations alignment has touched upon several different aspects of the development process. It has generally been found that the interaction between these two organizational functions does have a significant (though modest) effect on firm success indicators, such as economic performance, delivery performance, and marketing performance.

Authors	**Aim and Objectives**	**Methods**	**Findings**
Hausman, Montgomery and Roth (2002)	Conducting an exploratory study of the effects of the marketing and operations interface on the performance of firms.	Quantitative survey of business leaders (n = 390)	The authors focused on what they termed marketing/ manufacturing (M/M) harmony. They found that a firm's profit performance and competitive position could be influenced by the M/M interface and harmony, although these effects were

Authors	Aim and Objectives	Methods	Findings
			small ($R^2 = 0.14$ and $R^2 = 0.20$, respectively). Thus, while this study did provide some evidence that the marketing and operations interface had a statistically significant effect, its importance is limited.
Marques, Lacerda, Camargo, & Teixeira (2014)	Studying the actual relationship between marketing decisions and operational performance.	Neural network analysis of a firm's performance in Brazil	These authors were mostly concerned with the operational performance of the marketing and operations alignment, as indicated by the relationship between marketing, sales and promotions, and delivery performance (operations). The authors found that seller characteristics had a strong influence on delivery performance. These characteristics included the sales share, purchase frequency, volume, and product types. Thus, the most important factor in marketing was the influence of what kinds of retailers the marketing department sold to.
Mollenkopf, Frankel and	Studying the marketing-	In-depth case study of an	The authors found that the value of marketing and

Authors	Aim and Objectives	Methods	Findings
Russo (2011)	operations interface in the context of product returns.	appliance firm	operations alignment in this area was dependent on the external environment. However, for the firm in the study, customers were highly dependent on the returns policy. Thus, the effective interfacing of the marketing and operations resources to facilitate returns was a factor in customer satisfaction and firm performance. However, the study was limited in that it only addressed a single firm.
Nath, Nachiappan and Ramanathan (2010)	Studying the effect of marketing and operations capability and diversification strategy on the firm's performance.	Quantitative survey of UK-based manufacturing firms (n = 102)	The authors found that both marketing and operations capability had a main effect on firms' business performance, but marketing capability's coefficient (0.21) was nearly twice that of operations capability (0.11). Marketing capability had a much stronger effect (0.38) in the group that focused on production efficiencies, while operations capability effect was essentially unchanged (0.13). The authors concluded that

Authors	Aim and Objectives	Methods	Findings
			marketing capabilities were more important for a firm's performance and should therefore be the driver in firm strategy, while firms focusing on operational capabilities would not be as competitive
Oliva and Watson 2011)	Studying the relationship of sales and operations planning in the supply chain management process.	Detailed case study (single firm)	The authors found that the firm did not have a strong strategic or tactical position of aligning sales and marketing and operations strategies, and did not implement incentives to encourage alignment. Despite this, the firm showed a high level of operational process alignment because this alignment was in the interests of both groups, facilitated by personal relationships and communication. They identified three types of alignment, including procedural alignment, communication, and alignment quality. Furthermore, they determined that execution alignment was the most important factor in the eventual

Authors	Aim and Objectives	Methods	Findings
			success of the firm.
Tatikonda and Montoya-Weiss (2001)	Studying the role of marketing and operations alignment in product development activities.	Quantitative analysis of completed development projects (n = 120)	The authors found that organizational process factors had an influence on new product development, and that the success of this development process was a factor in the marketing outcomes. Interaction between production and operations influenced the overall outcomes, and in the authors' view represented a significant firm capability.
Turkulainen, Kujala, Artto and Levitt (2013)	Studying the marketing and operations interface in project-based firms.	Theoretical discussion	These authors addressed a difficult area of marketing and operations alignment, which is its outcome in the project-based firms. The project-based firm is a unique structure, according to configuration theory, which will influence how it performs (Miller, 1987). Turkulainen et al. (2013) demonstrated that this type of firm requires much more extensive alignment between marketing and operations, since the marketing department essentially sells products or

Authors	Aim and Objectives	Methods	Findings
			services for the production department.
Weir, Kochkar, LeBeau and Edgeley, (2000)	Studying approaches used to align marketing and production strategies.	Two-stage survey of firms (n = 319 first stage, n = 20 second stage)	The authors found that, except in the largest firms, alignment and marketing and production was incomplete and often fragmented. Firms often did not have formal strategies and did not organize their objectives in either department to take into account. Often, firms had a single top manager designated as responsible for strategic planning in both departments, which may be the only link. This demonstrated that for most firms, alignment of marketing and operations was exceptionally weak.
Yalabik, Petruzzi and Chhajed (2005)	Studying the relationship between the marketing and operations functions in relation to product returns.	Economic modeling	The authors showed that coordination of marketing and operations costs was required in a firm's returns policy. If the return policy was too generous (supported by the marketing department) the firm's return costs would be excessive; in contrast, if the operations strategy dominated, returns

Authors	Aim and Objectives	Methods	Findings
			would be too restrictive, reducing revenues. The authors observed that most firms tended to have an unbalanced policy and recommended that both issues should be taken into consideration. However, this study is relatively weak because it did not rely on empirical research.
Yu and Ramanathan (2014)	Studying the relationships between marketing and operations capabilities and the effects on retail efficiency and firm	Archival survey of UK firms (n = 184)	Unlike Nath, et al. (2010) Yu and Ramanathan (2014) directly tested the relationship between marketing capability and operations capability. They found that marketing capability had a significant positive relationship to operations capability, while operations capability was positively related to retail efficiency. The study also found that there was
	performance.		a positive relationship between marketing capability and financial performance, but that this was mediated by operations capability. Thus, firms require both marketing and operations capability, and

Authors	Aim and Objectives	Methods	Findings
			these capabilities must interact in order to ensure their performance levels.
Hilman and Kaliappen (2014)	Exploring the connection between market performance and competitor orientation and customer orientation.	Quantitative survey of 114 firms in Malaysia	The study found that, from the perspective of dynamic capabilities, market orientation is a critical asset. It influences organizational performance by collating important information about customers and competitors, which can enhance the understanding of the market in its current and future state, as well as improve the ability to appropriately respond to changes in the market.
Zhou, Brown, Dev and Agarwal (2007)	Exploring whether or not firms should adjust their approach towards competitors or customers within a global market.	Quantitative survey of 184 firms globally	Competitor and customer orientations have different impacts on marketing-operations alignment. Firms should amend their competitor and customer orientations in accordance with the market environment. A stronger customer orientation enhances performance in developed markets and greater focus on competitor orientation

Authors	Aim and Objectives	Methods	Findings
			improves performance in developing markets.

Table 2.5 Summary of studies on marketing and operations alignment

The dependent variables used in this study are customer orientation. Customer orientation is one of the dimensions of market orientation, specifically the aspect of market orientation that requires firms to proactively identify and respond to customer needs (Herhausen, 2011). For this study, customer orientation is defined as company visions and strategies in which a firm is driven by discovering and fulfilling customer needs (Morgan, Vorhies, & Mason, 2009). Customer orientation, which focuses on the immediate needs of customers, is only one aspect of the long-term strategy of market orientation, but it is still an important part of the organizational processes of firms (Slater & Narver, 1998). Competitor orientation is another of the dimensions of market orientation, in which a firm focuses on the actions of its competitors (Herhausen, 2011). Competitor information is defined for this research as the company strategy that focuses on discovering, analyzing, and responding to competitor strategies (Grinstein, 2008). Customer orientation and competitor orientation form the second half of the conceptual framework.

2.5 Context of Manufacturing

This research focuses on marketing and operations alignment in the manufacturing context. The relationship between marketing and manufacturing is neither as robust nor as long-standing as might be expected. Although manufacturing and marketing developed largely synchronously throughout the 20th century, to some extent this development was unconnected (Benhabib, 2003). The introduction of competitive mass manufacturing, which began to occur in the 1950s and 1960s, created waves of mass-produced consumer goods and equipment, which were superficially differentiated through factors such as color and material (Benhabib, 2003). However, up to the 1970s,

the "technology-push" model of manufacturing, in which products were designed and produced and then a market was sought, predominated (Blenkhorn & Noori, 2011). During this period, manufacturing and marketing were almost entirely separated, with marketing functions within firms working with the products created through the design and manufacturing process, but having little or no input into the design (Benhabib, 2003). However, by the 1980s increased competition, along with increasingly complex manufacturing technology such as production robots, demanded that marketing and manufacturing needed to be more strongly linked in order to effectively compete (Benhabib, 2003; Blenkhorn & Noori, 2011). During the 1980s, concepts such as simultaneous engineering and pre-design market research began to become more widespread (Blenkhorn & Noori, 2011). Blenkhorn and Noori (2011), originally writing in 1989, were one of the first sets of authors to indicate that marketing and manufacturing operations should be not just linked, but integrated, in order to provide stronger competitive advantage. The rise of manufacturing and operations trends such as lean manufacturing in the 1990s further facilitated the rise of integrative studies of marketing and manufacturing, as traditional disciplinary boundaries broke down (Karmarkar, 1996) as seen in Table 2.6 which shows the distribution of empirical papers of marketing-operations alignment by industries from 2000 – 2015. Mainly, research studies have focused on the automotive, electronics and logistics industries (e. g. Olson, Walker, Ruekert, & Bonner, 2001; Swink & Song, 2007).

The relationship between marketing and manufacturing, although theoretically clear, has not yet been fully explored in the literature. Exploratory research into the integration of marketing and manufacturing began during the early 2000s (Hausman, Montgomery, & Roth 2002). Hausman, Montgomery, & Roth. (2002) showed that internally, interfunctional harmony between marketing and manufacturing enhanced organizational morale, and that this effect was stronger than simply emphasizing the importance of the individual functions. Furthermore, emphasis on manufacturing did improve the firms' competitive position (Hausman, Montgomery, & Roth, 2002). However, authors continued to recognize the conflicts and trade-offs involved in the alignment of marketing and manufacturing activities (Michalek, Ceryan, Papalambros, & Koren, 2006). For example, firms must choose between product characteristics that are less expensive to produce (thus meeting manufacturing objectives) and those that are

more in demand in the market (thus meeting marketing objectives) (Michalek, Ceryan, Papalambros, & Koren, 2006). At the same time, it was recognized that integration between marketing and manufacturing could provide significant advantages in new product development; while it did lengthen product development time insignificantly, it also resulted in significantly higher return on investment (ROI) for new products (Swink & Song, 2007). Furthermore, a recent study in Korea has demonstrated that integration of marketing and manufacturing activities has a direct, positive effect on plant productivity and product market performance (Lee, Rhee, & Oh, 2014). Thus, even though marketing and manufacturing integration is a relatively new practice, it can provide significant benefits to firms.

Country	**Industry**
Brazil	Food and Machinery
Brazil	Large Firms (General)
USA	Computers, Transportation and Telecommunications
USA	Printed circuit board (PCB) manufacturing industry
USA	Executive Program type students
USA	Manufacturing sector
USA	Private and Public companies
USA	Automotive, chemicals, electronics
USA	Electronics industry
UK	SME (Sport, Com and cloth)
UK	Logistics companies
UK	Retail Sector
Finland	Exporting firms
Portugal	Paper industry
Italian	Electronics industry
Norway	Food industry
Turkey	Automobile industry
Australia	Electronics industry
EU, USA and Australia	Service Sector

Country	Industry
India	Motion Picture Industry
India	Computers, Transportation and Telecommunications
China and Hong Kong	Electronics industry
Korea	Automobiles, electronics and machinery
Taiwan	IT industry

Table 2.6 Distribution of empirical papers by industries researched

2.6 Conclusion

This chapter has summarized the existing literature on the topic in question in order to respond to the first two objectives of the research and provide a foundation for responding to the third objective. The main issue in this study is that of organizational alignment, or the consistency of strategies, processes, capabilities and resources between units or functions within an organization. Furthermore, this research is mainly concerned with horizontal organizational alignment between the marketing and operations functions of firms. Although marketing and operations alignment is one of the areas of the literature that has received more attention than others, it still remains an underdeveloped topic. In particular, early emphasis on vertical organizational alignment means that horizontal alignment such as that studied here does not have a deep historic basis. Nonetheless, the research does show that marketing and operations alignment is perhaps one of the most important dyadic horizontal alignments within firms. It is inherent in the concept of market orientation and is required to ensure that a firm's products and production processes are consistent with what is being sold and what is being demanded by customers. In addition, there are still issues with the measurement and operationalization of marketing and operations alignment, which can be partially answered through reference to previous studies that have attempted to create typologies and measurement scales in other areas such as IT-strategy alignment. However, there are still gaps remaining in the research that can be explored in more detail. Configuration theory provides a route to understanding organizational alignment and its effects on the firms, although it also has its own disadvantages, including inconsistent definition and weak

operationalization. Thus, this chapter has identified a wealth of research opportunities even while defining a theoretical basis for the study. The following chapter explains how the research theoretical framework will be used in this empirical research.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to present and discuss the research methodology used to assess the concept of marketing-operations alignment in the manufacturing industry and then to develop and validate an appropriate measure for marketing and operations alignment. The study used the multi-method research design in order to first develop a draft instrument and then to test and refine it. The research of MacKenzie, Podsakoff, and Podsakoff (2011) defines processes for constructing, testing, and validating the proposed instrument (Figure 3.1 and Table 3.1). The first phase of the research involved semi-structured interviews with subject matter experts, the interview results were analyzed by using content analysis in order to create the initial multi-item instrument to assess the marketing-operations alignment process. This instrument was then tested in the second phase, which involved quantitative research and validation.

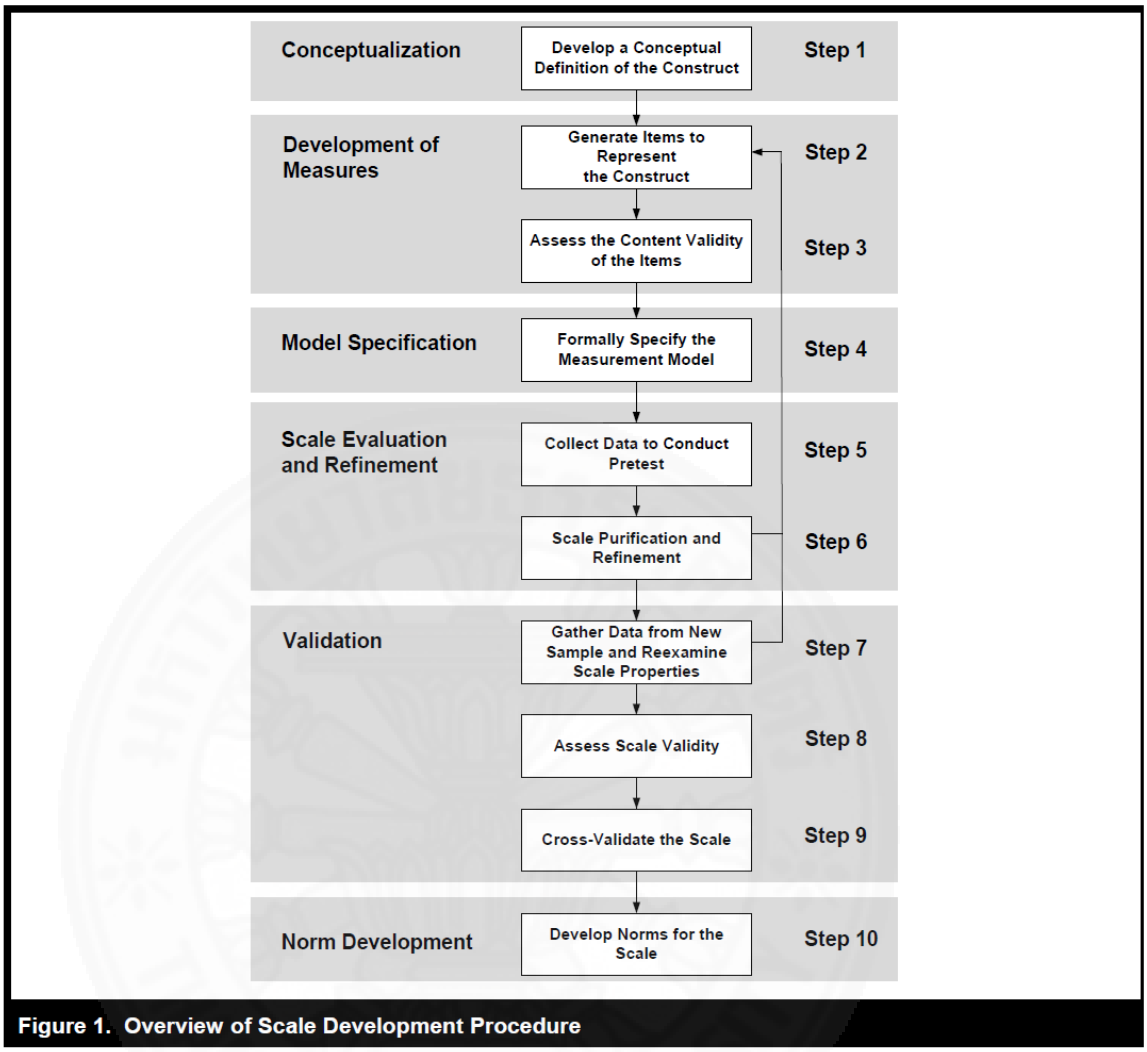


Figure 3.1 Overview of Scale Development Procedure

Source: MacKenzie, Podsakoff, and Podsakoff (2011)

Factor	Considerations
Examine how the focal construct has been used in prior research or by practitioners.	• Literature review of previous theoretical and empirical research on the focal construct. • Review of literature on the meeting of related constructs. • Conduct preliminary research using the inductive approach with the subject matter of experts or practitioners.
Specify the nature of the construct's conceptual domain	Identify the type of property the construct represents, and the *entity* to which it applies • Job satisfaction: Entity = person; general property = positive feeling about the job • End-user satisfaction: Entity = person; general property = positive feeling about computer technology • Perceived ease of use of technology: Entity = person; general property = perception or belief about the use of technology • IT capabilities: Entity = organization; general property = IT abilities and competencies • Procedural justice: Entity = person; general property = perception of fairness of procedures • Role ambiguity: person; general property = clarity of perception of role requirements • Fear of technological advances: Entity = person; general property = fear of technological changes • Job performance: Entity = person; general property = job outcomes • Firm performance: Entity = organization; general property = organization outcomes • Social capital :Entity =organization; general

Factor	Considerations
	• property =resources accruing from network relationships It is important to outline what a construct represents when constructs are being defined. It can represent property belonging to firms, how the property is viewed (and by whom the property is viewed in that way or the attitude of the employee toward the property. In order to avoid confusion, the construct has to be made clear in any definition and also has to be clear when progressing towards measurement. • What is entity? The property applies to an object, and this object is termed the entity. The entity can be an individual, a duty, a process, a team, a relationship, a combination of two elements, a network, a firm or a culture. If the construct applies to an entity and this is not identified, there will be problems with the research. • Therefore, while conceptualizing the construct, it is critical to specify the property and entity to which the focal construct refers and applies. • In this research, the property is the organization and the entity is the relationship between departments.
Specify the conceptual theme of the construct	Describe the necessary and sufficient attributes/ characteristics as narrowly as possible • Common attributes/characteristics • Unique attributes/characteristics • Breadth/Inclusiveness Dimensionality • Unidimensional • Multidimensional

Factor	Considerations
	Stability • Over time • Across situations • Across cases
Define the construct in unambitious terms	• Provide clear, concise conceptual definition of the construct • Should not be subject to multiple interpretations
	• Should not be overly technical)technical terms with narrow meanings (• Should define construct positively, not by the denial of other things; the negation of one thing does not imply the affirmation of something else • Should not be circular, tautological or self-referential

Table 3.1 Summary of Factors to Construct Conceptualization

Source: MacKenzie, Podsakoff, and Podsakoff (2011)

3.2 Instrument Development Process

The instrument development process followed Hinkin (1998), with adaptations from Shah and Ward (2007), in order to develop the underlying construct to be measured and create a reliable measure for it. These stages are defined in two phases, including the exploratory phase (conducted by using qualitative research) and the confirmatory phase (conducted by using quantitative research). The specific activities that were undertaken during the two stages are summarized in Table 3.2. The process of conceptualizing and operationalizing the construct of marketing-operations alignment and its dimensions was undertaken using the approach presented by MacKenzie, et al. (2011) (Table 3.2), with the first two stages (examining prior research and specifying the conceptual domain) being undertaken by using qualitative research and the final two stages (conceptual themes and definition) being facilitated by using quantitative research.

The development process (Figure 3.1) followed the process of MacKenzie, et al. (2011), beginning with conceptualization and following development, model specification, scale evaluation and refinement, validation and norm development phases. This process enabled the conceptualization and operationalization of a valid and reliable scale.

	Step	**Method**
Phase 1: Qualitative study	1. Generate items to represent the construct - Assess the content validity of the items	- Literature review of theoretical and empirical research - Conduct preliminary research using the inductive approach with nine practitioners
Phase 2: Quantitative study	2. Initial Purification of items - Assessment of representativeness and wording	- Determine the scale for the items Purification of items with expert review (N = 10) - Q-method approach to content assessment
	3. Scale refinement	- Coefficient alpha - Exploratory factor analysis (EFA)
	4. Scale validation - Internal consistency reliability - Construct reliability - Convergent validity - Discriminant validity - Nomological validity	- Confirmatory factor analysis (CFA)

Table 3.2 Research stages and activities

3.3 Phase I: Exploratory (Qualitative) Research

The purpose of the Phase I study was to establish and define the construct of marketing-operations alignment and to generate a series of scale items with appropriate

levels of face validity and content validity by using the qualitative in-depth interview. The Phase I study began with a literature review, which was followed by a qualitative study (Glaser & Strauss, 2012, orig. 1967). The literature review (Chapter 2) has been presented previously.

3.3.1 Qualitative sampling

The sample of the study was collected using theoretical sampling. Theoretical sampling is a process of sampling data in order to generate, refine and further the emerging theory (Glaser & Strauss, 2012). Theoretical sampling is not necessarily based on statistical sampling, although researchers hoping to formulate theories regarding the representation or frequency of an occurrence in the population can use statistical sampling (Glaser & Strauss, 2012). Instead, theoretical sampling is designed to seek out information that will help provide further information regarding the constructs and relationships in question (Glaser & Strauss, 2012). In general qualitative research, theoretical sampling may also be called purposive or purposeful sampling (Patton, 2015). The goal of theoretical sampling is to achieve theoretical saturation, which is the point where no further information emerges that could potentially alter or modify the theory under development (Charmaz, 2014; Glaser & Strauss, 2012). With this goal in mind, the original sample size was set relatively large.

In keeping with the need to include multiple, broad perspectives (Strauss & Corbin, 1994), the researcher included both academic experts and industry practitioners in the research. The initial sample of expert practitioners included representatives of four case firms (Food Co., Furniture Co., Automobile Co., and Electronic Co.). Two to three practitioners were included for each firm, with a total of nine practitioner experts interviewed in total. Academic experts took part in the research during the Q sort procedure (n = 6). The full process of the Q sort procedure is explained in Chapter 4.

3.3.2 Interview Guide and Interview Process

The interview guide and process guide is attached in Appendix A. The same interview guide was used for the academic experts and industry practitioners. After establishing the scope of the interviews and clarifying potential conflicting terms (such as marketing-manufacturing interface and others), there were a total of 13 questions asked in

each interview. These items were derived from the literature review, using the broadest possible perspective on what marketing and operations alignment could mean. However, keeping Glaser and Strauss's (2012) advice, as well as Seldén's (2005) critique, in mind, these items were only considered as a rough or partial framework for the final theory. In order to develop these concepts even further, a semi-structured interview approach was used. Semi-structured interviews, or semi-guided interviews, use a shared interview guide as the framework of the interview conversation but enable the participant and researcher to explore other areas and concepts where appropriate (Galletta, Mastering the semi-structured interview and beyond, 2013). Although there are some trenchant critiques of the semi-structured interview, including a lack of adequate guidance and the potential for derailment (Seidman, 2013), the semi-structured interview was still best for this study because of its flexibility and because of the ambiguity of the target construct. Interviews were recorded and the researcher took notes, including key responses, nonverbal answers, and the researcher's own thoughts. Interviews were then transcribed for analysis.

3.3.3 Data Analysis

The analysis was conducted using a rigorous process of coding and theory generation. The analysis process followed the template analysis. Template analysis is a highly structured qualitative analysis approach developed for high-volume textual data (King, 2012). Template analysis is fundamentally a thematic analysis approach, in which the researcher begins with themes identified in the literature, and then develops a set of codes based on these themes and a coding template for coding of the full data set through coding of a small sample of the texts (King, 2012). The coding template is then applied across the full data set, where it can be developed further. The process ends with an interpretation of the identified themes (King, 2012).

Transcripts, notes, and memos are all used in this categorization process, typically by making a categorical note in the transcript margin. These codes are then compared in the same theme and in different categories, with categories being collapsed or expanded as needed. This process of refinement allows the theme to be fully developed over time (King, 2012).

Following the initial refinement, the interviewees were contacted and asked for comments on the draft theory and instrument. The comments provided were

then integrated into a further refinement of the theory and instrument, which was used in the Phase II study. This refinement was conducted using the Q methodology, also known as the Q sorting procedure. The Q sorting procedure is a procedure that helps to validate instruments or constructs based on consensus (Coogan & Harrington, 2011). The full process of the Q sort procedure is described in Section 4.5. In brief, a panel of six experts was selected and randomly assigned in pairs, then asked to sort the Q-set, or items identified as part of potential constructs, into constructs (Coogan & Harrington, 2011; Newman & Kamlo, 2010; Watts & Stenner, 2012). This approach was chosen because it is not dependent on previous theories, unlike the similar Delphi method of expert consensus (Okoli & Pawlowski, 2004; Watts & Stenner, 2012). This makes it ideal for developing new instruments and dimensional constructs, although it has mainly been used in psychological research (Watts & Stenner, 2012).

3.4 Phase II: Confirmatory (Quantitative) Research

Phase II of the research used the preliminary theory generated in Phase I as the input, and Hinkin's (1998) process of instrument development was followed. This process has been used by other researchers in order to develop effective scales to measure different constructs including learning and talent engagement strategic alignment, consumer engagement and lean production (Hicks, 2015; Shah & Ward, 2007; Vivek, A scale of consumer engagement, 2009). This research closely follows Vivek's (2009) implementation of Hinkin's (1998) process. The process included scale development, scale refinement, and scale validation.

3.4.1 Scale Development

The scale development process began with initial item generation and purification.

3.4.1.1 Initial item generation

The initial item generation resulted from two sources. The first source was the qualitative interview outcomes (described above). Additionally, following the recommendation of Churchill (1979), existing marketing-operations alignment and similar scales were reviewed for potential items (Churchill, 1979). This

process resulted in a preliminary list of items and represented the dimensions of the marketing-operations alignment construct.

3.4.1.2 Purification of items

Purification of items was done using a pre-testing process, with expert review panel (n = 10, including six academic experts and four practitioners) each firm represented a top manufacturing firm in the major sectors operating in Thailand.The purification process included assessment of representativeness and wording of the items. This included the addition and elimination of items, reassessment, and a final assessment of the relevancy of the items and wording.

3.4.2 Scale Refinement

Exploratory factor analysis (EFA) was used in order to refine the scale by identifying potential scale constructs and relationships. EFA is an approach where items are arranged in scales without specification of relationships or structure, in order to identify potential relationships and latent variables and to eliminate irrelevant items (Fabrigar & Wegener, 2012). The draft instrument, derived from the previous step, was distributed to a sample of staff, managers, and directors in manufacturing organizations.

The appropriate sample size for EFA, along with other forms of structural equation modeling (SEM), is dependent on the number of items and constructs in the study (Hair, Anderson, Tatham, & Blac 1995). To make sure the sample was large enough, a minimum of n = 100 participants were selected (Hair, Anderson, Tatham, & Blac 1995) EFA was conducted in SPSS. The outcomes were assessed using item-to-total correlations. This helped to identify which items belonged to which constructs and to eliminate irrelevant items.

3.4.3 Scale Validation

The third stage of the Phase II study was directed toward scale validation. Once again, the instrument derived from the previous stage (Scale Refinement) was distributed to a sample (minimum sample size n = 100) of staff, managers, and directors of manufacturing organizations, and analysis was conducted in SPSS. However, this time analysis was conducted using Confirmatory Factor Analysis (CFA), which

allowed the researcher to test the validity of the structure derived from the previous stages (Brown, 2006). Internal consistency reliability, or the extent to which multi-item scales were measuring the same dimension as the marketing-operations construct (Brown, 2006), was the first issue. Internal consistency for scales with three or more items was measured using Cronbach's alpha (α), using a minimum threshold of $\alpha = 0.800$ for acceptance (Brown, 2006). Any scales that did not reach this threshold were examined and items were removed based on low inter-item correlation if warranted. Composite reliability of full constructs was also assessed ($CR \geq 0.7$) (Brown, 2006).

The second aspect of this research was convergent and discriminant validity. Convergent validity ensures that constructs presumed to be related are in fact related, while discriminant validity ensures that distinct constructs remain distinct and generally unrelated (Brown, 2006). Using standard rules of thumb for acceptance, convergent validity was tested based on Average Variance Extracted (AVE > 0.5) (Brown, 2006). Discriminant validity was based on three measures (MSV < AVE, ASV < AVE, and $\sqrt{AVE}$ > Inter-construct correlation) (Brown, 2006).

3.4.4 Nomological Validity

The final stage of the research was establishing the nomological validity, or in other words, the validity of the presumed relationship between the constructs derived (Cavusgil & Riesenberger, 2009). Unlike other forms of validity, nomological validity relates not to how well the instrument or scale measures a given construct, but how well it can be used to predict outcomes (Cavusgil & Riesenberger, 2009). This was particularly important in this research given that the goal of the study was to produce an instrument that could be actively used in business decision-making and analysis. There is no single approach to conducting nomological validity, but in this research, SEM was used to evaluate the relationships between constructs (Kline, 2011).

In order to test nomological validity, the refined instrument that resulted from the CFA process was once again distributed. The population of interest (staff, managers, and directors of manufacturing firms) remained the same. The same minimum sample size (n = 100) was used based on recommendations for SEM studies generally, with the target sample size adjusted based on the final form of the instrument. The analysis was conducted in Lisrel, this time using the full SEM framework. SEM

requires the researcher to established expected relationships and instruments, which are then tested in terms of their relationship strength (path coefficient) and significance (Byrne, Structural equation modeling with AMOS: Basic concepts, applications, and programming, 2010). Because SEM assesses the full model and measures an overall outcome for the final variable (Kline, 2011), it was considered the most robust test. In addition to the path coefficients and significance, the overall acceptance of the model was based on the criteria for construct reliability, convergent and discriminant validity as above. This re-testing was to ensure the final, refined model remained valid and reliable in use.

3.5 Ethical Considerations

All research has an obligation to observe ethical boundaries and norms that are appropriate for the research situation. At a minimum, this means that the research must not cause harm and, if possible, must benefit those that participate (Oliver, 2010). This research took place at the firm and industry level and did not include any vulnerable participant groups. However, there is the possibility that an incidental disclosure of competitive information could harm the firms involved, which would have negative ethical implications (Oliver, 2010). In order to prevent this potential harm, all participants were interviewed confidentially and were asked to double-check the transcripts and the final theory to ensure they were not misquoted and were comfortable with their disclosures. The researcher believes that the ultimate outcome of this research – a reliable, valid instrument for measuring marketing-operations integration – could be a boon both to the companies that participated and to the manufacturing industry as a whole, given its increasing importance. Thus, there were no ethical issues that were not dealt with.

3.6 Conclusion

The primary research for the development of a scale for marketing and operations alignment focused on the manufacturing industry was conducted as a sequential mixed methods research project. The project began with a literature review, followed by in-depth semi-structured interviews with 16 academics and practitioners. The

results of these interviews were analyzed using content analysis in order to generate a preliminary scale. The scale was then purified in order to ensure representativeness and to check the wording of the items. A quantitative survey was then conducted using the preliminary scale in order to enable further refinement and development. EFA and CFA were used in order to validate the scale and assess its internal consistency reliability, convergent and discriminant validity, and nomological validity. This approach, which was adapted from previous developments of similar scales and best practices in scale and measure development, has yielded a reliable, valid and robust instrument for assessing marketing and operations alignment. The results of the process are presented and discussed in the following chapters.

CHAPTER 4
CONCEPTUAL FRAMEWORK OF MARKETING AND OPERATIONS ALIGNMENT

This chapter explains the approach to developing the conceptual framework of marketing-operations alignment. The chapter begins with a summary of the methodology and data collection for the process. It then describes the findings from the qualitative practitioner interviews. Third, the identified dimensions of the marketing-operations alignment construct are explained. The marketing-operations alignment framework is then presented. Finally, the scale development process using the Q sort method is presented and its findings are examined.

4.1 Methodology and Data Collection

A preliminary qualitative case study was used to formulate the conceptual framework of the study. A multiple case study is a detailed, in-depth study of a small number of cases from different perspectives, which allows for the comparison of the situation and evaluating its different aspects (Yin, 2014). Data was collected via interviews and analyzed using template analysis.

4.1.1 Cases and Data collection

The analysis was conducted at the firm level. The qualitative study consisted of four cases from different industries, including the Food industry, Furniture industry, Automobile industry, and Electronic industry. The case firms represent top manufacturing firms in major sectors operating in Thailand (based on revenue, and including only public firms).

Data was collected from two to three firm representatives from each company, whose details are discussed below. Interviewees were purposely selected because of their position within the firm and ability to provide wide-ranging information about the firm (as well as permission to speak for the firm). Because marketing and operations departments were the main concern of the study, managers were selected from these two departments or the firm's functional equivalents. This meant that the data from

each of the firms was collected from marketing managers or directors and operations managers or directors in each firm. To select the participants, the researcher sought contacts in each department at each firm and then asked for referrals to individuals who were enabled to take part in the study. Each individual respondent was screened for their position within the firm and authority to speak for the firm's organizational strategies and processes prior to inclusion. This purposeful selection process is commonplace in interview-based research because of the time commitment involved of both researcher and participant and to ensure that the interviews collect reliable and accurate data (Galletta, 2013). The interviews were conducted using a semi-structured interview approach, which allows for flexibility and discovery of new and conflicting information while still ensuring that similar issues were examined in each interview (Galletta, Mastering the semi-structured interview and beyond, 2013).

The interview guides were established from the literature that was previously reviewed for the study. To develop the interview guide, the main themes of the research were developed from previous research, which is encapsulated in the literature review. The main themes were then collapsed into one-part or two-part open questions that addressed each of the main themes. Plain language, rather than theoretical language, was used to explore each theme, to avoid misunderstanding because of the potential difference in knowledge of academic models in a practice-based environment. Open-ended questions were preferred because these questions allow the respondents to select how they would respond to the question, leaving space for the researcher to be challenged and to collect further information (Galletta, Mastering the semi-structured interview and beyond, 2013). The preliminary interview guide was tested using a role-playing scenario with two volunteers, who then provided feedback about the questions and how they could be improved. This process identified several redundant or unclear questions, as well as identifying areas where questions the researcher thought were open-ended led to closed responses. Following this process, the feedback and other information provided by an expert review were incorporated into the draft research question. The researcher then re-examined the literature to determine if any key issues had been missed and incorporated a further item into the question guide. A further test was conducted with one volunteer, to ensure that the revised interview guide was effective. There were nine open-ended questions in the final interview guide, which is attached in Appendix A. These questions

were focused on specific areas, but still allowed for exploration and analysis.

Interviews were conducted in person, to allow for a greater rapport and more comfort between the researcher and participant and to improve the respondents' engagement with the interviews (Galletta, 2013). Each interview took one to two hours depending on the level of involvement, interest, and information provided by the respondent. The interviews were recorded and then transcribed for analysis. The researcher also took notes on key points, impressions, non-verbal communications and other information, which helped to identify important aspects of the interviews.

4.1.2 Interviewees

Between two and three participants were selected from each company. These participants were purposely selected because of their knowledge and professional involvement in the marketing and operations aspects of the firms, although they held different positions. Table 4.1 summarizes the interview participants that were selected from each company.

Company	Position	Number
Food Co.	Plant manager, planning manager, and marketing manager	3
Furniture Co.	Marketing manager and operations manager	2
Automobile Co.	Production manager and marketing manager	2
Electronic Co.	Production manager and marketing manager	2
Total		**9**

Table 4.1 Interview participants

4.1.3 Analysis procedure

The analysis was conducted by using a thematic approach, with template analysis used as the specific analytical tool. Template analysis has been used by other authors focusing on operations alignment questions (Brindley & Oxborrow, 2014), and was used for this research because it is possible to manage a large amount of data generated from interviews and because it specifically compares to the existing literature to ensure reliability (King, 2004). Template analysis was conducted by hand, with units of

meaning assigned specific codes based on the literature. Themes and information were deemed as significant if they were identified by at least 50% (five out of nine) respondents. This limitation made sure the key issues were identified in the analysis process. Outputs of this included a brief summary of the findings of the qualitative data, construct dimensions and a research framework.

4.2 Findings from Qualitative Data

The findings from the qualitative data were derived by using template analysis. Template analysis is a structured approach to the analysis of interview data and other qualitative data, which begins with a set of hierarchical codes (the coding template) defined a priori by the researcher based on the theoretical models available (King, Using interviews in qualitative research, 2004). King (2004) explains that template analysis is an iterative approach, in which the coding template is defined by the researcher and then tested and refined through subsequent application to the data collected until no further changes can be identified. The refined coding template is then applied to all the interviews or other data sets collected, with results used to interpret and explain the findings of the research (King, Using interviews in qualitative research, 2004).

The template analysis for this research was conducted through a combination of paper transcripts and Excel (used to organize the templates). It followed a set of sequential steps identified by King (2004) as belonging to the process. First, a set of codes was identified a priori from the literature review, focusing on specific themes and issues that were important to the research. These codes were designed hierarchically; for example, the initial code "meaning of cooperation" was divided into "planning cooperation", "operations cooperation", "interpersonal cooperation", and others. Recorded interviews were then transcribed and the researcher's notes from the interviews appended, to form the basis for the analysis. Initial coding was conducted by using this a priori template for all interviews. The coding template was adapted and changed throughout the initial coding, with codes added or adapted depending on the interview transcripts and their meaning. Relationships between the codes were also identified using hierarchical levels, with the broadest concept at the highest level and more detailed concepts at lower coding levels. No codes were removed at this time. Once the initial

template was prepared, it was simplified by removing unused codes and collapsing closely related codes into a single code. The number of coding levels was also reduced to avoid excessive complication in the analysis process. At this point, the researcher also engaged in critical reflection to identify potential sources of personal bias in the coding, removing codes that might reflect such a bias if they could not be justified. Following the refinement of the coding template, it was applied to each individual interview transcript, with codes freshly determined based on the new structure. This coding process was then used as the basis for interpretation and narration of the findings.

Here, a summary of narrative information derived from the field interviews based on seven key issues is presented. Following this narrative summary, the results of the template analysis are discussed.

4.2.1 Field Interviews

Respondents were asked nine questions about the nature of co-operation between the Marketing and Operations functions. These questions are attached in Appendix A and can be classified generally as meaning and importance of cooperation, the scope of cooperation, factors that influence cooperation, evaluation of cooperation, benefits of cooperation, and how to improve co-operation.

Meaning and importance of cooperation. Respondents identified shared ideas about the nature of consistent cooperation between Marketing and Operations. For example, these ideas included that it is a *mutual* process of *strategic planning*, *information exchange*, and *working together*, to achieve a set of *shared goals and objectives.* One definition that encompasses these elements is:

"It is mutual communication and strategic planning for enhancing production efficiency, reducing cost, and improving profitability" (Marketing Manager, Food Co.)

While respondents did not support full integration of the departments, an appropriate scope for cooperation included "strategies established in the long term and the short term" (Operations Manager, Furniture Co.) and "must be consistent with each other on goals, costs, and break-even point" (Manager, Food Co). Also thought to be appropriate was "mutual information exchange and problem-solving" (Production Manager, Electronic Co.) and "meetings for mutual analysis and planning" (Production

Manager, Automobile Co.) Thus, the scope of co-operation between departments is limited but broad. All participants viewed such cooperation as important or very important, for reasons including a mutual understanding of possibilities and limitations of the department and understanding of customer needs and production capabilities to enable sales. Another reason for its importance was reducing the cost of production errors.

Scope of cooperation. It was broadly agreed that setting mutual goals and strategies was within the scope of cooperation between Marketing and Operations. It was also generally agreed that these goals and strategies should stem from the overarching mission, values, and strategies of the firm set by the top management. Information exchange through regular meetings was also supported. However, agreement on tactical or short-term cooperation was weaker, with four of ten respondents identifying this as a possibility.

Evaluation of cooperation. Almost all respondents indicated that KPIs, such as monthly turnover, product quality, on-time delivery, or other cooperative metrics, were the most commonly used tool for evaluating cooperation between the two departments. However, this is an outcome-based measure, not a direct measure of cooperation: "KPI is used for evaluating the final turnover and mistakes, but the cooperation process is not evaluated" (Marketing Manager, Electronic Co.) KPI-based evaluation may also be relatively infrequent, for example, "There is the monthly meeting and KPI evaluation between departments, held at the end of the year" (Marketing Manager, Food Co.)

Benefits of cooperation. The most commonly identified benefits of cooperation between the Marketing and Operations departments included: product quality (eight respondents); waste reduction (seven respondents); punctual delivery (seven respondents); and meeting customer demands (six respondents). Other benefits that were cited less frequently included financial benefits like sales volume or profitability, flexibility, innovation, and improved work environment.

Improving cooperation. The most commonly cited approach to improving cooperation was regular communication and information exchange. Mutual goal setting and strategic planning were also supported by about half the interviewees. Understanding the roles and duties of each department and leadership guidance were cited by a smaller number of interviewees.

4.2.2 Theme: Nature of Marketing-Operations Alignment

Marketing-operations alignment explains how marketing and operations departments or functions within the firm interact and coordinate their activities to achieve the overall goals of the organization (Sombultawee & Boon-Itt, 2018). Next, a template analysis (Brindley & Oxborrow, 2014; King, Using interviews in qualitative research, 2004) was used to derive specific themes from the interviews. The coding was focused on questions of coordinating decisions, information exchange, leadership strategy, reward systems, and performance evaluation. These specific themes were derived from Piercy (2007) and Piercy (2010), who identified these five factors in the success or failure of functional alignment between marketing and operations and had also been identified in other studies as shown in Table 4.2. These aspects were also supported within the interviews by at least five respondents. These are not the only possible dimensions of marketing-operations alignment; for example, the interviews also suggested *shared training, improved working environment* and *understanding of departmental culture* as possible goals and activities. However, these are the five most supported dimensions of coordination that could be established under the configuration theory. As the configuration theory argues that internal imperatives (including leadership, structural, and strategic imperatives) and external imperatives (the environmental imperative, or the competitive environment), influence the organization's choice of strategic goals and processes (Miller, 1987; Miller, 1990). Under configuration theory, marketing-operations alignment is an internal structural process by which the organization can change its operations to meet its leadership and strategic needs and the conditions of its external environment.

Coordinating decisions. The coordination of goals, strategies, and to a lesser extent tactics were a common thread throughout the definition, scope, importance, and factors in the effectiveness of coordination between marketing and operations. Almost all the respondents agreed that alignment of goals and strategies between the marketing and operations departments was within the appropriate scope of cooperation, with a few participants elaborating that these goals and strategies should be aligned further to the organizational goals and strategies as an expression in the mission and vision, values, and long-term strategic planning. However, it is not only long-term

strategic goals that are appropriate for alignment. The interview responses indicated that coordination of short-term decisions such as production planning decisions was also appropriate, with some respondents suggesting that even weekly co-planning of activities would be appropriate. Thus, coordinating decisions may be the most important such factor, applying not just to long-term strategic decisions but also to short-term operational and tactical decisions at least to some extent. This dimension was also supported by the literature throughout the history of conceptual development (Dixon, et al., 2014; Eliashberg & Steinberg, 1987; Eliashberg & Steinberg, 1993; Hausman & Montgomery, 1993; Lee & Kim, 1993; Malhotra, et al., 2002; Karmarkar, 1996; Paiva, 2010; Piercy, 2007; Piercy, 2010).

Information exchange. The exchange of information was also a common theme running throughout the responses. Communication and exchange of information about goals, processes, and even less relevant information such as departmental culture and values was cited as one of the most important or obvious aspects of what cooperation between marketing and operations really meant. In fact, "mutual communication" (Marketing Manager, Food Co.) was the leading aspect of cooperation identified. Many of the other aspects identified less commonly, like training and interdepartmental interaction, also involve aspects of communication and information exchange. Thus, information exchange, along with coordinating decisions, is another predominant aspect of cooperation between the marketing and operations department. Previous research also validated the importance of information exchange (Chen & Chen, 2008; Gattiker, 2007; Piercy, 2007; Piercy, 2010; Sawhney & Piper, 2002; Wind, 2005; Tang, 2010).

Leadership strategy. Leadership strategy, surprisingly, was not a predominant theme in many aspects of the interviews. However, it was identified as important by some participants, particularly in its facilitation of aligning strategic goals and coordinating decisions and in implementing policies that promote the interdepartmental exchange of information and shared goals and strategies. Thus, leadership strategy and particularly coordination of leadership strategy across the departments should be considered as an important aspect of cooperation between departments. Leadership strategy is a critical concern of configuration theory and has been identified as a factor in marketing-operations alignment, although discussion of this

aspect is rare (Miller, 1987; Paiva, 2010; Piercy, 2007; Piercy, 2010).

Reward systems. Alignment of incentive and reward systems was identified as one of the main tools used to promote cooperation between departments, along with KPI-based measures. However, alignment of reward systems was not mentioned in the basic definition of cooperation. This suggests that this alignment could primarily be an incentive mechanism to encourage aspects like communication between departments and information exchange. Reward systems and their coordination have been identified by previous authors, although this is relatively unusual (Oliva & Watson, 2011; Piercy, 2007; Piercy, 2010).

Performance evaluation. Performance evaluation through KPIs was commonly identified as a means of evaluating the cooperation outcomes, identified by most of the participants. However, the participants also provided a good insight into the use of KPIs, in that they are measured relatively infrequently and are indirect, outcome-based measures of cooperation. Thus, measurement of cooperation may be inadequate as actually implemented, although most organizations interviewed did use them to measure performance on metrics like financial performance, quality, production efficiency, and waste. Previous research has identified performance evaluation as a part of the marketing-operations alignment activity, although it is rarely central (Gerow, 2011; Gerow, et al., 2015; Paiva, 2010; Piercy, 2007; Piercy, 2010).

4.3 Dimensions of the Marketing-Operations Alignment Construct

Following the thematic analysis discussed above, dimensions of the Marketing-Operations Alignment construct were developed. These dimensions were based on both the interview responses and the literature review (Chapter 2), which was used to ensure that the construct outcomes were reliable and appropriate for application. Five dimensions were identified, which are explained in Table 4.2. These dimensions were employed in the conceptual framework, which is explained in the following section. The dimensions have varying levels of support from the literature and practitioner interviews. While decision coordination systems and information exchange are highly supported in both areas, the dimensions of a reward system, leadership strategy, and performance evaluation are supported by practitioners but are often not explicitly

mentioned in the same way in the literature. Thus, this conceptual framework balances well-established dimensions of the practice of marketing-operations alignment with dimensions that are supported by practitioners but have not been the focus of academic literature. Since the academic literature is notably limited in terms of real-world cases or applications of marketing-operations alignment, with most discussions being theoretical, this is not surprising. This offers an opportunity for the current research to contribute to the literature based on practitioner knowledge.

The dimensions of Decision Coordination Systems, Reward System, Information Exchange, Leadership Strategy, and Performance Evaluation all emerged from the literature as potentially important aspects of the marketing-operations alignment process. Configuration theory can be used to illustrate how the dimensions relate to marketing-operations alignment. Decision coordination can refer to the making of joint decisions, as well as the actual systemized contribution of various decision-making individuals, units or departments during the decision-making process (Eliashberg & Steinberg, 1987; Eliashberg & Steinberg, 1993; Hausman & Montgomery, 1993; Lee & Kim, 1993; Karmarkar, 1996). By coordinating decisions, there can be aligned in the marketing and operational activities, which can be implemented in such a way as to fulfill the strategy of the firm and enhance performance. These systems reduce the decision coordination problem that negatively affects alignment (Dixon, et al., 2014; Malhotra, et al., 2002; Paiva, 2010). When incentives and other reward systems are coordinated, there is greater cooperation between departments, which sets the stage for improved alignment. However, this area of alignment is not often achieved well by firms (Oliva & Watson, 2011). There can only be true alignment if relevant information is exchanged appropriately between departments resulting in a complete understanding of the objectives, tasks, procedures, and culture. Information exchange between marketing and operations is critical to meet the goals and demands of production (Tang, 2010). A leadership strategy is a useful dimension for alignment because it ensures the creation of mutual strategic objectives, methods of communication and developing policies and culture. Leadership is a fundamental aspect of any firm (Miller, 1987). There has to be a strategy of coordination in leadership between departments to develop mutually beneficial goals, which inspire motivation for achievement. Measures of performance evaluation are an important dimension of marketing-operations alignment (Gerow, 2011;

Gerow, et al., 2015; Paiva, 2010), and have generally been identified as outcomes instead of elements of the marketing-operations alignment process. However, there is scope for their inclusion as part of progress towards alignment between the two areas. All five dimensions have important implications for marketing-operations alignment.

These five areas formed five of the initial top-level codes in the template analysis and were among the most commonly supported areas based on the coding strategy. There were a number of other issues that were raised by one or two practitioners, but these areas were the ones that were most commonly cited. The narrative and interpretive process of template analysis were used to provide a summary of the practitioner positions regarding these five dimensions. Thus, these five dimensions represent a synthesis process from both the literature review and the interview process, which were initially directed by the literature review information but in which the relevance and dominance of various aspects of marketing-operations alignment were determined by the interviews.

Code	Interview (Practitioners)	Literature Support
Components for improvement the alignment	Several of the interviewees identified the five dimensions (decision coordination, reward system, information exchange, leadership strategy and performance evaluation) described and identified here as components of the marketing-operations alignment process.	Piercy (2007, 2010) identified these dimensions as five of the aspects of functional coordination between marketing and operations functions of the firm.
Decision Coordination System	Decision coordination at the strategic, operational, and tactical level was identified by practitioner interviews as one of the key components of cooperation between	Early literature on organizational alignment typically focused on joint decision making and decision coordination between departments (Eliashberg &

Code	Interview (Practitioners)	Literature Support
	Marketing and Operations departments.	Steinberg, 1987; Eliashberg & Steinberg, 1993; Hausman & Montgomery, 1993; Lee & Kim, 1993; Karmarkar, 1996). More recent research has also defined marketing-operations alignment as primarily a decision coordination problem (Dixon, et al., 2014; Malhotra, et al., 2002; Paiva, 2010).
Reward System	Coordination of incentives and reward systems was identified as a success factor in cooperation between departments.	Previous research has shown that the alignment of reward systems is one area where firms may not perform very well, even if they achieve good alignment between departments (Oliva & Watson, 2011). However, the rest of the literature is not clear on the importance of reward systems in organizational alignment.
Information Exchange	Information exchange, including routine information exchange through regular meetings and periodic exchange through training and information sessions, was part of the definition of cooperation and a critical success factor. Information	Exchange of information, either directly or through automated systems such as enterprise resource planning (ERP) systems, has been identified as a factor in marketing-operations alignment in several previous studies (Chen & Chen, 2008; Gattiker, 2007;

Code	Interview (Practitioners)	Literature Support
	appropriate for exchange included departmental goals, roles and duties, activities, and less frequently policies and culture.	Sawhney & Piper, 2002; Wind, 2005; Tang, 2010). As Tang (2010) explained, information about both the marketing and production context is critical for understanding the complex environment of production. Thus, both departments are dependent on information exchange. This is not, as Wind (2005) suggested, a one-way relationship from marketing to operations.
Leadership Strategy	Leadership strategy was considered important for establishing strategic goals and implementing communications, and for creating policies and culture supporting exchange.	Leadership is a fundamental aspect of the organization's configuration, as it is the organization's leadership that sets goals and strategies and chooses policies to achieve these outcomes (Miller, 1987). Paiva (2010) centralized leadership decision-making and strategy in her model of marketing and operations alignment. However, explicit consideration of leadership strategy is surprisingly rare in the literature

Code	Interview (Practitioners)	Literature Support
Performance Evaluation	KPIs (such as profitability, sales, efficiency, and quality) were identified as the most common measures for evaluating the performance of departmental cooperation. However, these measures were relatively infrequent, indirect, and outcome-based.	Various authors have identified performance evaluation measures as a factor in marketing-operations alignment (Gerow, 2011; Gerow, et al., 2015; Paiva, 2010). However, these measures have been supported as outcomes, rather than part of the process of marketing-operations alignment. The inclusion of performance evaluation, along with incentives and rewards, is consistent with general operational strategy literature but has not been addressed in the relatively limited literature on marketing-operations alignment.

Table 4.2 Dimensions of the Marketing-Operations Alignment Construct

4.4 Framework of Marketing-Operations Alignment

The conceptual framework of the study (Figure 4.1) is based on the practitioner interviews and literature, as stated above. These practitioner interviews were used to formulate the research framework because of a paucity of information on real-world practices of marketing-operations alignment in the literature. The conceptual framework

has two phases. The first phase is the relationships between the dimensions of marketing-operations alignment, while the second phase is the connections between marketing-operations alignment and market orientation.

The first five relationships in the conceptual model address the five components of marketing-operations alignment. As discussed in the previous section, some of these dimensions have more support in both the literature and practitioner interviews than others, with decision coordination systems and information exchange being particularly strongly supported. However, all five dimensions have sufficient support from either the interviews or the literature that they are worth including in the study.

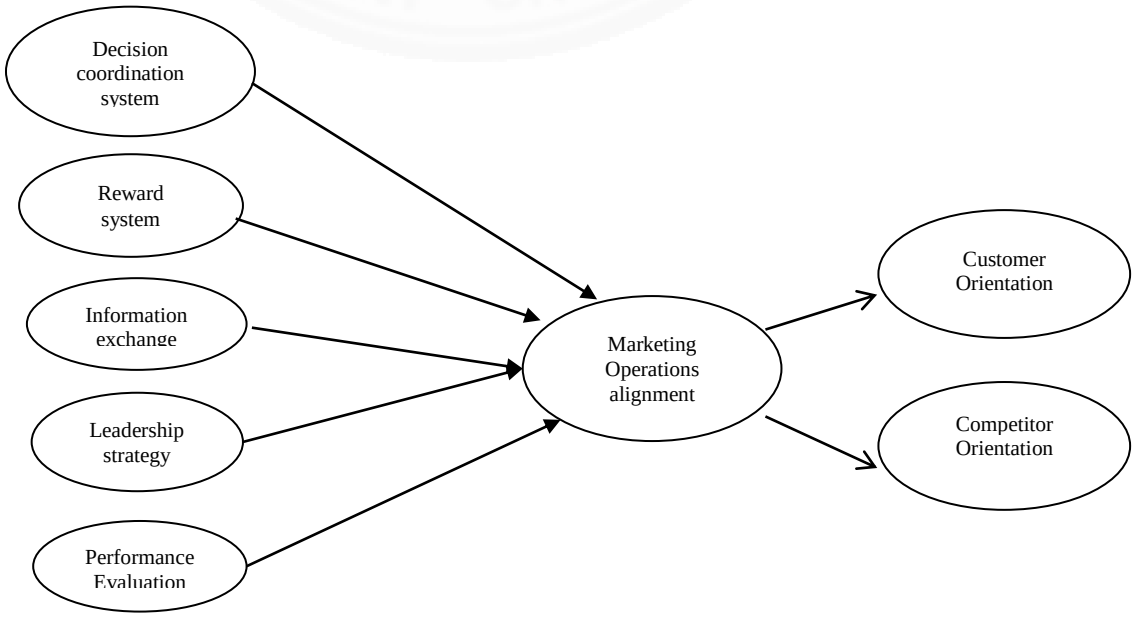
The second stage of the conceptual framework addresses the relationship of marketing-operations alignment relates to strategic orientation, specifically customer, and competitive orientation. It is notable that in the interviews, *responding to customer demand* was one of the most important factors identified for the cooperative activities included under marketing-operations alignment above. These dimensions are different component of market orientation but both of which can explain the ability to respond to the market's demands, underlies many of the definitions and causal explanations for marketing-operations alignment and related concepts in the literature (Feng, et al., 2008; Hill & Birkinshaw, 2008; Sawhney & Piper, 2002). Customer orientation can be briefly defined as a set of company visions and strategies in which the firm is driven by discovering and fulfilling customer needs (Morgan, Vorhies, & Mason, 2009). In brief, this means that the firm's activities focus on providing customers with what they want, rather than convincing customers to buy what the firm has provided. Competitor orientation refers to the firm's ability to discover and respond to competitor strategies and actions (Gatignon & Xuareb, 1997). This means that the firm is following the lead of competitors or responding to their strategies by meeting new needs.

Customer and competitor orientations are a determining factor in various organizational processes like new product development that require the participation of both marketing and operations departments, along with other departments like product development or engineering (which may or may not work within the operations department) (Zhang & Duan, 2010). For example, product development processes may begin with consumer surveys and/or market surveys to identify unmet customer needs, followed by a new product development team that either creates new products or services

or adapts existing ones to better meet those needs (Zhang & Duan, 2010). This provides an opportunity for marketing-operations alignment to take place, as representatives from both departments are required. As previously noted, customer orientation is, in fact, a determining element of marketing-operations alignment or related concepts exactly because of these processes and the need for interaction and cooperation (Feng, D'Amours, & Beauregard 2008; Hill & Birkinshaw, 2008; Sawhney & Piper, 2002).

In brief, it can be stated that the reason to engage in marketing-operations alignment activities at all is to respond to market's demands that firm can create a competitive advantage and generate increased revenue and profit which can be explained by dynamic capability. As Helfat and Peteraf explain, "Dynamic capabilities do not directly affect the output for the firm in which they reside, but indirectly contribute to the output of the firm through an impact on operational capabilities" (2003, p. 999). Eisenhardt and Martin (2000) also noted that dynamic capabilities are the alignment management within an organization and identify that dynamic capabilities are always worthy and which are the source of competitive advantage (Teece, Pisano, & Shuen, 1997). Thus, the conceptual framework of this study, the nomological validity testing assessed the relationship between marketing-operations alignment on customer orientation and competitor orientation base on the theory of dynamic capability and contributed to the clarification of the link between marketing – operations alignment by building on customer orientation and competitor orientation to unpack the concept of dynamic capabilities.

Figure 4.1 Conceptual framework of the study



4.5 Scale Development: The Q Sort Method

Following the interviews and data analysis as described above, Q-sort analysis was conducted. Here, the sorting procedure is discussed, followed by an examination of inter-rater reliability concerns. The results of the first, second, and third sorting rounds are then described.

4.5.1 Sorting Procedure

The interviews and data analysis were used to generate the concourse of statements, or Q-set, which is the set of statements respondents would be asked to address (Coogan & Harrington, 2011; Boon-itt, Wong, & Wong.,2017). The Q-set included a total of 48 items, which were arranged consistently with the revised (second version) of the questionnaire. Respondents were asked to sort the Q-set items into nine categories, which are shown in Table 4.3 (a representative sample grid for the identified constructs). This grid included five dimensions of marketing-operations alignment (Coordinating Decisions, Information Exchange, Leadership Strategy, Reward Systems, and Performance Evaluations); one measure on marketing-operations alignment (Reflective of Marketing-Operations Alignment); and two dependent variables (Customer Orientation and Competitor Orientation). Respondents were also given the option to sort the item into an Unidentified category.

A sample of six experts was randomly chosen for the Q sorting process. These experts had not previously been involved in the item generation (the previous stage in the research process.) They were selected using purposive selection from the pool of academics and practitioners that had previously been established as potential research participants. No attempts were made at matching expert opinions or capabilities prior to the analysis process. The sorting process was conducted via a specially designed online template and distributed via Google Docs, to ensure that the participants could access the information.

The sorting procedure followed the approach established by Moore and Benbasat (1991), in which multiple rounds were used to establish the inter-rater reliability of the items. To begin, two experts were selected at random. These two experts were asked to sort the items provided into the established categories or into the unidentified

category. Results from this round were collated in Excel. Following calculation of inter-rater reliability (as described below), the items and scales were revised and the second round was conducted. The process was repeated for the third round, which resulted in the final instrument, which was then tested further following the process explained in the next section.

1	2	3	4	5	6	7	8	9
Reflective marketing-operations alignment	Coordinating decisions	Information exchange	Leadership strategy	Reward systems	Performance evaluations	Customer orientation	Competitor orientation	Unidentified

Table 4.3 Q-grid used in sorting rounds

4.5.2 Inter-rater Reliability

Since the goal of this research was to improve the reliability of the scale, the key factor evaluated was inter-rater reliability or the degree to which the two judges (expert reviewers) agreed with each other (Netemeyer, Bearden, & Sharma, 2003). The approach used in this study was Cohen's (1960) kappa (κ), a matrix calculation that measures the likelihood of agreement between two judges while eliminating chance agreements. Cohen's kappa was selected for testing inter-rater reliability because it is ideal for evaluating agreement on subjective nominal items (Osborne, 2008; Boon-itt & Pongpanarat, 2011).

The kappa value was calculated using the following equation for each of the rounds:

$$\kappa = \frac{p_0 - p_e}{1 - p_e} = 1 - \frac{1 - p_0}{1 - p_e}$$

where p_0 = *accuracy of rating (agreement between the two raters)* and p_e = *probability of chance agreement between the two raters* (Cohen, 1960). Using this calculation, the range of values is from -1 to 1, with 1 indicating perfect non-chance agreement between the raters and -1 indicating total disagreement (Osborne, 2008). However, as Osborne (2008) states that interpreting the kappa value objectively is difficult because there is no firm procedure for doing so. Since this analysis performed three rounds of testing, the goal was not so much to achieve a specified value but to increase the kappa value each time. However, the benchmark values provided by Landis and Koch (1977) for the interpretation of kappa as a mapping of agreement strength were used in the data assessment. These values are summarized in Table 4.4.

Interpretation	Value Range
Poor	<.00
Slight	.00 to .20
Fair	.21 to .40
Moderate	.41 to .60
Substantial	.6 to .80
Almost Perfect	.81 to 1.00

Table 4.4 Summary of values for interpretation of Cohen's k (Landis & Koch, 1977)

4.5.3 Results of First Sorting Round

The sorting matrix from Round 1 (Table 4.5) shows that 48 total items were placed, with 28 items agreed (58.33%). The summary of items that were agreed are as follows: The kappa value for this round (k = .519) indicates only moderate agreement between the judges. Therefore, following editing of the items that did not reach an agreement, the sorting process continued.

Judge 1										
Judge 2		1	2	3	4	5	6	7	8	N/A
	1				1		3			
	2		4	2			1	1		
	3	1	1	4				1		
	4		1		5	2				
	5		1		2	2				
	6		1			1	4			
	7	1						5		
	8								4	
	N/A									
	Total Items Placement: 48			**Number of Agreement: 28**			**Agreement Ratio: 58.33%**			

Notes: (1) Marketing-operations alignment; Coordinating decisions; (3) Information exchange; (4) Leadership strategy; (5) Reward systems; (6) Performance evaluations; (7) Customer orientation; (8) Competitor orientation.

Table 4.5 Sorting matrix (round 1)

4.5.4 Results of Second Sorting Round

The sorting matrix from Round 2 (Table 4.6) shows that while once again there were 48 items placed, the judges reached agreement on 33 items, for a raw agreement rate of 68.75%. The kappa value of this round (k = .639) was improved from the previous round, indicating substantial agreement between the two raters. However, there was still room for improvement in the scale arrangement. Therefore, non-matching items were once again edited and a third round of sorting commenced.

Judge 1										
Judge 2		1	2	3	4	5	6	7	8	N/A
	1	1						1		
	2	1	4	2			1			
	3		2	4						
	4		1		6	1	1			
	5	2	1			3				
	6				1	1	6			
	7							5		
	8								4	
	N/A									
	Total Items Placement: 48			**Number of Agreement: 33**			**Agreement Ratio: 68.75%**			

Notes: (1) Marketing-operations alignment; Coordinating decisions; (3) Information exchange; (4) Leadership strategy; (5) Reward systems; (6) Performance evaluations; (7) Customer orientation; (8) Competitor orientation.

Table 4.6 Sorting matrix (round 2)

4.5.5 Results of Third Sorting Round

The third and final sorting round (Table 4.7) resulted in a match of 40 of the 48 items, for a raw accuracy rate of 83.33%. The kappa value (k = .808) indicated that the agreement between the raters had reached a level of almost perfect agreement. While a further round would potentially have been possible, it was not considered that any further improvement in the remaining eight items would make a significant difference in the kappa value or real-world accuracy of the sorting. Therefore, at this point, the Q-sort procedure was terminated with the desired level of agreement between the judges.

Judge 1										
Judge 2		1	2	3	4	5	6	7	8	N/A
	1	2						1		
	2	1	6	1						
	3		1	6						
	4				7		1			
	5	1				4				
	6					2	6			
	7							5		
	8								4	
	N/A									
	Total Items Placement: 48			**Number of Agreement: 40**			**Agreement Ratio: 83.33%**			

Notes: (1) Marketing-operations alignment; Coordinating decisions; (3) Information exchange; (4) Leadership strategy; (5) Reward systems; (6) Performance evaluations; (7) Customer orientation; (8) Competitor orientation.

Table 4.7 Sorting matrix (Round 3)

Following the third sorting round, a comparison of item placement between the theoretical placement (as derived from the literature review and interviews) and the actual placement (as derived from the Q-sort procedure) was conducted. This comparison (Table 4.8) shows that for most of the items, the level of agreement between the two sources was high. The highest sorting rates were for Customer orientation (100%) and Competitor orientation (100%), followed by Information exchange (94%), Leadership support (94%), Coordinating decisions (93%), Performance evaluations (93%), and Marketing-operations alignment (83%). While the Marketing-operations alignment placement looks much higher than the others, in practice this resulted from a single misplaced item as the scale is smaller than the other items. Of the 94 items placed, 89 items were placed accurately and four items were placed inaccurately in the Q-sort procedure, giving a total hit ratio of 93%. Thus, in addition to the high kappa values achieved by the

third round of sorting, the agreement between the theoretical placement of items and the placement derived from Q-sort was also very high. This indicates that the derived placement of items was consistent both between expert judges (indicated by the Q-sort outcomes) and between expert judges and the theoretical literature and wider expert panel (indicated by the theoretical comparison).

	Actual										
Theory	MOI	CD	IE	LS	RS	PE	CUR	COO	N/A	**Total**	**Hit (%)**
MOI (3)	5						1			6	83%
CD (7)	1	13								14	93%
IE (8)		1	15							16	94%
LS (8)				15		1				16	94%
RS (6)	1				10	1				12	83%
PE (7)					1	13				14	93%
CUR (5)							10			10	100%
COO (4)								8		8	100%
									89	96	
Notes: Total item placement = 94; Hits = 89; Overall hit ratio (%) = 93											

Table Summary of agreement of statement placement with existing items

Notes: MOI = Marketing-Operations; CD = Coordinating Decisions; IE = Information Exchange; LS = Leadership Strategy; RS = Reward Systems; PE = Performance Evaluations; CUR = Customer Orientation; COO = Competitor Orientation

Table 4.8 Summary of agreement of placement between theoretical placement and q-sort placement

4.5.6 Summary of Sorting Rounds

Table 4.9 presents the summary of the sorting rounds. As this shows, the kappa values rose from k = .519 (moderate agreement) to k = .808 (almost perfect agreement) over the course of the three rounds of sorting. The agreement rate rose from 58.3% to 83.3%. This indicates that there was a substantial increase in the overall level of agreement. By the third sorting round, the placement of items was also substantially in agreement with the theoretical placement of the scales, with agreement rates between the final sorting and the theoretical placement reaching 93% on average. Thus, the Q-sort procedure resulted in an arrangement of items into scales that can be characterized as consistent between expert opinions and between expert opinion and theory. This shows that the Q-sort procedure was effective at testing and validating the constructs and had results that were similar to the results derived from other techniques.

Round	Total Items	Agree	% Agreed	Kappa
1	48	28	58.33%	0.519
2	48	33	68.75%	0.639
3	48	40	83.33%	0.808

Table 4.9 Summary of statement agreement between judges for the three rounds of Q-sort technique

4.6 Conclusion

This chapter has presented the conceptual framework of marketing-operations alignment derived for the paper. This conceptual framework was generated from qualitative interviews, which in turn were developed from and compared to the research to validate the findings and generate a set of dimensions for the underlying construct of marketing-operations alignment. The interviews identified critical aspects of cooperation between the marketing and operations departments, with factors like interdepartmental communication and coordination of goals and strategies, along with use of incentives and rewards and measurement of cooperation using key KPIs contributing to the effective use of interdepartmental cooperation to achieve goals like reduction of waste, increased efficiency, and improved responsiveness to customer needs among others. The

interviews identified key themes that spanned these responses, which included coordinating decisions, information exchange, leadership strategy, reward systems, and performance evaluation, although these were not all evident to the same extent. The thematic analysis was then combined with the literature review that had previously been conducted in Chapter 2, to operationalize dimensions of the Marketing-Operations Alignment construct. This process resulted in dimensions of the construct that could be measured and supported within the literature. Furthermore, a conceptual framework and hypotheses were proposed for the research. This set of hypotheses was tested using the methodology explained in Chapter 3. Finally, a Q-sort procedure was used to generate preliminary scales from the Q-set derived from the literature review but mainly from the interviews. This procedure showed substantial agreement between expert ratings and theory by completion of the three rounds of sorting and strong agreement of item placement between the Q-sort procedure (expert reviews) and theoretical positions. The sorting procedure resulted in the generation of a preliminary instrument for testing. The concern of the following chapters is the final testing and validation of the instrument produced. In the next chapter, the methods used to test the instrument are explained. measures. The CFA results showed that with a few exceptions, the scale as derived from expert interviews and rounds of Q sorting was consistent with the underlying constructs. Furthermore, the MIMIC model demonstrated that the proposed dimensions of marketing-operations alignment did in fact contribute to the marketing-operations alignment variable. Thus, the chapter demonstrated that the scales and instrument developed through this process is a reliable and valid measure of marketing-operations alignment and its antecedents. It also demonstrated that dimensions of the marketing-operations alignment model as proposed did contribute to the model. In the next chapter, these findings are discussed with the literature and the research is concluded.

CHAPTER 5
METHODOLOGY FOR QUANTITATIVE STUDY

In the previous chapter, the qualitative stage of initial elicitation using interviews was explained. In this chapter, the second stage of the Q-sort process – the development and validation of the marketing-operations alignment scale – is explained. The development of the scale is discussed first, followed by an assessment of nomological validity. Next, the data collection procedure for the final test of the instrument is described. The potential contributions of this process are then assessed.

5.1 Development of Marketing-Operations Alignment Scale

5.1.1 Elicitation of the Q-Set

The purpose of the elicitation stage is to ensure that the researcher's definitions are consistent with the practitioner definitions prior to operationalization (item generation) (Netemeyer, Burton, & Lichtenstein, 1995; Vivek, A scale of consumer engagement, 2009). There are several possible sources for elicitation of a final Q-set, including academic and other literature, interviews, and observations (Watts & Stenner, 2012). In this research, the initial Q-set was elicited using a combination of literature review (Chapter 2) and semi-structured interviews with industry professionals (Chapter 3). Following elicitation, item generation and purification were undertaken, followed by scale refinement and validation.

5.1.2 Item Generation

Initial item generation and scale assignment followed the general approach of selecting a broad set of possible statements rather than narrowing the sample (Watts & Stenner, 2012). These statements were mainly chosen from the concourse of statements generated during the qualitative research, with some items adapted from previous instruments (Newman & Kamlo, 2010; Watts & Stenner, 2012). Items for the marketing-operations alignment scale were developed entirely from the concourse of statements, while other scales had a mixture of new and adapted items. The initial scales

(Appendix F) were structured as follows:

- Reflective of Marketing-Operations Alignment (3 items)
- Customer Orientation (5 items)
- Competitor Orientation (4 items)
- Dimensions of Marketing-Operations Alignment:
  - Coordinating Decisions (7 items)
  - Information Exchange (10 items)
  - Leadership Strategy (9 items)
  - Reward Systems (9 items)
  - Performance Evaluations (9 items)

5.1.3 Initial Scale Purification

Following the preliminary item development, an expert review was used to purify the scales (Appendix G). Because the purification process can ultimately affect construct validity (Wieland, Durach, Kembro, & Treiblmaier, 2017), this step was particularly important. However, there is limited guidance on effective scale purification. While a judgmental approach was used, which Wieland, et al. (2017) did suggest could lead to statistical issues, a conservative approach to item elimination was used, to avoid removing items that could be important later. The procedures used a combination of the initial expert review and a Q-sort panel.

5.1.3.1 Expert review

The expert review panel (n = 10, including six academic experts and four practitioners) were asked to review items, construct definitions, and linkages between items and constructs. Review of the responses identified the items where the majority view was that the items did not reflect or were inadequately linked to the construct. The revised version of the scale (Appendix H) was used for the Q-sort procedure. Following the elimination of items, the following scales remained:

- Reflective of Marketing-Operations Alignment (3 items)
- Customer Orientation (5 items)
- Competitor Orientation (4 items)
- Dimensions of Marketing-Operations Alignment:
  - Coordinating Decisions (7 items)

- Information Exchange (8 items)
- Leadership Strategy (8 items)
- Reward Systems (6 items)
- Performance Evaluations (7 items)

5.1.3.2 Q-Sort procedure

The Q-sort procedure for this stage of the research used a classical Q sorting procedure, with numbered cards to sort items into (Newman & Kamlo, 2010). The analysis was conducted in Excel. A panel of six experts across three rounds (two experts per round). In the first round, all items were mixed and the two experts were asked to place items into the boxes for each construct, using a template similar to the one in Chapter 4. The percent correlation between Experts 1 and 2 was calculated and items were edited for the second round based on the results. This process was then repeated for the second and third rounds, and the outcome was then compared with the theoretical positioning of the items in the scales.

Following the Q-sort process, face validity was checked with three committees in the Ph.D. students program, to ensure that the results passed common-sense reasonability checks. Based on these results, the final version of the scale was developed. This version is also attached in Appendix H. The research then turned to refinement, validation, and testing of the derived questionnaire based on a larger sample of firms.

5.1.4 Data Collection for Subsequent Procedures

The remaining procedures for scale refinement and validation required a larger sample than could be obtained using expert review. Thus, the final version of the questionnaire developed in the previous step was distributed to a sample of the firms in the population. The targeted population included firms in the Automobile, Furniture, Food, and Electronics manufacturing industries in Thailand. These industries were identified during the expert interviews, and confirmed in the literature, as consumer goods manufacturing firms with a high marketing orientation (Henard & Dacin, 2010; Johnson, Dibrell, & Hansen, 2009; Otero-Neira, Lindman, & Fernández, 2009; Wong & Tong, 2012). These industries are also among the most important in Thailand in terms of GDP contribution and production, constituting the major manufacturing export

sectors (World Bank, 2017).

Because the number of firms in the targeted sectors was relatively small, a census sampling approach was used. An initial list of registered firms in these four industrial sectors from Siam List database was compiled from a variety of public sources, which totaled 3,044 firms. Initial screening and recruitment by letter or telephone yielded 1,872 initial agreements to participate. Following the initial screening, there were four rounds of invitations, each of which included non-responders who had initially agreed. These invitations were sent either by email or by postal mail, depending on contact preferences collected during the initial screening. For the second, third, and fourth rounds, a follow-up call was also made to the initial contact person to reconfirm intention to participate. The final response rate was 23.5%.

Table 5.1 summarizes the per-round recruitment and response rate and total response rate. As this shows, after the four rounds of response collections, the final sample size was n = 439 members. Following the entry of the data into the prepared data set, the sample order was randomized and two random sub-samples were selected. The smaller sample (n = 100) was assigned for exploratory factor analysis (EFA), and the larger sample (n = 319) was for confirmatory factor analysis (CFA), Nomological validation, and Mimic testing. A further sub-sample from the 1st through 3rd waves was used for non-response bias testing.

Round	Potential Respondents			Responses			Response Rate (%)		
	Email	Post	Total	Email	Post	Total	Email	Post	Total
Round 1	1,220	652	1,872	198	48	246	16.2	7.4	13.1
Round 2	1,022	604	1,626	115	36	151	11.4	6.0	9.3
Round 3	907	568	1,475	19	3	22	2.1	.53	1.5
Round 4	888	565	1,453	20	0	20	2.3	.00	1.4
Total				352	87	439	28.9	13.3	23.5

Table 5.1 Summary of recruitment and sampling for validity testing of the final questionnaire

5.1.5 Scale Refinement

Exploratory factor analysis (EFA) was used for the scale refinement process because it is an appropriate approach to refining new scales (Fabrigar & Wegener, Exploratory factor analysis, 2012). The specific technique used was principal component analysis (PCA), which is a technique that statistically identifies components to minimize correlation between them, thus constructing statistically independent components or constructs from possible arrangements (Joliffe, 1986). PCA was conducted in SPSS.

5.1.6 Scale Validation

Several tools were used to conduct the scale validation process. Validity checks included common method bias, non-response bias, and confirmatory factor analysis (CFA) using LISREL.

5.1.6.1 Common method bias check

There are a variety of techniques available to evaluate common method bias, but most of these techniques are equivalent in terms of their detection capabilities (Malhotra, Kim, & Patil, 2006). Because of this, more traditional techniques were preferred. Harman's single factor test was the first test employed to test common method bias, using the unrotated eigenvalues produced by PCA as above. However, since Harman's single-factor test is not considered fully reliable (Podsakoff, et al., 2003), the common latent factor (CLF) method was conducted in AMOS (Byrne, 2016). This test should also reflect a minimum of 50% of variance attributable to a single factor to indicate common method bias (Byrne, 2016).

5.1.6.2 Non-response bias checks

Two methods were also used for non-response bias. These checks included response time and respondent characteristics. Non-response bias by response time was based on waves. To test for non-response bias by response time, respondents were ordered based on response time and then divided into three waves. A chi-square analysis was then used to compare responses, with no significant difference ($p > .05$) expected between waves.

To test for known characteristics, chi-square tests were conducted using four randomly selected scales and four known characteristics of the

population (type of industry, number of employees, firm's income, and firm's age).

5.1.6.3 Confirmatory factor analysis (CFA)

Finally, confirmatory factor analysis (CFA) was conducted in LISREL, to examine the first-order and latent constructs associated with the specified model. Construct validity was tested based on one absolute goodness of fit test (chi-square ($p > .05$)) and several relative goodness of fit tests (RMSEA, CFI, GFI, and AGFI) (Jöreskog, Olsson, & Wallentin, Multivariate analysis with LISREL, 2016). Values for RMSEA goodness of fit were: <.01 = excellent fit; <.05 = good fit; <.08 = mediocre/poor fit (MacCallum, Brown, & Sugawara, 1996). CFI, GFI, and AGFI all had a minimum threshold of 0.90 (MacCallum, et al., 1996).

5.1.7 Second-order Validation (MIMIC)

Following the first-order validation process using EFA and CFA, a second-order validation model was constructed and subjected to factor analysis. While the EFA and CFA models were reflective measurement models (in which it is assumed that the measured variable was caused by the latent variable), the second-order validation used a formative measurement model (in which it is assumed that the measured variables cause the latent variables) (DeVallis, 2012). The purpose of conducting a second-order analysis was to evaluate the extent to which "seemingly distinct, but related constructs can be accounted for by one or more common underlying higher order constructs (Chen, Sousa, & West, 2005, pp. 471-492)." There are common use cases for the construction of a second-order variable, some of which apply here (Byrne, 2016). For example, a second-order latent variable can represent a construct that is multi-dimensional, but in which the dimensions are clearly related (Byrne, 2016). That was already thought to be the case with marketing-operations alignment, where there are five process-based dimensions (Leadership Strategy, Coordinating Decisions, Information Exchange, Performance Evaluation, and Reward Systems) proposed as dimensions of the same underlying goal of Marketing-Operations Alignment. Other use cases include high collinearity within the model and developing parsimonious models (Byrne, 2016).

The second-order model was constructed using the multiple indicators and multiple causes (MIMIC) model. The MIMIC approach, originally proposed by Jöreskog and Goldberger (1975), is represented by the following equations:

$$Y = \lambda\eta + \epsilon$$
$$\eta = y'x + \zeta$$

where η represents the latent variable, γ represents the indicators of η, and x represents the causes of η (Morin, Marsh, & Nagengast, 2013). The MIMIC model is particularly suitable for multi-group analyses and is highly parsimonious (Morin, Marsh, & Nagengast, 2013), making it a useful approach for evaluating the relationships between observed and latent variables as was the goal here.

5.1.8 Nomological Validity

Nomological validity testing was conducted as a final check on the validity of the model to evaluate the relationships between the constructs (Netemeyer, Bearden, & Sharma, 2003). The purpose of nomological validity testing is to determine whether the constructs were as proposed by the researcher ((Netemeyer, Bearden, & Sharma, 2003). Nomological testing was performed using the CFA results. For this research, the main outcome variable that was tested for nomological validity was firm performance (see Figure 5.1).

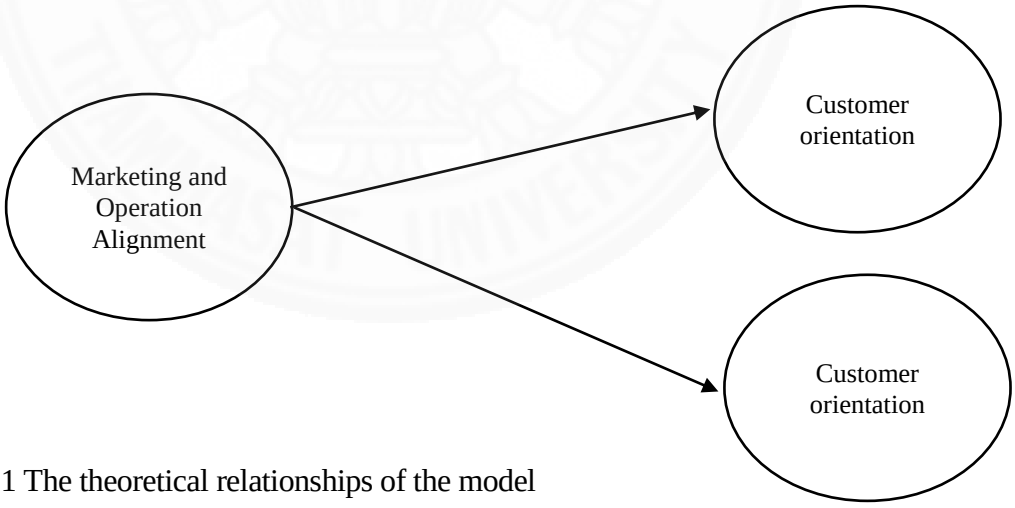


Figure 5.1 The theoretical relationships of the model

5.2 Potential Contributions

The main contribution of this stage of the research was a functional instrument that can be used by researchers and practitioners to assess and evaluate conditions leading to marketing-operations alignment. However, the procedure used to

develop the instrument and assess its validity also provides some potential contributions as a guide for further instrument development.

5.3 Conclusion

This chapter has presented the methodology used to develop the marketing-operations alignment instrument, including scale development and initial validation, data collection for broader validation, and the processes used to validate the construct and nomological validity of the instrument. The variety of techniques used has helped to ensure that the instrument was appropriately measuring the constructs as developed in previous chapters. In the next chapter, the results are presented.

CHAPTER 6
VALIDATION OF MARKETING – OPERATIONS ALIGNMENT SCALE

The procedures used for the items' selection and elicitation, scale development and testing of the instrument were explained in the previous chapter. In this chapter, the results of these procedures are presented. The first two sections present the results of the first-order analysis including the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) techniques. The constructs based on these analyses are reflective constructs, meaning that they assume that the indicators associated with the construct are caused by the construct (Byrne, 2016). The third section of the chapter presents the results of the Multiple Indicators Multiple Causes (MIMIC) modeling, which is focused on identifying the formative constructs, or relationships between the observed and latent variables (ibid). The goal of this analysis is to validate the dimensional nature of the marketing-operation alignment construct. Finally, the nomological validity of the final model is discussed.

6.1 Overview of the Data Collection and Analysis Procedures

The full procedure used to validate the questionnaire was described in Chapter 5. A brief review is provided here to explain the structure of the chapter. Data collection was conducted using the revised version of the questionnaire derived from the Q-sort procedure, which was explained in detail in Chapter 4 (Section 4.5). All versions of the questionnaire are attached in the Appendix.

The questionnaire was distributed to a full list of registered firms operating in the four target industries (automobiles, food, furniture and electronics) using a combination of email and mail surveys. An established policy for data collection was implemented to which there was strict adherence. The initial step involved the researcher contacting the Human Resources Department of each firm by means of telephone to enquire about the willingness of the firm to participate in the study, as well as the availability of representative(s) of the firm to participate in the survey. This conversation included an explanation of the study being conducted, the intentions of the research and a

commitment to the responsible and appropriate use of the data collected. Subsequent to the telephone conversation, an email outlining the full details was sent to each firm with the questionnaire attached. In cases where the manager initially identified was otherwise engaged or simply not available to complete the questionnaire, that individual would forward the questionnaire to another manager within the company who had the experience to answer the questions in their entirety. Over the period of the survey, a total of 419 responses were received. These responses were divided randomly into two sub-samples. The first sub-sample (n = 100) was used for the EFA process, which was primarily intended as a scale validation process. The second sub-sample (n = 319) was used for the CFA and MIMIC analysis stages along with the testing of the nomological validity and other factors.

6.1.1 Characteristics of the Sample

To aid the analysis and provide a sample profile that could be compared to determine the representativeness, various respondent and firm characteristics were collected (Tables 6.1 through 6.3). These characteristics demonstrated who responded to the sample. Of the 419 respondents to the survey, 100 were randomly selected for the EFA process, while the remaining 319 copies were assigned to the CFA and nomological validity testing.

The position of the individual respondents (Table 6.1) was the first item of information collected. The largest group of individual respondents held general managerial roles (47.2%). A small group of top management respondents were also included (8.4%). Executive management in operations (12.4%) and marketing (9.8%) were also relatively well-represented. Respondents were also likely to come from the middle management tier of the operations (7.4%) or marketing (14.8%). The representation of operations (19.8%) and marketing (25.6%) was slightly disproportionate, however.

Respondents were also asked about the number of years working in the company (Table 6.2) and the number of years in their current position (Table 6.3). It was found that the largest number of respondents had worked at the company for more than 10 years (37.2%) followed by two to five years (21.7%), less than two years (20.5%), and six to ten years (20.5%), respectively. Overall, fewer respondents were relatively

inexperienced (less than six years of experience) (42.2%) than relatively experienced (six years or more of experience) (57.8%). The level of field experience was relatively higher. The largest group had less than three years of experience (36%). This was followed by those with seven to nine years of experience (20%), 10 to 12 years of experience (20.8%), more than 12 years of experience (18.1%), and four to six years of experience (5%), respectively. A smaller group was inexperienced (six years or less) (41%) than experienced (seven years or more experience) (59%). Overall, the individual respondent characteristics indicated that the respondents were experienced and well-placed to respond to the questions about marketing-operations alignment.

Position	**Number**	**Percent**
Top management; such as, President/MD	35	8.4
Executive management; such as, Vice President/ Vice MD (Operations)	52	12.4
Executive management; such as, Vice President/ Vice MD (Marketing)	41	9.8
Middle management; such as, Director/ Vice Director (Operations)	31	7.4
Middle management; such as, Director/ Vice Director (Marketing)	62	14.8
General manager/Plant Manager/Assistant Plant Manager	198	47.2
Total	419	100.00

Table 6.1 Respondent positions within the company (frequency table).

Number of years working in the company	**Number of respondents**	
	Frequency	**Percentage**
Less than 2 years	86	20.5
5 years	91	21.7
6-10 years	86	20.5
More than 10 years	156	37.2
Total	419	100.0

Table 6.2 Number of years the respondent has worked in the company (frequency table).

Number of years in the position	Number of respondents	
	Frequency	Percentage
Less than 3 years	151	36.0
4-6 years	21	5.0
7-9 years	84	20.0
10-12 years	87	20.8
More than 12 years	76	18.1
Total	419	100.0

Table 6.3 Number of years of total experience the respondent has in the role (frequency table).

Since the instrument being developed was intended to be used at the firm level, it was the firm's data that was relevant to the representativeness of the sample. The firm's data collected in the survey included industry (Table 6.4), number of employees (indicating the firm's size) (Table 6.5), company's age (Table 6.6), and revenue projections (Table 6.7). Additionally, data on foreign and domestic ownership were collected, but 100% of the respondents indicated their majority ownership was domestic rather than foreign. Therefore, these data were not represented in a table.

The most commonly represented industry was food and beverage (47.3%) followed by electronics and electrical appliance firms (23.4%), furniture firms (15.5%) and automobile firms (13.8%), respectively.

Most of the firms were small firms with 50 or fewer employees (57.5%) with a smaller sample of medium-sized companies of 50 to 100 employees (42.5%). No large firms responded to the survey.

The firms had a range of ages. The largest group had been operating for six to 10 years (35.3%) or less than five years (19.3%). Smaller groups had been operating for 26 to 30 years (16.9%), more than 30 years (16.9%), 11 to 15 years (5%) or 16 to 20 years (3.3%), respectively. This indicates that although relative newcomers (in business for 10 years or less) represented a slight majority (54.6%), a large group could also be considered as established firms with more than 10 years of experience in their industry (55.4%).

Most firms had revenue projections for 2017 of less than 50 million Thai Baht (54.4%). Smaller groups had projections of 51 to 200 million Thai Baht (17.9%), 501 million to 1 billion Thai Baht (21.5%), and 201 to 500 million Thai Baht (6.2%).

Type of industries	**Number of respondents**	
	Frequency	**Percentage**
Food and beverage	198	47.3
Furniture	65	15.5
Automotive	58	13.8
Electronic equipment	98	23.4
Total	419	100.00

Table 6.4 Industry of the firm (frequency table).

Number of employees	**Number of respondents**	
	Frequency	**Percentage**
50 or less	241	57.5
51-100	178	42.5
Total	419	100.0

Table 1.5 Number of employees in the firm (frequency table).

Company ages	**Number of respondents**	
	Frequency	**Percentage**
Less than 5 years	81	19.3
6-10 years	148	35.3
11-15 years	21	5.0
16-20 years	14	3.3
21-25 years	13	3.1
26-30 years	71	16.9
More than 30 years	71	16.9
Total	419	100.0

Table 6.6 Company age in years (frequency table)

Projection of the company in 2017 (Thai Baht)	Number of respondents	
	Frequency	Percentage
Less than 50 million	228	54.4
51-200 million	75	17.9
201-500 million	26	6.2
501 million -1 billion	90	21.5
Total	419	100.0

Table 6.7 Company revenue projections (2017) (frequency table).

The final question that the respondents was asked was whether the firm was interested in receiving a research report generated from the findings (Table 6.8). Most of the respondents (60.1%) confirmed that they would be interested in receiving the research report, but a sizeable group (39.9%) showed no interest.

The need of the research report	Number of respondents	
	Frequency	Percentage
Yes	252	60.1
No	167	39.9
Total	419	100.0

Table 6.8 Respondents interested in receiving the research report (frequency table).

6.2 Descriptive Statistics

All items included in the questionnaire for both the EFA and CFA processes had descriptive statistics (mean, standard deviation, and mode) calculated for the items. Descriptive statistics were calculated on the full sample (n = 419) prior to the randomized splitting between the two questionnaires. These items were measured on a 10-point Likert scale with the level of agreement (0 = totally disagree, 10 = totally agree) used as the main measure. The Likert scale is a popular measurement tool of latent traits and was first introduced by Likert in 1932. The scale includes a series of questions, which are seen as indicators of traits or perspectives. It is an appropriate instrument to measure attitudes

(Vonglao, 2017). The Likert scale was used for this study for several reasons including because it is a universal method for collecting survey data and is most easily understood. The scale measures the degree of intensity of feeling from one end of the spectrum to the other. Therefore, by not asking for an absolute affirmative or negative response to a question, the respondent can indicate a degree of agreement or disagreement without having to take an irrevocable stance on a particular subject. The scale also collects information from respondents who are neutral or undecided about a specific question. It can also be used over distance or in person. Coding is simple for the accumulated data resulting from Likert scale surveys, and it is a cost-efficient, effective and quick way of gathering data which lends itself easily to mathematical analysis. However, Dawes (2007) stated that the 10-point Likert scale provides greater confidence for the respondent when using a numerical response. Descriptive statistics are not critically important within this analysis, but they did establish trends in the level of the marketing-operations alignment construct and its characteristics that were found in the sample. Therefore, this information is presented for interest. As it can be seen, there were relatively high levels of agreement with most of the individual items with the means ranging between 7.33 and 9.35. This indicated that within the sample, there was a relatively high occurrence of the factors identified as part of the marketing-operations alignment process during the initial survey. The descriptive statistics also served as a guideline to the items, which were included in the instrument that was used in the testing procedures.

Statement	Mean	SD	Mode
At your company, the degree to which marketing and operations are coordinated jointly in the firm's goal setting.	8.88	0.98	8.00
At your company, marketing and operations participate jointly in short-term strategic planning (less than 6 months).	8.90	0.97	8.00
At your company, marketing and operations are involved in deciding how to use tactic changes according to the situation to be in line with the firm's strategy.	8.87	1.02	8.00
At your company, marketing and operations participate jointly in problem solving; such as, delay in production, customer complaints or material shortage.	8.89	0.99	8.00

Statement	Mean	SD	Mode
At your company, marketing and operations participate jointly in new product development; such as, new products and production planning.	9.17	0.89	10.00

Table 6.9 The mean and standard deviation of the degree to which coordinating participation or decisions at the strategic, operational, and tactical level have been established from marketing and operations (Coordination Decision).

Statement	Mean	SD	Mode
At your company, operations managers/professionals received enough market information.	7.54	2.56	8.00
At your company, operations provide information to marketing to be aware of the capability and operation innovation.	7.50	2.58	8.00
At your company, marketing and operations jointly share and communicate the customers' requirement. Operations staff have to be trained in marketing knowledge; such as, target customer.	7.50	2.59	8.00
At your company, the Marketing Manager and Operations Manager have a weekly or monthly meeting.	7.46	2.60	8.00
At your company, marketing provides information to operations to acknowledge about the trend and direction of the demand in the market.	7.67	2.39	8.00

Table 6.10 The mean and standard deviation of the degree to which marketing and operations have shared and communicated about the goals, processes, knowledge and other relevant information in formal and informal meetings (Information Exchange).

Statement	Mean	SD	Mode
At your company, top management actively promotes and communicates the philosophy and culture of coordination between marketing and operations.	7.93	1.79	8.00
At your company, top management sets a procedure of coordination between marketing and operations. (Meeting schedule; point of alignment between marketing and operations.)	8.00	1.72	8.00
At your company, top management encourages staffs' participation when setting the alignment strategy between marketing and operations.	7.88	1.84	8.00
At your company, top management equally set the goal between marketing and operations.	8.05	1.65	8.00
At your company, there is a regular review of coordination between marketing and operations in top management meetings.	8.04	1.63	8.00

Table 6.11 The mean and standard deviation of the degree to which strategic vision and goals create organizational policies, procedures, and culture to support and facilitate exchanges between marketing and operations that have been driven by top management (Leadership Strategy).

Statement	Mean	SD	Mode
At your company, marketing and operations operate under principles of shared rewards and risks.	9.33	0.75	8.00
At your company, alignment behavior is taken into account when rewarding the marketing and operations functions; such as, the alignment of working together to reduce job redundancy or reduce errors.	9.35	0.75	8.00
At your company, the degree to which the alignment of incentive and reward systems is an important tool for the alignment between marketing and operations.	9.28	0.97	8.00

Statement	Mean	SD	Mode
At your company, marketing and operations perceived the benefits of participation in the collaboration.	8.94	0.87	8.00
Your company sets marketing and operations objectives aligned to the organization's strategy (KPI-based measure).	7.41	1.95	8.00

Table 6.12 The mean and standard deviation of the degree to which the alignment of incentive and reward systems was identified as one of the main tools used to promote cooperation between the Marketing and Operations Departments (Reward System).

Statement	Mean	SD	Mode
Your company has developed performance measures that extend marketing-operations alignment.	7.85	1.64	8.00
Your company improved performance by cooperating marketing with operations by using KPIs.	7.64	2.98	8.00
Your company constantly evaluates its cooperation to assess the ability to meet the best performance.	7.88	2.44	10.00
Your company has ongoing monitoring alignment activities and progress on performance.	7.62	1.24	8.00
At your company, alignment behavior is taken into account when evaluating the marketing and operations functions; such as, information sharing between each other and developing strategy together.	7.98	2.62	8.00

Table 6.13 The mean and standard deviation of the degree to which performance evaluation was defined as the KPIs of the marketing and operations functions that are driven by the alignment outcomes (Performance Evaluation).

Statement	Mean	SD	Mode
At your company, the collaboration between marketing and operations helps us use resources more efficiently.	9.17	0.69	9.00
At your company, businesses can better understand the customers' needs and the situation of its suppliers even better.	8.90	1.71	10.00
At your company, the collaboration between marketing and operations helps us create opportunities for competition.	8.93	1.01	10.00

Table 6.14 The mean and standard deviation of the degree to which marketing and operations function have a mutual process of strategic planning, information exchange, and working together to achieve a set of shared goals and objectives (marketing-operations alignment).

Statement	Mean	SD	Mode
Your company mainly gives importance to customers' needs.	7.44	1.86	8.00
Your company mainly gives importance to create customer values (values means satisfy customers beyond their needs and satisfaction.	8.87	1.29	10.00
Your company understands the customers' needs.	7.90	1.96	8.00
Your company mainly gives importance to customer satisfaction.	7.33	2.88	8.00
Your company focuses on creating customers value aftersales.	8.36	0.54	8.00

Table 6.15 The mean and standard deviation of the degree related to the customers' needs and satisfaction (Customer Orientation).

Statement	Mean	SD	Mode
Your company's sales staff shares information about competitors to operations; such as, new products offered by competitors.	8.50	0.96	8.00
Your company's marketing shares marketing information with operations; such as, the competitor's marketing strategy.	7.76	2.45	10.00
Your company can immediately respond to the competitor's strategy.	8.17	1.87	9.00
Your company is aware of the opportunity to create a competitive advantage; such as, having more market share compared to competitors, which would build greater customer satisfaction than the competitors.	7.95	1.73	9.00

Table 6.16 The mean and standard deviation of the degree to which coordinating participation or decisions at the strategic, operational, and tactical level have been established from marketing and operations (Coordination Decision).

6.3 First-Order Exploratory Factor Analysis (EFA) for Scale Refinement of the Five Dimensions of Marketing-Operations Alignment

The first stage of the scale validation was the exploratory factor analysis (EFA) process, which was used to refine the scale. EFA is a method used to identify relationships between observation and variables without a default model specified by the analyst (Fabrigar and Wegener, 2012). The process of EFA was conducted in SPSS on a sample of 100 respondents using 25 items as specified in the questionnaire. The process of data collection for this process was described in Chapter 4 (Section 5.1.5). The approach to using EFA for scale refinement is over-inclusive, that is it includes the largest likely subset of different dimensions of a construct (or potential items in a scale) to make sure that all the dimensions of the scale are included (Reise et al., 2000). In this case, all items identified during the Q-sort procedure were included in the EFA process. Sample characteristics were not collected at this stage of the analysis, but full information was available for the CFA stage.

6.3.1 EFA Procedure

Principal component analysis (PCA) was used as the technique for the EFA process. PCA is an independent sorting technique in which the correlated items are transformed into uncorrelated components (Fabrigar and Wegener, 2012). PCA is a common exploratory technique that allows the researcher to generate constructs a priori, and to determine the structure of components based on their statistical arrangement rather than by theoretical placement (ibid). Therefore, it was considered the correct choice in this case.

6.3.2 EFA Model

The PCA model results are shown in Figure 6.1. The item-total statistics (Table 6.17) demonstrated that this model was best achieved under the existing conditions. The final Cronbach's alpha was $\alpha = .896$, indicating high reliability. More detailed results are shown in Tables 6.19 through 6.23.

The PCA process identified five components from the 25 items tested. These items were originally extracted from the five dimensions of the marketing-operations alignment construct with five items selected per the theoretical dimension. None of the variables were moved between the theoretical constructs and the extracted components during the analysis procedure.

The eigenvalues and extracted and rotated sums of the square loadings are shown in Table 6.18. The extracted SSL model predicted 64.917% of the variance in total with the variance predicted by individual components ranging from 7.12% to 21.10%. The rotated SSL showed that the range of variance predicted ranges from 9.12% to 15.01%. Examining the items that were assigned to each of the components during the extraction process, the following designations were made based on the original placement of items as derived from the Q-sort and theoretical comparison process:

- Component 1: Leadership Strategy
- Component 2: Coordination Decision
- Component 3: Performance Evaluation
- Component 4: Reward System
- Component 5: Information Exchange

For each of these components, individual factor loadings and Kaiser-Meyer-Ohlin (KMO) and Bartlett's test coefficients were calculated. The KMO and Bartlett's tests were calculated as a tool to evaluate the sampling adequacy for the component. Following the standard rules of thumb for the sampling adequacy, KMO ≥ 0.8 was used to indicate that the sample was adequate (Schumacker, 2015). Values between 0.5 and 0.8 indicated that the sampling was inadequate while below 0.5, the KMO value indicated that there was a high level of internal correlation in the data which violated the assumptions of factor analysis (Schumacker, 2015).

Leadership Strategy: Factor loadings, eigenvalues and other key statistics are shown for this component in Table 6.19. This data shows that the sampling adequacy was good (KMO = .850). The five items in the scale had factor loadings ranging from .805 to .961. This component accounted for 21.1% of variance with an eigenvalue of 7.597.

Coordination Decision: Table 6.20 shows the key statistics for Coordinating Decisions (Component 2). The sampling adequacy was slightly lower than perfect (KMO = .757), but it was not low enough that it would cause concern given the relatively high level of the other constructs. The factor loadings for the five items in this scale ranged from .766 to .924. The component accounted for 14.9% of the variance in the extracted model with an eigenvalue of 5.360.

Performance Evaluation: The key statistics for Performance Evaluation (Component 3) are shown in Table 6.21. The sampling adequacy for this component was adequate (KMO = .848). The factor loadings for the five items in the scale ranged from .806 to .959. The component accounted for 11.6% of variance with an eigenvalue of 4.177.

Reward System: The statistics of Reward System (Component 4) are shown in Table 6.22. Similar to Coordination Decision, the sampling adequacy was slightly but not severely below the preferred level (KMO = .788). The factor loadings for the five items included in this scale ranged from .634 to .945. The variance explained by this component was 10.2% with an eigenvalue of 3.677.

Information Exchange: The final component was Information Exchange (Table 6.23). The sampling adequacy for this question was adequate (KMO = .882). The factor loadings for this component were lower than the other components with

items ranging from .641 to .760. This component explained 7.1% of the variance with an eigenvalue of 2.559.

Based on these outcomes, it can be stated that the five core components of the model were consistent in terms of placement within the components and inclusion in the model when comparing the results of the EFA process and the Q-sort and theoretical sorting procedure. Therefore, there were no dimensions removed during the scale refinement process within the EFA, and the analysis was continued.

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Coordination Decision	52.8088	14.608	.951	.847
Information Exchange	52.7900	14.732	.939	.849
Leadership Strategy	52.8213	14.581	.908	.853
Reward System	52.8056	14.817	.899	.854
Performance Evaluation	52.5235	16.043	.818	.866
Customer Orientation	53.1787	21.814	.131	.925
Competitor Orientation	53.2288	22.058	.066	.930

Table 6.17 Item-total statistics (Cronbach's alpha).

Component	**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Eigenvalue	**% of Variance**	**Cumulative %**	**Eigenvalue**	**% of Variance**	**Cumulative %**
1	7.597	21.103	21.103	5.404	15.012	15.012
2	5.360	14.890	35.993	5.148	14.301	29.313
3	4.177	11.603	47.596	5.110	14.195	43.508
4	3.677	10.214	57.810	4.423	12.285	55.793
5	2.559	7.107	64.917	3.285	9.124	64.917

Table 6.18 Eigenvalue and fluctuating percentage of the PCA methods and rotation of axes in the form of Varimax.

	Statement	Factor loading
LS1	At your company, top management actively promotes and communicates the philosophy and culture of coordination between marketing and operations.	.961
LS3	At your company, top management sets a procedure of coordination between marketing and operations. (Meeting schedule; point of alignment between marketing and operations.)	.915
LS2	At your company, top management encourages staff's participation when setting the alignment strategy between marketing and operations.	.907
LS4	At your company, top management equally sets the goal between marketing and operations.	.896
LS5	At your company, there is a regular review of the coordination between marketing and operations in top management meetings.	.805
	Eigenvalues = 7.597 and %Variance = 21.103, Cumulative % = 21.103;	
	KMO and Bartlett's Test = .850	

Table 6.19 Component 1 strategic vision and goals to create organizational policies, procedures, and culture to support and facilitate exchange between marketing and operations have been driven by top management (Leadership Strategy).

	Statement	Factor loading
CD1	At your company, the degree to which marketing and operations coordinate jointly in the firm's goal setting.	.924
CD2	At your company, marketing and operations participate jointly in short-term strategic planning (less than 6 months).	.864
CD4	At your company, marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with the firm's strategy.	.863
CD6	At your company, marketing and operations participate jointly in problem solving; such as, delay in production, customer complaints or material shortage.	.767

	Statement	Factor loading
CD5	At your company, marketing and operations participate jointly in new product development; such as, new products and production planning.	.766
	Eigenvalues = 5.360 and %Variance= 14.890; Cumulative % = 35.993;	
	KMO and Bartlett's Test = .757	

Table 6.20 Component 2 coordinating participation or decisions at the strategic, operational, and tactical level have been established from marketing and operation. (Coordination Decision).

	Statement	Factor loading
PE1	Your company has developed performance measures that extend the marketing-operations alignment.	.959
PE3	Your company improved performance by cooperating marketing with operations by using KPIs.	.928
PE2	Your company constantly evaluates its cooperation to assess the ability to meet the best performance.	.915
PE4	Your company has ongoing monitoring alignment activities and progress on performance.	.910
PE5	At your company, alignment behavior is taken into account when evaluating the marketing and operations functions; such as, information sharing between each other and developing strategy together.	.806
	Eigenvalues = 4.177 and % Variance = 11.603; Cumulative % = 47.596;	
	KMO and Bartlett's Test = .848	

Table 6.21 Component 3 performance evaluation defined as the KPIs of the marketing and operations functions is driven by the alignment outcomes (Performance Evaluation).

	Statement	Factor loading
RS2	At your company, marketing and operations operate under principles of shared rewards and risks.	.945
RS4	At your company, alignment behavior is taken into account when rewarding the marketing and operations functions; such as, the alignment of working together to reduce job redundancy or reduce errors.	.945
RS5	At your company, the degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.	.942
RS1	At your company, marketing and operations perceived the benefits of participation in the collaboration.	.850
RS3	Your company sets marketing and operations objectives aligned to the organization's strategy (KPI-based measure).	.634
	Eigenvalues = 3.677 and %Variance = 10.214; Cumulative % = 57.810;	
	KMO and Bartlett's Test = .788	

Table 6.22 Component 4 alignment of incentive and reward systems was identified as one of the main tools used to promote cooperation between the marketing and operations departments (Reward System).

	Statement	Factor loading
IE2	At your company, marketing provides information to operations to acknowledge about the trend and direction of demand in the market.	.760
IE3	At your company, operations provide information to marketing to be aware of the capability and operation innovation.	.716
IE1	At your company, marketing and operations jointly share and communicate the customers' requirement.	.671
IE7	Operations staff have to be trained about the marketing knowledge; such as, target customer.	.667

	Statement	Factor loading
IE4	At your company, the Marketing Manager and Operations Manager have a weekly or monthly meeting.	.641
	Eigenvalues = 2.559 and %Variance = 7.107; Cumulative % = 64.917;	
	KMO and Bartlett's Test = .882	

Table 6.23 Components 5 cooperating in exchanging and communicating goals, processes, knowledge, and other information that is related in both formal and informal meetings (Information Exchange).

6.4 First-order Confirmatory Factor Analysis (CFA)

The second stage in testing the first-order constructs was the confirmatory factor analysis (CFA). The CFA process was conducted using a larger, randomly selected subsample from the distribution of the questionnaire (n = 319). The discussion of the CFA process begins with the presentation of the sample characteristics, evaluation of non-response bias and common method bias, composite reliability, convergent validity and discriminant validity. Attention then turns to the outcome of the CFA process itself.

6.4.1 Bias Testing

Prior to beginning the CFA process, the sample was evaluated for non-response bias and common method bias. These tests allowed the researcher to evaluate the sample (n = 319) to make sure that it was consistent across the sample profile and that there was no common method bias indicated, both of which could affect the quality of the results.

6.4.1.1 Non-response bias

To evaluate non-response bias, first two groups were constructed from the response waves for the early and late responses. The early response group consisted of those that returned the questionnaire in Waves 1, 2 and 3 (n = 419) and those that returned the questionnaire in Wave 4 (n = 20). A chi-square test was used to determine whether there was a significant mean difference in the five constructs

representing the dimensions of the marketing-operations alignment. Table 6.24 summarizes the results of the chi-square test for the key items tested. As this table shows, there were no significant differences between the early and late response groups ($p > .05$). Thus, it can be stated that according to this test, there is no evidence of non-response bias or that the amount of time taken to return the questionnaire influenced the results.

Test	Value	Df	p
Early/late response * Coordination Decision	.887	2	.642
Early/Late response * Information Exchange	2.850	9	.970
Early/Late response * Leadership Strategy	3.038	9	.963
Early/Late response * Reward System	.982	3	.806
Early/Late response * Performance Evaluation	3.598	7	.825

Table 6.24 Chi-square test: Early/late response groups.

The second test for non-response bias used a chi-square test to compare the responses to the specific dimensions of the marketing-operations alignment construct between the groups with different firm characteristics (type of industry, number of employees, income, and age of the company). The firm characteristics were known because as discussed above they were collected during the questionnaire. Results for this test are shown in Table 6.25. Once again, this showed no significant differences between the different groups based on the firm's characteristics. Therefore, there was no non-response bias detected by the firm's characteristics.

Test	Value	Df	p
Coordination Decision * Types of industry	6.740	6	.346
Coordination Decision * Number of employees	4.741	2	.093
Information Exchange * Income	4.425	4	.132
Leadership Strategy * Age of company	7.864	7	.257

Table 6.25 Chi-square test: Marketing-operations alignment dimensions x firm characteristics.

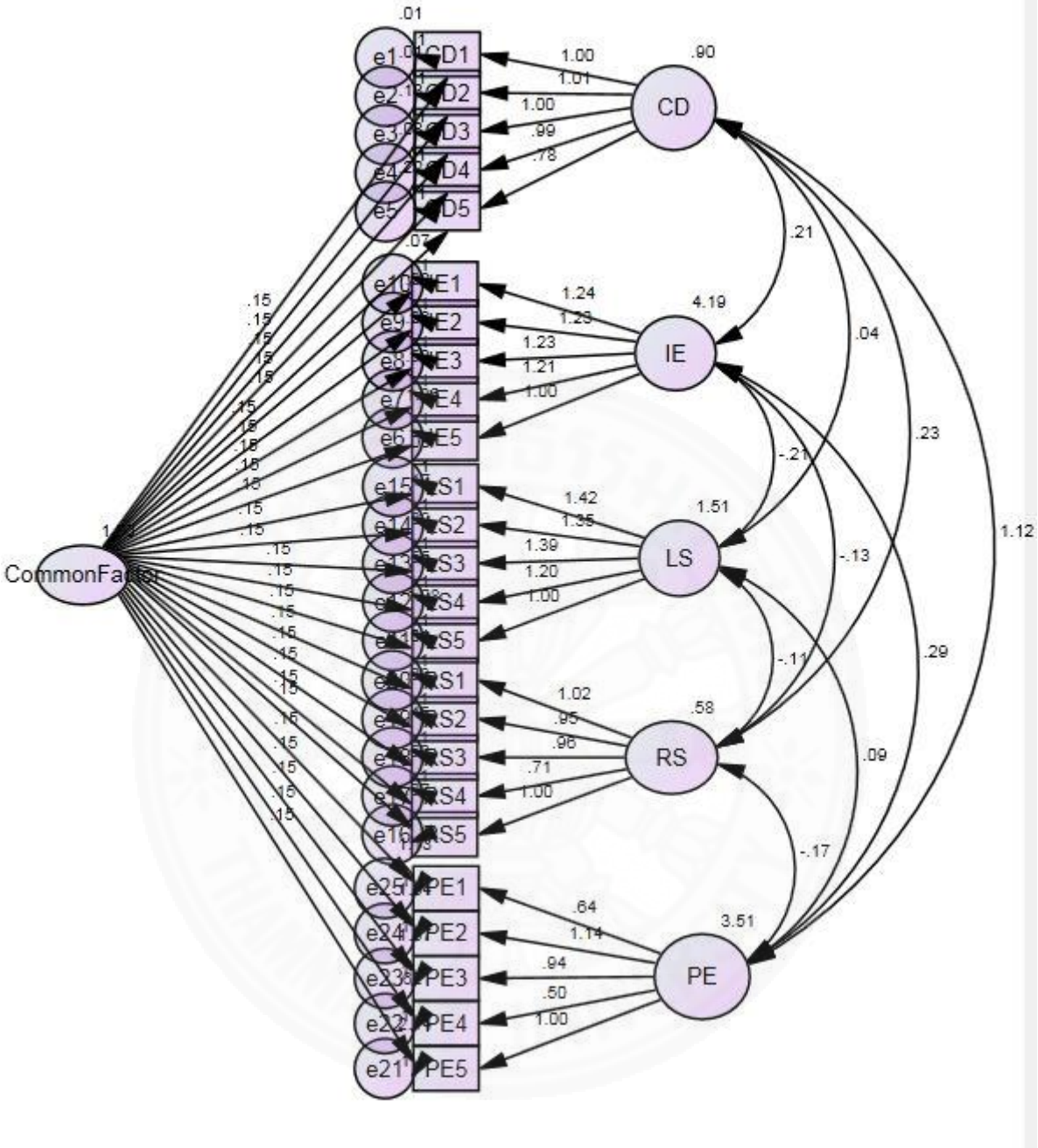
In summary, the chi-square analysis did not identify any differences in the core dimensions of the marketing-operations alignment construct based on either of the firm's response time (early/late responders) or on the firm's characteristics (type of industry, number of employees, income, or age of the company). Therefore, it can be stated that there was no non-response bias detected in this sample based on the common concerns.

6.4.1.2 Common method bias

Common method bias was also tested using two techniques comprising Harman's single-factor test and the common latent factor (CLF) test. Both tests were used (Wong et al., 2011) because not all researchers believe Harman's test is reliable; therefore, confirmatory results are required.

Results for the Harman's single-factor test are shown in (Appendix J). The maximum percentage of variance (21.103%) was below the 50% threshold used to identify the common method bias (Podsakoff et al., 2003). This indicated that there was no common methods bias detected here. The CLF results (Figure 6.1) showed that the maximum percentage of variance was 15%; also below 50% that would indicate common method bias (Byrne, 2016). Therefore, common method bias was not detected in this analysis using either of the methods available. Given this outcome, the analysis moved on to the questions of validity and reliability.

Figure 6.1 Common method bias testing in AMOS (CLF outcome).



6.4.2 CFA Results

The CFA test was conducted to evaluate the structure of each of the components of the model, based on its theoretical and Q-sort placement, after the scale refinement process of EFA, which was explained in the section above. The component testing for each of the scales is shown in Figure 6.2 through 6.33. Summaries of the goodness of fit tests for each of the components is summarized in Tables 6.28 through 6.33. The criteria for the goodness of fit of each of the constructs was based on the standard thresholds. These thresholds are outlined in detail in Chapter 5, but are

summarized in Table X. The goodness of fit of each of the individual measures is discussed below. Factor loadings for each individual item were also considered, but were not used as a determinant for the inclusion of the item unless they differed substantially from the remainder of the items in the scale. Items are discussed in the dimensional order developed in the EFA for the marketing-operations alignment dimension (Leadership Strategy, Coordinating Decisions, Performance Evaluation, Reward Systems, and Information Exchange).

Goodness of Fit Measure	Type (Absolute or Relative)	Acceptance Threshold
Chi-square (χ^2)	Absolute	$p > .05$
χ^2/df	Absolute	<2
Root mean square error of approximation (RMSEA)	Relative	<.01 = Excellent <.05 = Good <.08 = Acceptable ≥.08 = Poor
Comparative Fit Index (CFI)	Relative	>.90
Goodness of Fit Index (GFI)	Relative	>.90
Adjusted Goodness of Fit Index (AGFI)	Relative	>.90

Table 6.26 Goodness of fit measure thresholds.
(Source: Byrne, 2016; Jöreskog, et al., 2016)

Leadership Strategy (LS): Results of the CFA process for the LS construct are shown in Figure X and Table X. The factor loadings for this item ranged from 0.54 (LS1) to 0.98 (LS2). The relatively low factor loading was the only one that was substantially lower than the others. The goodness of fit tests for the construct indicated that the construct was well fitted in both the absolute and relative terms (χ^2 = 1.35, df = 3, p = .717; χ^2/df = .45; CFI = 1.0; GFI = 1.0; AGFI = .99; RMSEA = .00). Thus, the LS construct was considered appropriately reflective of the model developed.

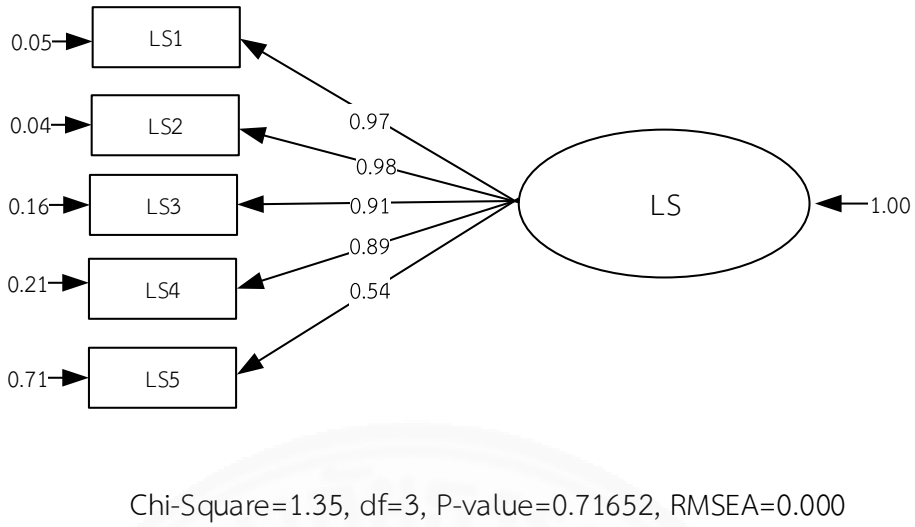


Figure 6.2 Component 1: Leadership Strategy (LS).

Items	Criteria	Calculating Value	Results
X^2	Not significant at.05	1.35	-
df	-	3	-
p-value	P>0.05	0.71652	-
X^2/df	X^2/df<2	0.45	Pass the criteria
CFI	Value close 1.0	1.00	Pass the criteria
GFI	Value close 1.0	1.00	Pass the criteria
AGFI	Value close 1.0	0.99	Pass the criteria
RMSEA	Value close 0.0	0.00	Pass the criteria

Table 6.27 Results of the first-order confirmatory factor analysis between the marketing and operation functions under the perspective of the strategic vision and goals that create organizational policies, procedures, and culture to support and facilitate exchange between marketing and operations, which have been driven by top management (Leadership Strategy) (n=319).

Coordination Decisions (CD): Results for CD are shown in Figure 6.3 and Table 6.30. As Figure X shows, the factor loading for each of the individual items was relatively high ranging from .81 (CD5) to .97 (CD3). This indicated that the individual items were consistent with the construct, as predicted in the EFA. The goodness of fit for CD passed on all the criteria tested (χ^2 = .14, df = 2, p = .931; χ^2/df =

.07; CFI = 1.0; GFI = 1.0; AGFI = 1.0; RMSEA = .000). Thus, the CD component was adequately fitted based on the items included.

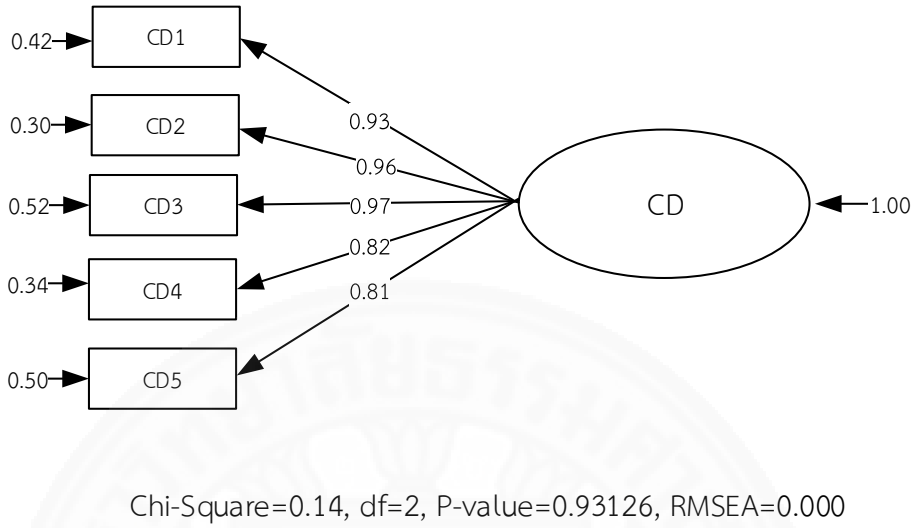


Figure 6.3 Component 2: Coordination Decisions (CD).

Items	Criteria	Calculating Value	Results
X^2	Not significant at .05	0.14	-
df	-	2	-
p-value	P>0.05	0.93126	-
X^2/df	X^2/df<2	0.07	Pass the criteria
CFI	Value close to 1.0	1.0	Pass the criteria
GFI	Value close to 1.0	1.0	Pass the criteria
AGFI	Value close 1.0	1.0	Pass the criteria
RMSEA	Value close 0.0	0.000	Pass the criteria

Table 6.28 Results of the first-order confirmatory factor analysis between the marketing and operation functions under the perspective of coordinating participation or decisions at the strategic, operational, and tactical level that have been established from marketing and operations (Coordination Decision).

Performance Evaluation (PE): Data from the CFA analysis of the PE construct is shown in Figure 6.4 and Table 6.31. The factor loadings for this construct were somewhat lower than others ranging from .69 (PE3) to .83 (PE2). However, since these were relatively close together and still relatively high, this was not a serious concern

for the model. The goodness of fit tests all indicated that both the absolute and relative fit were good ($\chi^2 = 2.53$; df = 3, p = 471; χ^2/df = .84; CFI = 1.0; GFI = 1.0; AGFI = .98; RMSEA = .000). Thus, despite the lower factor loadings for this construct, the goodness of fit was adequate.

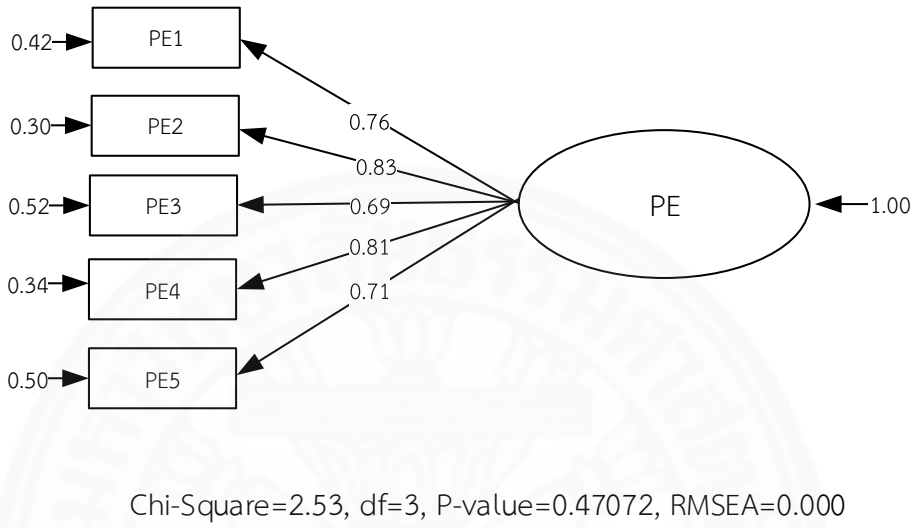


Figure 6.4 Component 3: Performance Evaluation (PE).

Items	Criteria	Calculating Value	Results
X^2	Not significant at .05	2.53	-
df	-	3	-
p-value	P>0.05	0.47072	-
X^2/df	X^2/df<2	0.84	Pass the criteria
CFI	Value close 1.0	1.00	Pass the criteria
GFI	Value close 1.0	1.00	Pass the criteria
AGFI	Value close 1.0	0.98	Pass the criteria
RMSEA	Value close 0.0	0.000	Pass the criteria

Table 6.29 Results of the first-order confirmatory factor analysis between the marketing and operation functions under the perspective KPIs of the marketing and operations functions is driven by the alignment outcomes (Performance Evaluation) (n=319).

Reward Systems (RS): The data for the RS construct is shown in Figure 6.5 and Table 632. As Figure 6.6 shows, the factor loadings for the items included in this scale ranged from 0.57 (RS4) to 0.96 (RS2). This was a relatively wide range, but since all the items had relatively high factor loadings this was not a major concern. The goodness of fit measures for the construct also confirmed that the construct was adequately fit (χ^2 = .83, df = 2, p = .660; χ^2/df = .42; CFI = 1.0; GFI = 1.0; AGFI = .99; RMSEA = .000). Therefore, this construct was accepted as being appropriately fit.

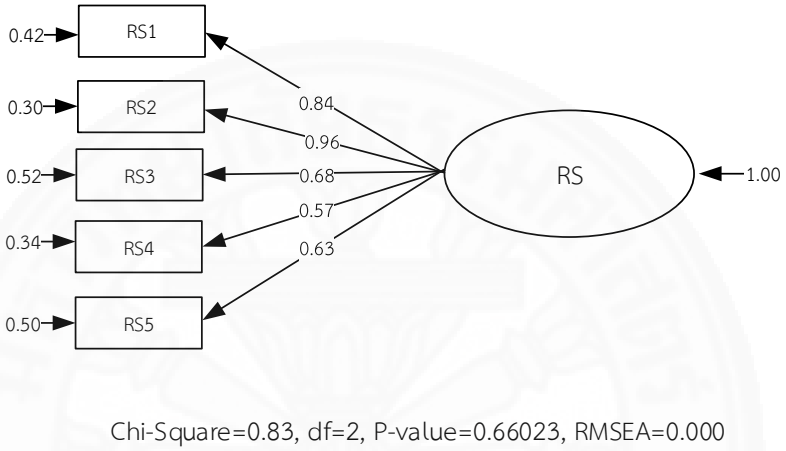


Figure 6.5 Component 4: Reward System (RS).

Items	Criteria	Calculating Value	Results
X^2	Not significant at.05	0.83	-
df	-	2	-
p-value	P>0.05	0.66023	-
X^2/df	X^2/df<2	0.42	Pass the criteria
CFI	Value close 1.0	1.00	Pass the criteria
GFI	Value close 1.0	1.00	Pass the criteria
AGFI	Value close 1.0	0.99	Pass the criteria
RMSEA	Value close 0.0	0.00	Pass the criteria

Table 6.30 Results of the first-order confirmatory factor analysis between the marketing and operation functions under the perspective of the alignment of the incentive and reward systems was identified as one of the main tools used to promote cooperation between the Marketing and Operations Departments (Reward System) n=319.

Information Exchange (IE): Information Exchange (IE) is the final component of the marketing-operations orientation examined here. The component model and goodness of fit tests are shown in Figure 6.6 and Table 6.33 respectively. The factor loadings for items ranged from 0.69 (IE5) to .95 (IE1). The low factor loading for IE5 was surprising given the loadings of the other factors, but in this case, it was not low enough to cause concern about its inclusion in the model. The goodness of fit tests were all consistent with the value thresholds required to indicate a good fit including both the absolute and relative goodness of fit tests ($\chi^2 = 1.60$, df = 4, p = .808; χ^2/df = .4; CFI = 1.0; GFI = .96; AGFI = .95; RMSEA = .000). Thus, the IE construct showed a sufficient goodness of fit.

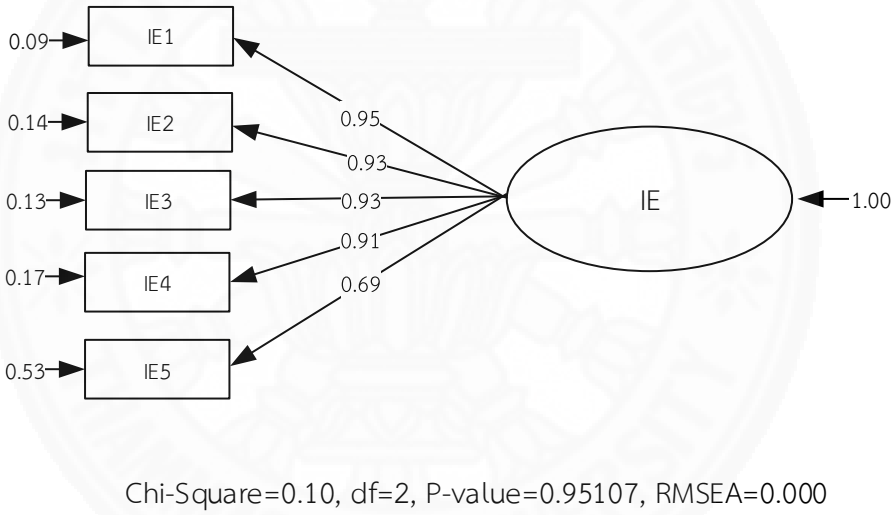


Figure 6.6 Component 5: Information Exchange (IE).

Items	Criteria	Calculating Value	Results
X^2	Not significant at.05	1.60	-
df	-	4	-
p-value	P>0.05	0.80826	-
X^2/df	X^2/df<2	0.4	Pass the criteria
CFI	Value close 1.0	1.00	Pass the criteria
GFI	Value close 1.0	0.96	Pass the criteria
AGFI	Value close 1.0	0.95	Pass the criteria
RMSEA	Value close 0.0	0.00	Pass the criteria

Table 6.31 Results of the first-order confirmatory factor analysis between the marketing and operation functions under the perspective of cooperating in exchanging and communicating goals, processes, knowledge, and other information that are related in both formal and informal meetings (Information Exchange) (n=319).

6.4.3 Summary of the First-order Testing (EFA and CFA)

The first-order analysis process, which was a reflective analysis, used EFA and CFA to test the validity of the constructs as developed through the Q-sort and theoretical review. The EFA process, used for scale refinement, demonstrated that the placement of items into component structures was consistent with the theoretical and Q-sort outcomes. In the CFA process, it was first demonstrated that all constructs displayed composite reliability and convergent and discriminant validity. The analysis in this stage also did not identify any indications of non-response bias or common method bias. As the goodness of fit tests showed, all constructs tested in the CFA process had an adequate goodness of fit based on both the absolute and relative tests. Furthermore, the factor loadings indicated that the constructs were consistent with what was expected. Therefore, based on the results of the CFA analysis, the instrument could be considered to be valid to the first-order level. Following this final validation of the instrument using CFA, concern turned to the second-order measurement model validation process, which was conducted using a MIMIC approach. In the next section, the discussion turns to the MIMIC testing followed by the assessment of the nomological validity.

6.5 Second-order Measurement Model Validation (MIMIC)

The final stage in the analysis was to conduct a second-order (formative) factor analysis to assess the dimensionality of the marketing-operations alignment construct as proposed. A MIMIC measurement model was used to evaluate the proposed relationships between the five dimensional constructs of the marketing-operations alignment (Coordinating Decisions, Leadership Strategy, Information Exchange, Performance Evaluation, and Reward Systems) and the reflection of the

marketing-operations alignment construct. This section begins with discussion of the key characteristics of the model including composite reliability, convergent validity and discriminant validity followed by multicollinearity. The assessment of the MIMIC measurement model follows.

6.5.1 Composite Reliability, Convergent Validity and Discriminant Validity

Reliability, convergent validity and discriminant validity were initially evaluated in order to assess the fundamental characteristics of the proposed scales. These tests were performed on a larger sample (n = 319). Reliability was evaluated using Composite Reliability (CR > 0.7) (Hair et al., 2016). Convergent reliability (AVE > 0.5) and discriminant validity ($\sqrt{AVE} > a$) were also tested (ibid). The results are summarized in Table 6.34. This showed that all scales passed the tests. The CR values ranged from .847 to .866 for all scales tested; all of which were above the threshold of CR > .7. This indicated that the composite reliability was strong for all constructs. Similarly, AVE for the constructs ranged from .64 to .88; all of which were above the estimated values demonstrating convergent validity. Discriminant validity was also demonstrated. Therefore, the scales could all demonstrate to be statistically reliable and have both convergent and discriminant validity.

		α	AVE	CR	1	2	3	4	5	6	7
1	Coordination Decision	0.881	0.85	28.45	**(0.96)**						
2	Information Exchange	0.863	0.88	37.30	.127	**(0.99)**					
3	Leadership Strategy	0.628	0.81	20.76	.039	.095	**(0.98)**				
4	Reward System	0.818	0.64	8.58	.407	.003	.065	**(0.95)**			
5	Performance Evaluation	0.799	0.63	8.64	.191	.079	.022	.063	**(0.98)**		
6	Customer Orientation	0.745	0.63	8.53	.205	.080	.118	.304	.343	**(0.24)**	
7	Competitor Orientation	0.718	0.71	9.72	.114	.019	.363	.096	.670	.411	**(0.52)**

** The numbers on the diagonal (bold in parenthesis) are the square root of AVE for each factor.

Table 6.32 Reliability and convergent and discriminant validity statistics.

Construct	Items	X^2/df	P-Value	GFI	NNFI	CFI	Composite reliability	AVE
CD	5	0.07	P = 0.93	1.00	1.00	1.00	.847	0.85
IE	5	0.40	P = 0.81	0.96	0.94	1.00	.849	0.88
LS	5	0.45	P = 0.72	1.00	1.00	1.00	.853	0.81
RS	5	0.42	P = 0.66	1.00	1.01	1.00	.854	0.64
PE	5	0.84	P = 0.47	1.00	1.00	1.00	.866	0.63

Table 6.33 Reliability and validity of the marketing-operations alignment constructs

6.5.2 Multicollinearity

Evaluating the degree of multicollinearity in the proposed model is the first step in assessing a MIMIC model since high multicollinearity can be difficult in isolating the effects of the individual constructs proposed as included within the model (Thornton et al., 2014). Multicollinearity for the model was assessed using the variance inflation factor (VIF) (Appendix K). The VIF value should not exceed 10 in any case; otherwise, this could indicate excessive multicollinearity (Burnham and Anderson, 2007). As the results showed, none of the factors reached VIF > 10 with a range of between 1.023 and 1.281 for all five of the proposed dimensions. Therefore, there was no concern about the level of multicollinearity in the MIMIC model potentially interfering with the outcomes.

6.5.3 Assessment of the MIMIC Measurement Model

The MIMIC analysis was performed in LISREL. The measurement model constructed for the assessment is shown in Figure 6.7. Evaluation included the goodness of fit and assessment of the individual parameters of the model. The measurement model set the disturbance term ζ at zero and assumed an equal weighted effect for all five dimensions of the model.

The goodness of fit statistics were evaluated using the same thresholds as established during the EFA and CFA processes (Table 6.37). The outcome of both the absolute and relative goodness of fit tests was adequate for this model ($\chi^2 = 170.07$, df = 272, p = 1.00; χ^2/df = .62; CFI = 1.0; GFI = .96; AGFI = .95; RMSEA= .000). Therefore,

the general goodness of fit within the model was adequate.

The MIMIC model statistics are shown in Table 6.38. Using the standardized parameter (λ) for each of the five proposed dimensions, it is possible to see that each of these dimensions was significant ($p < .05$). Following the example of Thornton et al. (2014), no threshold for path size was established, but the standardized parameters were used to evaluate the relative effect of the component on the latent variable. The strongest effect came from the Reward System ($\lambda = .48$) followed by Coordination Decision ($\lambda = .40$), Performance Evaluation ($\lambda = .14$), Information Exchange ($\lambda = .04$), and Leadership Strategy ($\lambda = .03$), respectively. The overall model R^2 (0.50) indicated that about 50% of the variance within the model was explained by the four dimensions, which was adequate but not a highly exceptional performance for the model.

The standardized parameters with constraints were used to evaluate whether disturbances in the latent variable significantly affected the goodness of fit of the measurement model (Thornton et al., 2014). Consequently, the goodness of fit characteristics indicated that while there was a slight reduction in the goodness of fit; however, the model still passed all the required thresholds ($\chi^2 = 375.48$, df = 340, $p = .08$; $\chi^2/df = 1.10$; CFI = .98; GFI = .92; AGFI = .91; RMSEA = .018). Therefore, despite this slight degradation, the disturbances in the model did not significantly have a negative effect on the model.

In summary, the second-order (formative) analysis demonstrated that all the five proposed dimensions of the marketing-operations alignment contributed significantly to this model. The strongest effects were seen for Reward System and Coordination Decision, but there were also significant effects for the remaining three variables. Evaluation of the model including constraints to evaluate the potential effect of disturbances showed that the model was still well fitted. Therefore, it can be stated that the five dimensions of the marketing-operations alignment that were proposed are causal factors associated with the latent marketing-operations alignment construct. Thus, this final stage in the analysis provided validation of the proposed model.

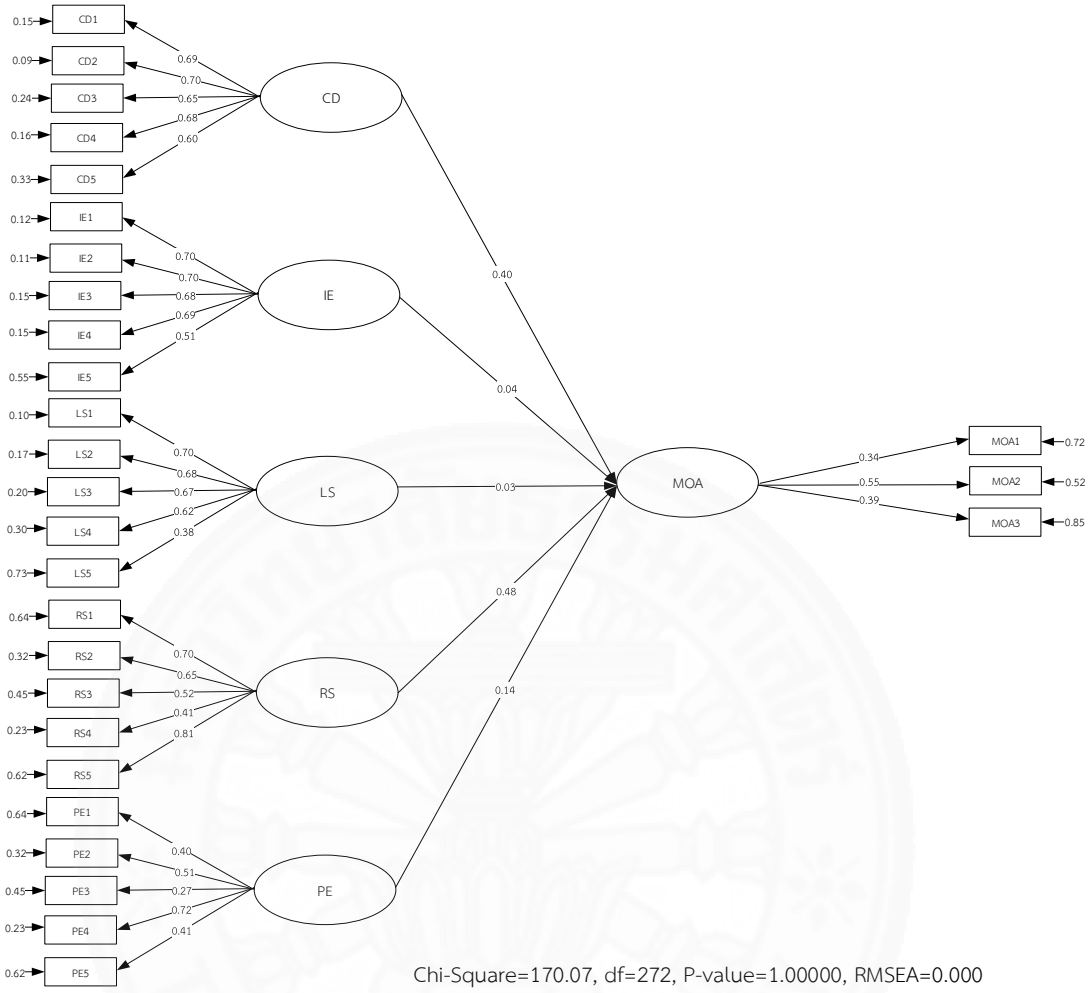


Figure 6.7 The MIMIC measurement model.

List	Criteria	Calculating value	Results
X^2	Not significant at .05	170.07	-
df	-	272	-
p-value	P>0.05	1.00	-
X^2/df	X^2/df<2	0.62	Pass the criteria
CFI	Value close to 1.0	1.00	Pass the criteria
GFI	Value close to 1.0	0.96	Pass the criteria
AGFI	Value close to 1.0	0.95	Pass the criteria
RMSEA	Value close to 0.0	0.00	Pass the criteria

Table 6.34 Goodness of fit assessment (MIMIC model).

	2nd Order Formative MIMIC Model	**All (n = 319)**	
	Marketing-Operations Orientation		
	1st Order Component with Reflective Indicators	**Standardized Parameter (λ)**	**Standardized Parameter with Constraints (λ')**
1	Coordination Decision	**0.40*** **	**0.33**
	CD1	0.69	0.71
	CD2	0.70	0.70
	CD3	0.65	0.67
	CD4	0.68	0.68
	CD5	0.60	0.62
2	Information Exchange	**0.04*** **	**0.33**
	IE1	0.70	0.71
	IE2	0.70	0.70
	IE3	0.68	0.70
	IE4	0.69	0.70
	IE5	0.51	0.53
3	Leadership Strategy	**0.03*** **	**0.33**
	LS1	0.70	0.71
	LS2	0.68	0.69
	LS3	0.67	0.67
	LS4	0.62	0.65
	LS5	0.38	0.41
4	Reward System	**0.48*** **	**0.33**
	RS1	0.70	0.67
	RS2	0.65	0.63
	RS3	0.52	0.51
	RS4	0.41	0.45
	RS5	0.81	0.52
5	Performance Evaluation	**0.14*** **	**0.33**
	PE1	0.40	0.49

	2nd Order Formative MIMIC Model	**All (n = 319)**	
	Marketing-Operations Orientation		
	1st Order Component with Reflective Indicators	**Standardized Parameter (λ)**	**Standardized Parameter with Constraints (λ')**
	PE2	0.51	0.59
	PE3	0.27	0.46
	PE4	0.72	0.61
	PE5	0.41	0.49
6	Marketing operations alignment		
	MOA1	**0.34**	**0.54**
	MOA2	0.55	0.54
	MOA3	0.39	0.31
	X^2, df, p	Chi-Square=170.07, df=272, P-value=1.00000	Chi-Square=375.48, df=340, P-value=0.08989
	R^2	0.50	1.00
	RMSEA	RMSEA=0.000	RMSEA=0.018
	SRMR	0.032	0.059
	NFI	0.95	0.88
	CFI	1.00	0.98
	IFI	1.03	0.98
	GFI	0.96	0.92
	AGFI	0.95	0.91

*p < 0.05, **p < 0.01, ***p < 0.001.

a The disturbance term (ζ) is set to 0. The weight of all five formative 1st order constructs are set to be equal at 0.20.

Table 6.35 MIMIC model statistics.

6.6 Testing Nomological Validity

A CFA approach was conducted in LISREL to test the nomological validity of the theoretical network as proposed (Figure 6.8). The purpose of this analysis was to provide a final check on the proposed theoretical structure of the model and the relationships between the individual components. Table 6.39 summarizes the goodness of fit criteria, which were evaluated using the same values as above. As this table shows, the model passed both the absolute and relative goodness of fit tests, and therefore was adequately fit to the data ($\chi^2 = 508.44$, df = 574, p = .97; χ^2/df = .88; CFI = 1.00; GFI = .92; AGFI = .90; RMSEA = .000). Therefore, the goodness of fit of the model as developed was adequate.

Table 6.40 summarizes the indirect and direct effects of the five components of the marketing-operations alignment on the three proposed outcome variables (marketing-operations alignment, customer orientation and competitor orientation). This analysis showed that as expected, the five components of the marketing-operations alignment (Coordination Decision, Information Exchange, Leadership Strategy, Reward System, and Performance Evaluation) had direct effects on the marketing-operations alignment construct with coefficients ranging from .15 to .69. The effect of marketing-operations alignment on customer orientation and competitor orientation was also tested. In this case, there was a strong direct effect with a minimal level of indirect effect. The total effects of MOA on CUO and COO were .97 and .84, respectively.

Finally, the MIMIC model approach was used as discussed above, in order to test the standardized effects. The results are shown in Table 6.41. The results showed that all the standardized parameters λ were significant, ranging from .15 to .96. This test indicated that all the proposed relationships for the model could be observed as significant.

In summary, nomological validity evaluation indicated that the theoretical relationships proposed by the measurement model did exist. In addition to the multidimensional component structure of MOA, which was tested in the section above, the results showed the expected effect of MOA on CUO and COO. Furthermore, there were minimal indirect effects in the model indicating that there were no latent relationships that would substantially add to the accuracy of the model if included.

Therefore, the relationships proposed within the model were consistent with what was observed in the data. Thus, this model would be the most parsimonious model available and would not require any further adjustment to account for any missing relationships.

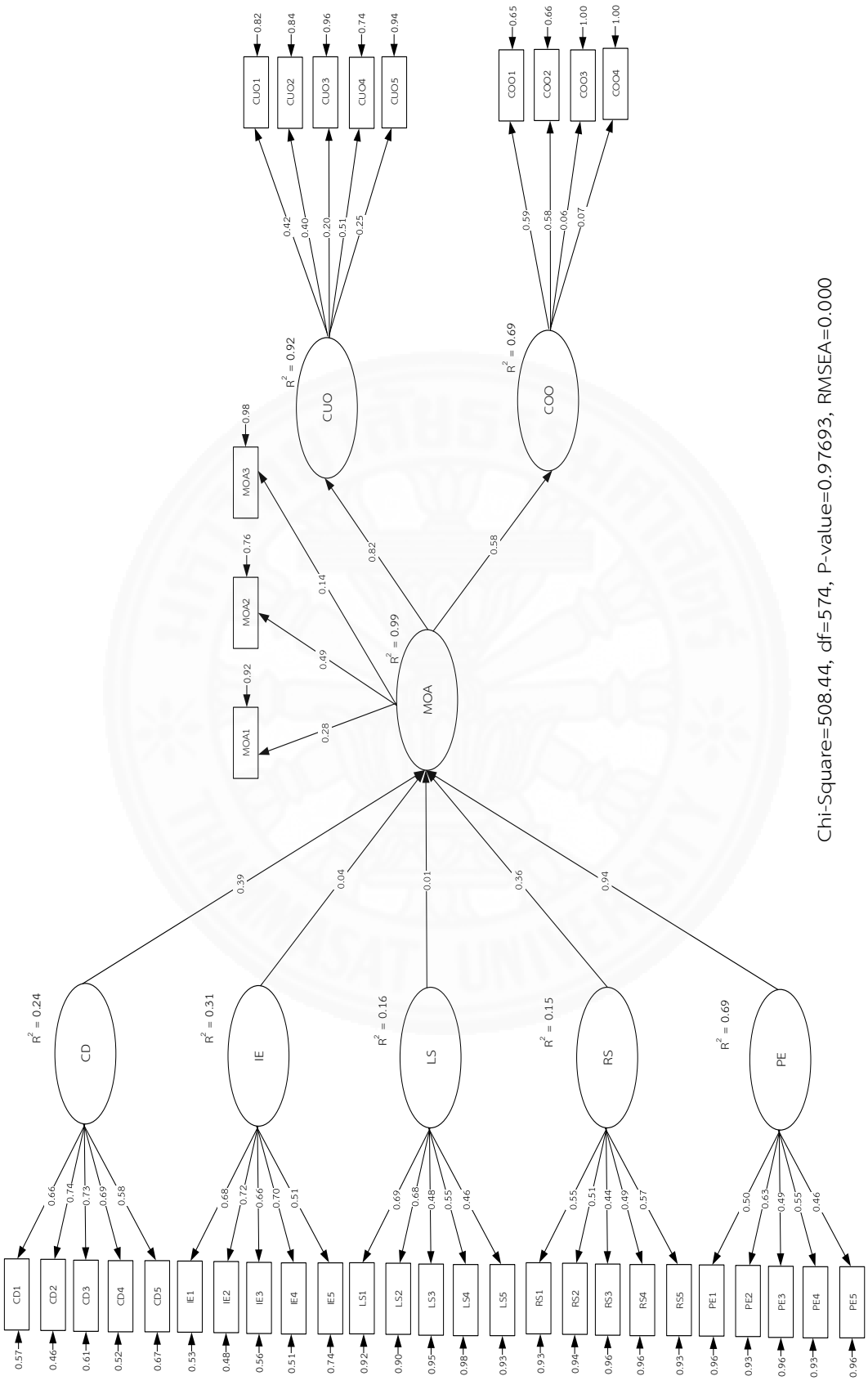


Figure 6.8 CFA model for nomological validity testing.

List	Criteria	Calculating value	Results
X^2	Not significant at .05	508.44	-
df	-	574	-
p-value	P>0.05	0.97	-
X^2/df	X^2/df<2	0.88	Pass criteria
CFI	Value close to 1.0	1.00	Pass criteria
GFI	Value close to 1.0	0.92	Pass criteria
AGFI	Value close to 1.0	0.90	Pass criteria
RMSEA	Value close to 0.0	0.00	Pass criteria

Table 6.36 Results of the second-order confirmatory factor analysis of relevance between the marketing and operation functions (n=319).

Causal Variables	Component of Strategic Planning, Information Exchange and Cooperation (Marketing operations alignment)			Component of Customers' Needs and Satisfaction (Customer Orientation)			Component of Understanding the Weaknesses and Strengths of the Competitors' Competency (Competitor Orientation)		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
The component coordinating the participation or decisions at the strategic, operational, and tactical level have been established from marketing and operations (Coordination Decision).	0.24	-	0.24	-	-	-	-	-	-
The component of cooperation in exchanging and communicating goals, processes, knowledge, and other information that are related in the both formal and informal meetings (Information Exchange).	0.31	-	0.31	-	-	-	-	-	-
Component of strategic vision and goals that create organizational policies, procedures, and	0.16	-	0.16	-	-	-	-	-	-

Causal Variables	Component of Strategic Planning, Information Exchange and Cooperation (Marketing operations alignment)			Component of Customers' Needs and Satisfaction (Customer Orientation)			Component of Understanding the Weaknesses and Strengths of the Competitors' Competency (Competitor Orientation)		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
culture to support and facilitate exchange between marketing and operations have been driven by top management (Leadership Strategy).									
Component of the alignment of incentive and reward systems was identified as one of the main tools used to promote cooperation between the marketing and operations departments (Reward System).	0.15	-	0.15						
Component of performance evaluation was defined as the KPIs of the marketing and operations functions are driven by the alignment outcomes (Performance Evaluation).	0.69	-	0.69	-	-	-	-	-	-
Component of the process of strategic planning, information exchange and cooperation (Marketing operations alignment).	-	-	-	0.96	0.01	0.97	0.83	0.01	0.84

Table 6.37 Direct effect (DE), indirect effect (IE), total effect (TE), and R^2 of the causal variable that influences the component of customers' needs and satisfaction (Customer Orientation).

	2nd Order Formative MIMIC Model	**All (n = 319)**			
	Marketing-Operations Alignment				
	1st Order Component with Reflective Indicators	***α***	**AVE**	**CR**	**Standardized Parameter (*λ*)**
1	Coordination Decision	0.881	0.85	28.45	**0.24** ***
	CD1				0.30
	CD2				0.30
	CD3				0.28
	CD4				0.28
	CD5				0.26
2	Information Exchange	0.863	0.88	37.30	**0.31** ***
	IE1				0.27
	IE2				0.29
	IE3				0.26
	IE4				0.19
	IE5				0.21
3	Leadership Strategy	0.628	0.81	20.76	**0.16** **
	LS1				0.32
	LS2				0.31
	LS3				0.28
	LS4				0.23
	LS5				0.15
4	Reward System	0.818	0.64	8.58	**0.15** **
	RS1				0.28
	RS2				0.25
	RS3				0.21
	RS4				0.19
	RS5				0.24
5	Performance Evaluation	0.799	0.63	8.64	**0.69** ***
	PE1				0.22
	PE2				0.25
	PE3				0.20
	PE4				.025
	PE5				0.21
6	Customer Orientation	0.745	0.63	8.53	**0.96** ***
	CUO1				0.15
	CUO2				0.12

	2nd Order Formative MIMIC Model	**All (n = 319)**			
	Marketing-Operations Alignment				
	1st Order Component with Reflective Indicators	***α***	**AVE**	**CR**	**Standardized Parameter (*λ*)**
	CUO3				0.07
	CUO4				0.20
	CUO5				0.16
7	Coordination Decision	0.718	0.71	9.72	**0.83** ***
	COO1				0.28
	COO2				0.24
	COO3				0.07
	COO4				0.06

*p < 0.05, **p < 0.01, ***p < 0.001.

Table 6.38 Nomological validity of the marketing-operations alignment.

6.7 Conclusion

This chapter has presented the results from a series of procedures intended to validate the final instrument that was developed using a mixed-methods Q methodology procedure. Beginning with the EFA analysis, the chapter has shown that the instrument is reliable and valid based on multiple measures. The CFA results showed that with a few exceptions, the scale as derived from expert interviews and rounds of Q sorting was consistent with the underlying constructs. Furthermore, the MIMIC model demonstrated that the proposed dimensions of marketing-operations alignment did in fact contribute to the marketing-operations alignment variable. Thus, the chapter demonstrated that the scales and instrument developed through this process is a reliable and valid measure of marketing-operations alignment and its antecedents. It also demonstrated that dimensions of the marketing-operations alignment model as proposed did contribute to the model. In the next chapter, these findings are discussed with the literature and the research is concluded.

CHAPTER 7
DISCUSSION, IMPLICATIONS, LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

In the previous chapter of the study, the results from the first-order and second-order validation process for the proposed measure of marketing-operations alignment were presented. These results showed that the measure was generally valid and reliable, and supported the theoretical (nomological) network of the proposed relationships and the multidimensionality of the marketing-operations alignment construct. The goal of this chapter is to integrate the testing of this measure into the broader concerns of the study including its theoretical and practical uses. The chapter begins with a discussion of the study outcomes including the factor structures and structural relationships, as well as other issues and concerns that arose during the study process. The second key issue addressed in this study is the theoretical and managerial implications of the findings; for example, how the measure could be used in practice. The chapter concludes with a critical discussion of the study limitations and opportunities for future research.

7.1 Discussion of the Study

Although the study was conducted as an exploratory research and oriented to developing a new theoretical perspective and instrument to measure it, the theoretical perspective (as presented in Chapter 2) provided an important perspective on the research findings. This discussion focuses on three key clusters of issues. First, the factor structures (especially the multidimensional factor structure of the marketing-operations alignment construct) is considered. Next, the structural relationships of the model are discussed. Finally, other issues and concerns that emerged during the research are examined.

7.1.1 Factor Structures

The main novel aspect of this research was the identification of the

multidimensional marketing-operations alignment construct, which includes five dimensions; i.e., coordination decision, information exchange, leadership support, reward systems, and performance evaluation. These dimensions were initially derived from interviews with academic and industry experts. The two-step validation process confirmed that these dimensions were related to the observed marketing-operations alignment construct, and that they were dimensions of the same underlying construct, as proposed in the theoretical literature. Therefore, the factor structure of the marketing-operations alignment construct and its five dimensions was confirmed in the empirical research. This finding was a significant improvement over the existing research because, as Gerow (2011) noted, previous researchers had not clearly defined the concept of alignment, and many of the existing explicit definitions on this concept had come from the alignment of different functions; for example, IT-business strategy alignment. The integrative definition of the multidimensional construct was also different from those used by previous studies, which have tended to only address strategic processes (Henderson and Venkatraman, 1999; Nadler and Tushman, 1983; Ullah and Lai, 2013) or capabilities (Taxén, 2010). In fact, only one study could be found that used a processual or activity-based view of alignment (Rosemann and vom Brocke, 2015), which was a critical aspect of the definition considering that the operational level was critical for alignment activities and may even dominate in firms where informal alignment between individuals was the main method of alignment (Parente, 1998). Thus, the clear definition of marketing-operations alignment and the dimensions of the construct represented a significant improvement over the existing literature.

The constructs derived from this research could be compared to some extent to the constructs identified in previous models of marketing-operations alignment even though they were not explicitly derived from the academic literature. This comparison showed that the dimensions of the marketing-operations alignment construct derived here were more practice-oriented and specific than those defined by previous studies. For example, Powell (1992) identified types of fit that included internal structural fit, size-structure fit, industry-structure fit, and fit between the firm's size, structure and planning competencies. These types of fit do not address the activity-oriented practices of marketing-operations alignment, but instead are concerned with a more nebulous consistency between the firm's structure and its activities. Similarly, another study used

dynamic capabilities as the basis for analysis (Huang, et al., 2010). While potentially useful at the strategic level, these capabilities are not necessarily directly translatable into organizational practices.

This research developed a more extensive set of dimensions for the marketing-operations alignment construct than most previous studies, which was one of the main differences from the existing research. For example, Paiva (2010), who had previously investigated marketing-operations alignment, used a simple unidimensional scale with three items to measure marketing-operations alignment rather than the more detailed exploration of the dimensions of the construct studied here. Another study, using the marketing-manufacturing interface model, used only a single Likert scale item to measure integration (Hausman, et al., 2002). The same approach was used by Olson, et al. (2001). Thus, this research study's use of a multidimensional construct of marketing-operations alignment was more thorough than the models used in previous research. The second-order validation process using the MIMIC model did confirm that the marketing-operations alignment model was multidimensional, which supported the use of a more complicated construct than the unidimensional constructs. Thus, this research represents an improvement on existing measures of marketing-operations alignment and similar measures that only used a unidimensional measure. The use of a multidimensional construct also makes more sense given the scope of the marketing-operations alignment process as identified in the interviews, which encompassed a range of different organizational processes and activities. Since there have been few previous studies that used multidimensional constructs of marketing-operations alignment, it could be possible that some dimensions could be missing, which were not identified from the exploratory interviews. Thus, there is a possible opportunity to improve the model by incorporating further research. However, this does not negate the general robustness of the research model as implemented here.

7.1.2 Structural Relationships

While this research was not primarily concerned with the structural relationships of marketing-operations alignment to other factors, the model did test two consequences of marketing-operations alignment: customer orientation and competitor orientation. The MIMIC model and nomological validity testing did show that these

relationships did exist, with a strong total effect of marketing-operations alignment on both customer orientation and competitor orientation. Customer orientation and competitor orientation are both constructs that reflect the firm's market orientation, or the approach it uses to identify and meet the needs of its market (Grinstein, 2008). Firms do not necessarily use only a single market orientation; instead, they may choose different market orientations for different activities, or as part of a spectrum of development activities (Grinstein, 2008). Thus, it is possible that marketing-operations alignment could have different structural relationships to each of these outcome constructs depending on the firm's mix of activities. In practice, the total effect of marketing-operations alignment on each of these outcomes was similar, and there were few indirect effects detected in the second-order testing. This indicated that it is the marketing-operations alignment (latent) variable, rather than the individual dimensions of these variables, that has the strongest effect on the customer orientation and competitor orientation of the firm.

Since this was a validation study of an instrument that was derived mainly from primary exploratory research, there was no explicit theoretical elaboration of the structural relationships observed within the data that could be used to explain them. However, the definition of the marketing constructs provided evidence that these two factors were in fact related. For example, customer orientation is related to how the firm identifies and meets the needs of its customer base (Deshpandé et al., 1993), while competitor orientation relates to how the firm acts in response to its competitors (Grinstein, 2008). In terms of the configuration theory, these two organizational characteristics relate to how the firm identifies and responds to internal and external imperatives (Miller, 1987). Thus, the structural relationships between the constructs is explained by their theoretical linkage even though this linkage has not been previously explored in detail.

There is still more research to be done in this area, which could improve the understanding of marketing-operations alignment. For example, further research could address factors like the organizational, leadership, and market antecedents of the marketing-operations alignment following the configuration theory's proposal that organizational, leadership, and external imperatives influence the structural configuration of the firm (Miller, 1987). Further research could also help identify further consequences of the marketing-operations alignment; such as, financial performance or other

organizational performance measures. These additional factors could use the instrument developed in this research although new constructs would need to be established for the additional factors. Thus, there is still room for development particularly in the structural relationships of marketing-operations alignment in the research.

7.1.3 Relationship of the Model to the Configuration Theory

The proposed model for the research was based on the configuration theory proposed by Miller (1987) and developed in further research. Miller (1987) identified two different clusters of factors or imperatives that could influence the activities of the firm. The configuration theory is a complex theoretical model including different imperatives and different effects of these imperatives throughout the firm's life cycle (Miller, 1987). This research does not represent a direct operationalization or measurement of the organizational configuration, either using one of Miller's (1990) established organizational configurations or developing a new measure for organizational configuration. Instead, it addressed a more complex issue, which was not examined in the initial formulation of the configuration theory (Miller, 1996), which was the influence of the organizational strategy on the firm's configuration. By acknowledging the effect of leadership support and the importance of alignment at the strategic level, this model of marketing-operations alignment addresses the gap in the configuration theory that acknowledges this effect. Simply, the constructs and relationships developed informs about the importance of the leadership strategy choices on the configuration of the firm rather than reject this issue.

One of the implications of the configuration theory for the firm is that the firm's configuration could serve as a significant source of competitive advantage (Miller, 1999). By extension, the configuration of the organization in terms of its marketing-operations alignment could also serve as a significant competitive advantage for the firm. This effect is implied in the relationship between the marketing-operations alignment and customer and competitor orientations (Kohli and Jaworski, 1990). However, the research on customer and competitor orientations does not necessarily support that this would be a substantive or positive support. For example, while competitor orientations do offer the firm the opportunity to realize market changes, make improvements on second-stage product offerings, and fill unmet customer needs, it

coyuld also lead to me-too or imitation strategies that position the firm in a secondary position to its competitors (Grinstein, 2008). Similarly, while customer-oriented firms excel at identifying and meeting customer needs as set by customers, an excessive focus on customer orientation could result in firms missing opportunities for innovation (Gatignon and Xuareb, 1997). Thus, this research elaborated on the role of the firm's configuration in its competitive position. By choosing a strong marketing-operations alignment position, the firm could improve its customer and competitor orientation, but whether these practices provide a competitive advantage would depend on how the firm makes use of its activities.

7.1.4 Methodological and Definitional Approach and Other Concerns

The approach of this research was intended to overcome problems in establishing a measurement model for marketing-operations alignment, which had not been identified by previous studies. For example, one study identified the need for adequate definitions for underlying constructs, which was required to make sure that the operationalized constructs were consistent with what was intended to be measured (MacKenzie et al., 2011). Furthermore, MacKenzie et al. (2011) mentioned that using existing definitions could unnecessarily confine the findings and reduce the possibility for identifying new constructs or relationships. Another problem that could occur is that most such instruments have focused on large and multinational firms rarely addressing the constructs in smaller firms (Piercy, 2010). The methodological approach of this study was intended to overcome these problems by using an inductive mixed methods research approach to establish new definitions based on expert consensus rather than existing theory. This was also a necessity since there were few clear definitions for the constructs or relationships expressed within the literature, which would have meant that working from a deductive approach would not have been as effective at identifying the new constructs that had not been specifically identified in the literature previously. To address Piercy's (2010) concern, the research drew from a sample of small and medium sized firms. This research was not primarily a study of the practice of marketing-operations alignment, but was instead focused on the scale development. Therefore, more extensive use of the instrument (or other research approaches) is recommended to improve the understanding of marketing-operations alignment in the manufacturing industry. Despite

this limitation, it could be stated that the research successfully defined and developed constructs using an exploratory approach that did not limit the potential construct or relationships identified and in small and medium firms, addressing the concerns of both MacKenzie et al. (2011) and Piercy (2010).

Although this research has developed both an integrative theory of marketing-operations alignment and a reliable and valid instrument to meet this goal, there are still some remaining concerns with the instrument and model that could not be addressed here. One of these concerns is the implication of the marketing-operations alignment for the organization. Although there have been some assertions that marketing-operations alignment can affect a firm's financial and non-financial performance (Dixon et al., 2014; Ho and Tang, 2010), these assertions have been poorly backed by evidence. There have been other studies that have addressed the effects of organizational alignment more generally, but there are also gaps in these studies. For example, as Kathuria et al. (2007) found, studies on vertical alignment between strategic and operational activities within a single function were far more common than studies on horizontal alignment between organizational functions. This means that there is limited empirical evidence for the potential effects of the process, which is exacerbated by a specific lack of evidence on marketing-operations alignment. This focus on vertical alignment has also reduced the development of the theoretical perspectives on horizontal alignment (Wu, et al., 2015). Thus, the lack of empirical evidence on marketing-operations alignment – not just using this model, but any of the existing models – has resulted in a poorly developed theoretical and evidence base, even though as the interviews showed, the actual practices addressed here are commonplace. This is a significant concern for the research, since it means that even though alignment is used as a concept in the literature, it has been poorly defined and developed. This was an issue that was outside the scope of the current study, which was focused on developing a theoretical model and measure for a single type of alignment (horizontal marketing-operations alignment). However, it should be a concern and an issue that is addressed within further research.

This research did not address many of the consequences of marketing-operations alignment instead it focused on only two outcomes (customer orientation and competitor orientation). In part, this was because of the limited scope and resources of the study. However, it was also because the literature offered little insight into what the

consequences of marketing-operations alignment might be. For example, even though Ho and Tang (2010) stated that organizational alignment could affect the firm's financial performance and efficiency, they did not offer empirical evidence for this statement. While it may seem intuitive that this would be the case, this may not actually be true. For example, a firm whose operational activities are tied too tightly to its marketing activities may lose efficiency by producing too many versions of a product to meet the market segment needs or may struggle to meet the efficiency goals promised by the Marketing Department. Thus, outcomes; such as, financial performance or firm production efficiency, could not necessarily be assumed. There is also very little information in the literature on potential internal outcomes; such as, increased quality or other benchmarks. This is one of the issues that requires additional research, and one that should be addressed with some urgency, as it will help determine the extent to which firms can make use of the concept of marketing-operations alignment and establish what they can expect from implementing such an organizational change.

7.2 Implications of the Study

This research has implications for both academic research and practice. The theoretical implications of the study are concerned with the novel contribution of the research to academic literature and the methodological implications relating from the design of the study. Practice-based implications include managerial and organizational applications for the findings and their importance in organizational strategy and practice.

7.2.1 Contributions to Academic Literature

The novel contribution of this research comes in two parts – the integrative definition and theoretical model of marketing-operations alignment as well as the operationalization and evaluation of an instrument designed to measure this theoretical model. As the literature review explained, the alignment or coordination of marketing and operations activities within the firm has been acknowledged as a process as early as Lawrence and Losch's (1967) work in the 1960s. However, no single model of this process has emerged within the literature, and academic theories have remained

piecemeal and fragmented without a strong underlying organizational theory that supported it. This research began with a theoretical grounding of the configuration theory (Miller, 1987), which provided support for the theoretical development. It then integrated elements of previous proposed models of marketing-operations alignment, as well as related concepts; such as, strategic fit, marketing and operations interface, and marketing and operations integration. By drawing from both the configuration theory and from multiple previous models describing essentially the same construct, this research generated a robust theoretical model of marketing-operations alignment that could be used in future research. Thus, the first novel contribution is the integration of existing theoretical and empirical models to construct a novel theory of marketing-operations alignment.

The second contribution was the development and testing of a firm-level instrument that measured the proposed theoretical model through a comprehensive process of scale development, refinement, and validation. There have been previous instruments used by individual researchers, but these instruments were mainly used for descriptive evaluation of the organizational process and were only subjected to preliminary validation tests. Thus, there was no single instrument that described a similar construct or that was proved to be reliable and valid through a rigorous testing process. This is one of the gaps the current research was designed to fill. By the end of this process, the resulting instrument had been shown to display both first-order and second-order reliability and the factor structure and dimensional components of the core marketing-operations alignment construct had been validated. Therefore, the second novel contribution to the literature is a functional instrument designed to measure the components of marketing-operations alignment and its consequences, which could be applied by researchers to further explore the concept.

7.2.2 Implications for Empirical Application and Managerial Practice

The research also has some implications for empirical application and managerial practice. These implications stem from the instrument developed for marketing-operations alignment and the model itself. These implications include the use of the theoretical model and instrument for organizational change management and the need to coordinate activities across multiple levels of the organization.

As the literature review showed, the level of coordination between marketing and operations activities at the strategic, tactical, and operational level varies significantly between firms. Many firms only aligned activities in a piecemeal fashion (Mollenkopf et al., 2011), for example. However, there has been at least some assertion that marketing-operations alignment could improve a firm's competitiveness (Ho and Tang, 2004) and that it could affect customer satisfaction, especially in service situations where gaps between expectations and service received could have a significant negative effect (Dixon et al., 2014). There is insufficient evidence on the benefits of marketing-operations alignment to the firm, which is one of the problems that was encountered when developing the instrument presented in this study. However, what is known about factors like customer satisfaction does strongly suggest that the different functions of the firm do need to coordinate together to ensure that the operations function delivers what the marketing function has promised its customers. This research has developed a functional theory of marketing-operations alignment that firms could use to evaluate their levels of the said alignment and identify problems in alignment. While the instrument was not intended for use at the individual firm level (instead being oriented to a broader study, such as on the industrial level), the items could also be used as a diagnostic checklist for firms interested in improving their marketing-operations alignment. Firms may want to do so because they recognize the importance of the process. Thus, one of the managerial implications of the research is that firms could use the marketing-operations alignment model and instrument presented here to improve their own operations.

It is a recognized principle of long-range planning and cross-functional implication that organizational activities should be coordinated across the strategic, tactical, and operational levels (Oliva and Watson, 2011). However, the literature review also suggested that this level of coordination may not be evident in marketing and operations alignment activities within firms. Instead, these activities may occur primarily at the personal, informal, and operational level with less direct alignment at the tactical and strategic levels (Parente, 1998). This research has demonstrated that alignment across all three levels of the organization is critical for the successful alignment of marketing and operations alignment activities. This implies that managerial activities in the firm need to take place at the top and middle management tiers to make sure that the alignment of the marketing and operations functions are consistent with both the goals of each function

and with the overall organizational goals, and that rewards for integrating activities are provided.

7.3 Limitations of the Study

Like all studies, this research has limitations in its scope and application of the findings (generalization), which resulted from the design of the study and how it was conducted. Several limitations of the scope of the study included the target population, the choice of industries and geography, and the cross-sectional time horizon of the study. These may all affect the extent to which the findings could be generalized.

The target population was identified with the assistance of expert interviews and using the literature to highlight manufacturing firms, which emphasize marketing. A limitation of the study was that most of the firms from which the data were collected were manufacturing business to business (B2B) entities. The marketing operations of B2B firms should vary from those that are B2C due to the differences between the end consumers (Kaur and Singh, 2017). Therefore, the results of the study may have been different if the data had been collected from more B2C firms. Other limitations were connected with the target population and the firms from which the data were collected.

Since all the selected firms were Thai, it is possible that organizational or cultural differences could affect the specific contribution of the different dimensions of marketing-operations alignment to the latent marketing-operations alignment construct. It is also possible that multinational firms could display different behavior that could affect the result. For example, these firms may have more complex marketing structures and operations, which could influence how alignment is enacted. While this should not disturb the basic structure and components of the instrument, it may cause the contribution of the dimensions or the effect of the marketing-operations alignment on customer orientation and competitor orientation to change. Another limitation that resulted from the sampling process could also affect generalization. Specifically, the study sample only included small and medium firms with up to 200 employees with most of the sample being small firms (50 employees or under). One of the biggest concerns of this study is that marketing-operations alignment could be dependent on the size of the

firm, especially considering the model's basis in the configuration theory. This research did not include any large firms due to the relative rarity of these firms in Thai manufacturing industries and the sampling technique. As with multinational organizations, this may change the relative ordering and significance of the components of marketing-operations alignment or the relationships within the model. This could be problematic for the generalization of the instrument to large firms, but it would be difficult to determine whether this would be the case without additional research. Furthermore, since the majority of the sample was food firms, rather than durable goods manufacturing (automobiles, electronics, and furniture), this could affect the nature of the relationship and the manufacturing process. For example, since food firms are typically producing perishable goods and their production may be somewhat unpredictable and dependent on the availability of raw materials, the findings may not be representative of durable goods manufacturing or industries where there is less dependence on available commodities. This is one of the reasons for applying the instrument in broader research contexts, as discussed below.

7.4 Recommendations for Future Research

Other than the opportunities described above, there are a few recommendations for future research that address further testing and evaluation of the model. One of the most obvious avenues for future research in this area would be the application of the theoretical model of marketing-operations alignment and its associated measure, as developed in this study, to real-world analysis of organizational structure and activities. For example, the instrument developed in this study could be applied to organizational analyses in other industries and in other countries, including specialist industries. This type of research would help determine whether the model is universally applicable or whether it is limited in the generalizability of the instrument. It is expected that there would be differences in the success of the measure across different industries, so identifying the potential applicability of the model could be helpful. Furthermore, the measure could be considered for use in service industry research. Although this study derived its findings from manufacturing industries, and therefore the instrument may not be immediately generalizable to services, it is likely that similar linkages and coordination

activities between the marketing and operations aspects of service firms also exist. Thus, this model and its measure could serve as the basis for analysis of the service industry although it may need to be adapted to account for differences in organizational structure. A third opportunity for further research is possible extension of the model to identify additional dimensions of the marketing-operations alignment construct. Although the measurement model and construct dimensions for this research were reliable, there was some unexplained variance that suggests there could be additional factors. By deepening the examination of marketing-operations alignment, potentially in other contexts, it may be possible to extend and improve the extent to which the marketing-operations alignment construct represents the actual organizational process. On the other hand, such research could also demonstrate that the current model is the most parsimonious model available to describe the process of marketing-operations alignment, which would also be useful information.

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APPENDICES

APPENDIX A
ENGLISH VERSION OF GUIDED QUESTION FOR INDIVIDUAL DEPTH INTERVIEW

Part I Respondent's profile

1. What is the general information of respondent, for example,
   - Company name,
   - Position held
   - Period of working in that position and
   - Education background?

   Moreover, this part specifies on general information of firm, for example,
   - Overall turnover
   - Size of company

Part II

1. Demographic of the respondent?
   - Respondent name/ Company name,
   - Position
   - Year of experience
   - Education background
2. Company information
   - Revenue
   - Size of firm and number of worker
3. What are the meanings and nature of marketing – operations alignment from business practitioners' perspectives or academic expert?

This study refers to the marketing – operations alignment as the operations, tactics and strategies of the marketing and operations units within an organization are consistent and the extent to which the marketing and operations units work together interdependently to achieve short-term and long-term business goals.

Configuration theory: the concept of configuration can be defined as the sets of functional that share and align the key attributes such as goals and objectives, activities, strategy and structures of business organization (Meyer, Tsui, and Hinings, 1993) and the configuration also are ideal since they can arrange the complex of commonly reinforcing organizational characteristics and enable lead the firm performance to successful

4. Have you had any experience in dealing with alignment between marketing – operations?
5. How much knowledge about marketing-operations alignment in your area do you have?
6. Could you please explain the pattern of marketing –operations alignment?
7. How important do you feel it is to align the marketing and operations function?
8. Why did you align the function in the organization? Were your specific the area (objective/goal, strategy, process, and activity) of alignment or the level of alignment? How?
9. Do you measure the level or degree of alignment between marketing-operations? How?
10. Do you evaluate your performance after marketing and operations alignment? How?

11. What value/benefits did you and/or your company get from marketing-operations alignment? Please be specific.
12. How to achieve the alignment implementation in the marketing and operation function. In contrast, what are the barriers to alignment?
13. What is the important key or mechanism to achieve the marketing – operations alignment?
14. Do you think that coordination decision, information exchange, leadership strategy, reward system and performance evaluation are the tool of marketing – operations alignment? And how?

APPENDIX B
THAI VERSION OF GUIDED QUESTIONA FOR INDIVIDUAL DEPTH INTERVIEW

แบบสัมภาษณ์

การพัฒนาและการตรวจสอบเครื่องมือวัดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ

ตอนที่ 1 ข้อมูลลักษณะประชากรผู้ให้สัมภาษณ์

1. ข้อมูลเกี่ยวกับผู้ให้สัมภาษณ์
   - ชื่อนามสกุลผู้ให้สัมภาษณ์ ชื่อบริษัท,
   - ชื่อบริษัท
   - ชื่อตำแหน่ง
   - ประสบการณ์ในการทำงานในตำแหน่ง
   - ประวัติการศึกษา
2. ข้อมูลทั่วไปเกี่ยวกับบริษัท
   - ยอดขาย หรือรายได้
   - ขนาดของบริษัท พนักงาน

ตอนที่ 2 คำถามในการสัมภาษณ์

1. อธิบายความหมาย และความเข้าใจเกี่ยวกับความสอดคล้องในการทำงานระหว่างฝ่ายการตลาด และฝ่ายปฏิบัติการ

การศึกษาครั้งนี้หมายถึง ฝ่ายการตลาด – ฝ่ายการดำเนินงานมีความสอดคล้องกันในด้าน ปฏิบัติการ ยุทธวิธี และกลยุทธ์ และการดำเนินงานของหน่วยงานภายในองค์กร และมีความมีความสม่ำเสมอ ความสอดคล้องและขอบเขตที่การตลาดและการดำเนินงานต้องทำร่วมกัน เพื่อให้บรรลุเป้าหมาย ทางธุรกิจในระยะสั้นและระยะยาว เป้าหมาย ทฤษฎีการกำหนดแนวคิดของการตั้งค่าสามารถกำหนดเป็นชุดของการทำงานร่วมกันที่และจัดคุณลักษณะที่สำคัญเช่น เป้าหมาย และวัตถุประสงค์ กิจกรรม กลยุทธ์และโครงสร้างขององค์กรธุรกิจ) เมเยอร์ Tsui และ Hinings, 1993) และการกำหนดกิจกรรม รูปแบบที่เหมาะสมเหมาะ เพื่อให้สามารถจัดการสิ่งที่ซับซ้อนของลักษณะองค์กรทั่วไป นำไปสู่ผลการดำเนินงานของบริษัท ประสบความสำเร็จ

2. ท่านเคยมีประสบการณ์เกี่ยวกับความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการหรือไม่

3. ความรู้ของผู้ตอบเกี่ยวกับความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ

4. อธิบายรูปแบบ ความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ

5. ท่านคิดว่า ความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการมีความสำคัญอย่างไร

6. ท่านคิดว่าทำไมต้องให้มีความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการและได้มีการระบุขอบเขตหรือระดับที่ต้องมีความสอดคล้องของการทำงานร่วมกันหรือไม่

7. ท่านมีการวัดระดับความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ หรือไม่ อย่างไร

8. ท่านได้มีการประเมินผลงานความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการหรือไม่ อย่างไร

9. ท่านคิดว่าประโยชน์หรือคุณค่าที่บริษัทได้รับจากความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการคืออะไร

10. ท่านคิดว่าความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการฝ่ายการตลาดและฝ่ายการดำเนินการจะประสบความสำเร็จได้อย่างไร และอะไรคืออุปสรรค

11. ท่านคิดว่า อะไรคือสิ่งสำคัญ หรือเครื่องมือ ที่ช่วยให้ท่านแก้ปัญหาที่เกิดจากการการทำงานร่วมกันระหว่าง ฝ่ายการตลาดและฝ่ายการดำเนินการ

12. ท่านคิดว่า การตัดสินใจร่วมกัน การแลกเปลี่ยนข้อมูล การให้ผลตอบแทน การตัดสินใจของผู้บริหาร และการประเมินผลงาน เป็นเครื่องมือช่วยให้เกิดความสอดคล้องในการทำงานหรือไม่ อย่างไร

APPENDIX C
COVER LETTER

20 กุมภาพันธ์ 2561

เรื่อง ขอความอนุเคราะห์ในการตอบแบบสอบถาม
เรียน กรรมการผู้จัดการ
สิ่งที่ส่งมาด้วย แบบสอบถาม แบบตอบรับและซองจดหมาย

ด้วยผู้วิจัยกำลังดำเนินการวิจัยเรื่อง **"การพัฒนาและตรวจสอบเครื่องมือวัดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ"** โดยมีวัตถุประสงค์เพื่อพัฒนาเครื่องมือในการชี้วัดและตรวจสอบเครื่องมือดังกล่าวที่มีต่อลูกค้าและคู่แข่ง

ผู้วิจัยจึงเรียนมาเพื่อขอความอนุเคราะห์ท่านหรือผู้บริหารที่เกี่ยวข้องกับฝ่ายการตลาด (Marketing) และฝ่ายปฏิบัติการ (Operations) ในการตอบแบบสอบถามซึ่งได้แนบมาด้วย ทั้งนี้ขอความกรุณาจากท่าน ในการส่งแบบสอบถามคืนโดยใช้ซองจดหมายที่ได้แนบนี้ **ภายในวันที่ 31 มีนาคม 2561** แบบสอบถามนี้ประกอบด้วย 2 กลุ่มคำถามหลัก ซึ่งจะใช้เวลาทั้งสิ้นประมาณ 10 นาที ซึ่งข้อมูลของท่านจะได้รับการปกปิดเป็นความลับและจะนำไปวิเคราะห์ทางสถิติในภาพรวมเท่านั้น โดยจะไม่มีการเปิดเผยข้อมูลเป็นรายบุคคล/บริษัท บริษัทที่ส่งแบบสอบถามกลับจะได้รับสิทธิ์ในการเข้าสัมมนาวิชาการเรื่องการวัดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ ซึ่งจัดโดย ศูนย์ความเป็นเลิศด้าน Operations and Information Management (CoE)

ผู้วิจัยใคร่ขอขอบพระคุณในความอนุเคราะห์ของท่าน มา ณ โอกาสนี้ และหากท่านต้องการได้รับรายงานฉบับย่อของงานวิจัยนี้หรือจะเข้าร่วมการสัมมนาในอนาคต กรุณากรอกรายละเอียดในแบบตอบรับที่แนบมาด้วย

ขอแสดงความนับถือ

(อาจารย์เกตุวดี สมบูรณ์ทวี)
ผู้วิจัย

หมายเหตุ : หากท่านมีข้อสงสัยประการใดเกี่ยวกับแบบสอบถามนี้ ท่านสามารถติดต่อผู้วิจัย ได้ที่ โทร. 08 9922 2939 หรือ E-mail: kedwadee@ms.su.ac.th

APPENDIX D
QUESTIONNAIRE (THAI VERSION)

แบบสอบถาม

การพัฒนาและการตรวจสอบเครื่องมือวัดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ

MARKETING – OPERATIONS ALIGNMENT: SCALE DEVELOPMENT AND VALIDATION

1) คำถามต่อไปนี้มีวัตถุประสงค์เพื่อประเมินการทำงานของฝ่ายการตลาดและฝ่ายปฏิบัติการ ซึ่งมีกระบวนการวางแผนเชิงกลยุทธ์ การแลกเปลี่ยนข้อมูล และการทำงานร่วมกัน (Marketing – operations alignment) เพื่อให้บรรลุเป้าหมายและวัตถุประสงค์ร่วมกัน ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด
ความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการช่วยให้บริษัทของท่านใช้ทรัพยากรได้อย่างมีประสิทธิภาพมากขึ้น	1	2	3	4	5	6	7	8	9	10	
ความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการช่วยให้บริษัทของท่านสามารถเข้าใจความต้องการของลูกค้าและความต้องการของซัพพลายเออร์ได้ดียิ่งขึ้น	1	2	3	4	5	6	7	8	9	10	
ความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการช่วยบริษัทของท่านสร้างโอกาสในการแข่งขัน	1	2	3	4	5	6	7	8	9	10	

2) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินการร่วมมือกัน การมีส่วนร่วมหรือการตัดสินใจในระดับเชิงกลยุทธ์ ระดับการดำเนินงาน และระดับยุทธวิธี ที่กำหนดมาจากฝ่ายการตลาดและฝ่ายปฏิบัติการ (Coordination decision) ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการตั้งเป้าหมายร่วมกัน	1	2	3	4	5	6	7	8	9	10	
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการวางแผนกลยุทธ์ระยะสั้น (ไม่เกิน 6 เดือน)	1	2	3	4	5	6	7	8	9	10	
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการวางแผนกลยุทธ์ระยะยาว (มากกว่า 6 เดือน)	1	2	3	4	5	6	7	8	9	10	
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการตัดสินใจปรับเปลี่ยนแผนการดำเนินการเฉพาะหน้าให้สอดคล้องกับสถานการณ์ในขณะนั้น	1	2	3	4	5	6	7	8	9	10	
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการตัดสินใจในการดำเนินการทั่วไป เช่น สินค้าใหม่ การวางแผนการผลิต	1	2	3	4	5	6	7	8	9	10	

ไม่เห็นด้วยมากที่สุด 1	2	3	4	5	6	7	8	9	10 เห็นด้วยมากที่สุด
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการแก้ไขปัญหา เช่น การผลิตไม่ทันส่ง ข้อร้องเรียนจากลูกค้า หรือขาดแคลนวัตถุดิบ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีส่วนร่วมในการพัฒนาผลิตภัณฑ์ใหม่	1	2	3	4	5	6	7	8	9	10

3) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับที่ฝ่ายการตลาดและฝ่ายปฏิบัติการได้ร่วมกันแลกเปลี่ยนและสื่อสาร เป้าหมาย กระบวนการ ความรู้ และข้อมูลอื่น ๆ ที่เกี่ยวข้องกัน ในการประชุมที่เป็นทางการและไม่เป็นทางการ (Information exchange) ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด 1	2	3	4	5	6	7	8	9	10 เห็นด้วยมากที่สุด
บริษัทของท่าน ฝ่ายปฏิบัติการ/ผู้จัดการฝ่ายปฏิบัติการ/ผู้เชี่ยวชาญได้รับข้อมูลการตลาดเพียงพอ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดให้ข้อมูลแก่ฝ่ายปฏิบัติการเพื่อรับทราบถึงทิศทางและแนวโน้มความต้องการของตลาด	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายปฏิบัติการให้ข้อมูลแก่ฝ่ายการตลาดเพื่อรับทราบถึงขีดความสามารถและนวัตกรรมใหม่ในกระบวนการผลิต	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้จัดการฝ่ายการตลาดและฝ่ายปฏิบัติการมีการประชุมประจำสัปดาห์หรือเดือนร่วมกัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีการพัฒนาและดำเนินนโยบายการแลกเปลี่ยนข้อมูลร่วมกัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการร่วมกันหารือเกี่ยวกับความต้องการของลูกค้า	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการมีการแลกเปลี่ยนความรู้กัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน การประชุมวางแผนการผลิตจะต้องมีเจ้าหน้าที่จากฝ่ายการตลาดและฝ่ายปฏิบัติการเข้าร่วมด้วย	1	2	3	4	5	6	7	8	9	10

4) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับวิสัยทัศน์ของผู้บริหารระดับสูงในเชิงกลยุทธ์และเป้าหมาย ต่อการสร้างนโยบายความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ (Leadership Strategy) ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 8 9 10 เห็นด้วยมากที่สุด										
บริษัทของท่าน ผู้บริหารระดับสูงส่งเสริมและสื่อสารปรัชญาและวัฒนธรรมความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงสนับสนุนการมีส่วนร่วมของพนักงานในการกำหนดกลยุทธ์ของความสอดคล้องกันระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงกำหนดขั้นตอนที่ช่วยให้เกิดความสอดคล้องกันระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ เช่น การประชุม การแลกเปลี่ยนข้อมูลร่วมกันระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงตั้งเป้าหมายของฝ่ายการตลาดและฝ่ายปฏิบัติการให้มีความสอดคล้องกัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน มีการติดตามผลของความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการในการประชุมผู้บริหารอย่างสม่ำเสมอ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงกระตุ้นให้เกิดการเปลี่ยนแปลงเพื่อให้เกิดการทำงานที่สอดคล้องกันระหว่างฝ่ายการตลาดและฝ่ายการปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงผลักดันให้เกิดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผู้บริหารระดับสูงจัดทำดัชนีชี้วัดผลงาน (Key Performance Index) ให้มีมาตรฐาน เพื่อใช้ในการประเมินผลของความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10

5) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับความสอดคล้องของระบบการจูงใจและการให้รางวัลของฝ่ายการตลาดและฝ่ายปฏิบัติการ (Reward Systems) ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 8 9 10 เห็นด้วยมากที่สุด										
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการรับรู้ถึงประโยชน์ของความสอดคล้องในการทำงานร่วมกัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดและฝ่ายปฏิบัติการ ดำเนินงานภายใต้หลักการของการแบ่งปันผลตอบแทนและความเสี่ยงร่วมกัน	1	2	3	4	5	6	7	8	9	10

ไม่เห็นด้วยมากที่สุด 1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด
บริษัทของท่าน มีการตั้งวัตถุประสงค์ของฝ่ายการตลาดและฝ่ายปฏิบัติการให้สอดคล้องกับกลยุทธ์ของโรงงาน (KPI based measure)	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ความสำเร็จของความสอดคล้องในการทำงานร่วมกันจะถูกนำมาเป็นส่วนหนึ่งของเกณฑ์การให้รางวัลฝ่ายการตลาดและฝ่ายการปฏิบัติการ เช่น ความสอดคล้องในการทำงานช่วยลดการทำงานซ้ำซ้อน หรือช่วยลดข้อผิดพลาดในการทำงาน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน แรงจูงใจและระบบการให้รางวัลคือเครื่องมือที่สำคัญที่ช่วยให้เกิดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ผลตอบแทนด้านตัวเงินที่เท่าเทียมกันช่วยให้เกิดความสอดคล้องในการทำงานอย่างมีประสิทธิภาพระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10

6) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับความสอดคล้องการทำงานถูกกำหนดเป็น KPIs ของฝ่ายการตลาดและฝ่ายปฏิบัติการ (Performance Evaluation) ในบริษัทของท่าน โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด 1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด
บริษัทของท่านสร้างดัชนีชี้วัดผลงาน (KPIs) โดยคำนึงถึงความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านมีการประเมินความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านมีการพัฒนาประสิทธิภาพความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการโดยใช้ดัชนีชี้วัดผลงาน (KPIs)	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านมีการตรวจสอบความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ และติดตามความก้าวหน้าของผลการดำเนินงานอย่างต่อเนื่อง	1	2	3	4	5	6	7	8	9	10
พฤติกรรมความสอดคล้องในการทำงาน จะนำมาใช้เป็นเกณฑ์การให้ประเมินฝ่ายการตลาดและฝ่ายปฏิบัติการ เช่น การแลกเปลี่ยนข้อมูลซึ่งกันและกัน การวางกลยุทธ์ร่วมกัน	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านกำหนดดัชนีชี้วัดผลงาน (KPIs) ของฝ่ายการตลาดและฝ่ายปฏิบัติการโดยพัฒนามาจากความสอดคล้องในการทำงาน	1	2	3	4	5	6	7	8	9	10
การกำหนดดัชนีชี้วัดผลงาน (KPIs) เป็นเครื่องมือพื้นฐานที่ช่วยให้เกิดความสอดคล้องในการทำงานระหว่างฝ่ายการตลาดและฝ่ายปฏิบัติการ	1	2	3	4	5	6	7	8	9	10

7) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับที่บริษัทของท่านเข้าใจจุดอ่อนและจุดแข็ง ของคู่แข่งที่มีศักยภาพ (Competitor Orientation) โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด

บริษัทของท่าน พนักงานขายแบ่งปันข้อมูลของคู่แข่งให้กับฝ่ายปฏิบัติการ เช่น ผลิตภัณฑ์ใหม่ของคู่แข่ง	1	2	3	4	5	6	7	8	9	10
บริษัทของท่าน ฝ่ายการตลาดแบ่งปันข้อมูลของคู่แข่งให้กับฝ่ายปฏิบัติการ เช่นกลยุทธ์ทางการตลาดของคู่แข่ง	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านสามารถตอบสนองต่อกลยุทธ์ของคู่แข่งได้ทันที	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านเห็นถึงโอกาสในการสร้างความได้เปรียบในการแข่งขัน เช่น ได้ส่วนแบ่งทางการตลาดมากกว่าคู่แข่ง สามารถสร้างความพึงพอใจให้กับลูกค้าเหนือกว่าคู่แข่ง	1	2	3	4	5	6	7	8	9	10

8) คำถามต่อไปนี้มีวัตถุประสงค์ที่จะประเมินระดับที่บริษัทของท่านให้ความสำคัญต่อความต้องการและความพึงพอใจของลูกค้า (Customer Orientation) โปรดทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่เหมาะสมที่แสดงถึงความเข้าใจของท่านต่อสภาวการณ์ของบริษัทที่ท่านดำเนินงานอยู่

ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	8	9	10	เห็นด้วยมากที่สุด

บริษัทของท่านให้ความสำคัญต่อความต้องการของลูกค้าเป็นหลัก	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านให้ความสำคัญต่อการสร้างคุณค่าให้แก่ลูกค้า (คุณค่า คือตอบสนองความต้องการลูกค้าได้มากกว่าที่ลูกค้าคาดหวัง)	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านเข้าใจความต้องการของลูกค้า	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านให้ความสำคัญกับความพึงพอใจของลูกค้า	1	2	3	4	5	6	7	8	9	10
บริษัทของท่านเน้นสร้างคุณค่าหลังการขายให้ลูกค้า	1	2	3	4	5	6	7	8	9	10

9) ข้อมูลทั่วไปของบริษัทท่าน

จากคำถามต่อไปนี้ กรุณาระบุคำตอบที่เหมาะสม โดยการทำเครื่องหมาย X หรือเติมคำในช่องว่างที่กำหนดไว้

1) กรุณาระบุตำแหน่งของท่านในบริษัท

- ☐ ผู้บริหารสูงสุด เช่น ประธานเจ้าหน้าที่บริหาร/ กรรมการผู้จัดการ
- ☐ ผู้บริหารระดับสูง เช่น รองประธาน/ รองกรรมการผู้จัดการฝ่ายปฏิบัติการ (Operations)
- ☐ ผู้บริหารระดับสูง เช่น รองประธาน/ รองกรรมการผู้จัดการฝ่ายตลาด
- ☐ ผู้บริหารระดับกลาง เช่น ผู้อำนวยการ/รองผู้อำนวยการฝ่ายปฏิบัติการ (Operations)
- ☐ ผู้บริหารระดับกลาง เช่น ผู้อำนวยการ/รองผู้อำนวยการฝ่ายการตลาด
- ☐ ผู้จัดการทั่วไป/ผู้จัดการโรงงาน/ผู้ช่วยผู้จัดการทั่วไป

2) กรุณาระบุจำนวนของพนักงานในบริษัทของท่าน

☐ น้อยกว่าหรือเท่ากับ 50 ☐ 51 - 100

☐ 101 - 200 ☐ 201 - 350

☐ 351- 700 ☐ มากกว่า 700

3) กรุณาระบุสัดส่วนการถือหุ้นของบริษัทโดยต่างชาติ

☐ 0% (หุ้น 100% โดยคนไทย) ☐ 1 - 25 % (กรุณาตอบข้อ 4)

☐ 26 - 50% (กรุณาตอบข้อ 4) ☐ 51 - 75 % (กรุณาตอบข้อ 4)

☐ 76 - 99% (กรุณาตอบข้อ 4)

4) กรุณาบริษัทของท่านถือหุ้นโดยประเทศอะไร.....

5) บริษัทของท่านจัดอยู่ในอุตสาหกรรมประเภทใด

☐ อาหารและเครื่องดื่ม ☐ เฟอร์นิเจอร์ ☐ ยานยนต์

☐ อิเล็กทรอนิกส์/เครื่องใช้ไฟฟ้า ☐ อื่น ๆ โปรดระบุ.....

6) ประมาณการรายได้ของบริษัทในปี 2560

☐ น้อยกว่า 50 ล้านบาท ☐ 51 - 200 ล้านบาท ☐ 201-500 ล้านบาท

☐ 501-1,000 ล้านบาท ☐ 1,001 - 2,000 ล้านบาท ☐ 2,001-5,000 ล้านบาท

☐ มากกว่า 5,000 ล้านบาท

7) อายุของบริษัท

☐ น้อยกว่า 5 ปี ☐ 6 - 10 ปี ☐ 11 - 15 ปี

☐ 16 - 20 ปี ☐ 21 - 25 ปี ☐ 26 - 30 ปี

☐ มากกว่า 30 ปี

8) ท่าน ดำรงตำแหน่งปัจจุบันมาแล้วเป็นระยะเวลานานเท่าใด

☐ น้อยกว่า 3 ปี ☐ 4 - 6 ปี ☐ 7 - 9 ปี

☐ 10 - 12 ปี ☐ มากกว่า 12 ปี

9) กรุณาระบุจำนวนปีที่ท่านทำงานในบริษัทนี้

☐ น้อยกว่า 2 ปี ☐ 2-5 ปี ☐ 6-10 ปี

☐ มากกว่า 10 ปี

กรุณาระบุว่าท่านต้องการสรุปผลรายงานวิจัยฉบับนี้หรือไม่

☐ ต้องการ ☐ ไม่ต้องการ

ขอขอบพระคุณในความร่วมมือของท่าน !!!!

APPENDIX E
QUESTIONAIRE (ENGLISH VERSION)

I) Reflective Marketing – operations alignment referred to the degree to which marketing and operations function have a mutual process of strategic planning, information exchange, and working together, to achieve a set of shared goals and objectives.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

The collaboration between marketing and operations to help us use resources more efficiently.	1	2	3	4	5	6	7	8	9	10
Businesses can better understand customer needs and the situation of its suppliers even better.	1	2	3	4	5	6	7	8	9	10
The collaboration between marketing and operations to help us create opportunities	1	2	3	4	5	6	7	8	9	10

II) Coordination decision referred to the degree to which coordinating participations or decisions at the strategic, operational, and tactical level have been established from marketing and operations.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

The degree to which marketing and operations coordinate jointly in firm's goal setting.	1	2	3	4	5	6	7	8	9	10
Marketing and operations participate jointly in short term strategic planning. (Less than 6 months)	1	2	3	4	5	6	7	8	9	10
Marketing and operations participate jointly in long term strategic planning. (More than 6 months)	1	2	3	4	5	6	7	8	9	10
Marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with firm strategy.	1	2	3	4	5	6	7	8	9	10
Marketing and operations participate jointly in operational decision.	1	2	3	4	5	6	7	8	9	10
Marketing and operations participate jointly in the problem solving.	1	2	3	4	5	6	7	8	9	10
Marketing and operations participate jointly in the new product development.	1	2	3	4	5	6	7	8	9	10

III) Information exchange referred to the degree to which marketing and operations have shared and communicated about goals, processes, knowledge and other relevant information in formal and informal meeting.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree
Operations managers/professionals received enough market information.	1	2	3	4	5	6	7	8	9	10	
Marketing managers/professionals received enough operations information.	1	2	3	4	5	6	7	8	9	10	
Marketing and operations jointly share and communicate the customers' requirement.	1	2	3	4	5	6	7	8	9	10	
Marketing provides information to operations to acknowledge abut trend and direction of demand in the market.	1	2	3	4	5	6	7	8	9	10	
Marketing manager and operations manager have weekly or monthly meeting.	1	2	3	4	5	6	7	8	9	10	
Marketing and operations develop and implement information exchange policy together.	1	2	3	4	5	6	7	8	9	10	
Marketing and operations exchange the knowledge together.	1	2	3	4	5	6	7	8	9	10	
Daily planning meeting include people from marketing and operations functions.	1	2	3	4	5	6	7	8	9	10	

IV) Leadership Strategy referred to the degree to which strategic vision and goals, create organizational policies, procedures, and culture to support and facilitate exchange between marketing and operations have been driven from top management.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

Top management actively promotes and communicates a philosophy and culture of coordination between marketing and operations.	1	2	3	4	5	6	7	8	9	10
Top management encourages staffs participation when setting alignment strategy between marketing and operations.	1	2	3	4	5	6	7	8	9	10
Top management set a procedure of coordination between marketing and operations. (Meeting schedule, point of alignment between marketing and operations).	1	2	3	4	5	6	7	8	9	10
Top management set equally in the goal between marketing and operations.	1	2	3	4	5	6	7	8	9	10
There is regular review of coordination between marketing and operations in top management	1	2	3	4	5	6	7	8	9	10

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

meetings.										
Top management actively encourages changes to achieve alignment between marketing and operations functions.	1	2	3	4	5	6	7	8	9	10
Alignment between marketing and operations initiated & orchestrated by top management.	1	2	3	4	5	6	7	8	9	10
Top management pay attention to the exchange of information between marketing and operations departments of the organization.	1	2	3	4	5	6	7	8	9	10

V) Reward Systems referred to the degree to which alignment of incentive and reward systems was identified as one of the main tools used to promote cooperation between marketing and operations departments.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

Marketing and operations perceived benefits of participation in the collaboration.	1	2	3	4	5	6	7	8	9	10
Marketing and operations operate under principles of shared rewards and risks.	1	2	3	4	5	6	7	8	9	10
Sets marketing and operations objectives aligned to the organization strategy (KPI based measure).	1	2	3	4	5	6	7	8	9	10
Performance is managed through linkage of organizational goals to marketing - operations alignment.	1	2	3	4	5	6	7	8	9	10
Alignment behavior is taken into account when rewarding the marketing and operations functions.	1	2	3	4	5	6	7	8	9	10
The degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.	1	2	3	4	5	6	7	8	9	10

VI) Performance Evaluation referred to the degree to which performance evaluation was defined as KPIs of marketing and operations functions is driven by alignment outcomes.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree
Your company have developed performance measures that extend marketing - operations alignment.	1	2	3	4	5	6	7	8	9	10	
We improved performance by cooperating marketing with operations.	1	2	3	4	5	6	7	8	9	10	
Your company constantly evaluate our cooperation to assess their ability to meet the best performance.	1	2	3	4	5	6	7	8	9	10	
Ongoing monitoring alignment activities and progress on performance.	1	2	3	4	5	6	7	8	9	10	
Alignment behavior is taken into account when evaluate the marketing and operations functions.	1	2	3	4	5	6	7	8	9	10	
Identify a balanced range of KPIs and benchmark measures that are significant to assess the value of alignment.	1	2	3	4	5	6	7	8	9	10	

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

KPIs of marketing and operations functions are driven by alignment outcomes.	1	2	3	4	5	6	7	8	9	10

VII) Competitor Orientation referred to the degree to which a business understands the strength and weaknesses of existing and potential competitors as well as on discovering their attitude to convert into better ideas to meet the customer satisfaction and maintaining a competitive advantage in the marketplace.

Strongly disagree	1	2	3	4	5	6	7	8	9	10	Strongly agree

Salespeople share competitor information	1	2	3	4	5	6	7	8	9	10
Marketing shares competitor information	1	2	3	4	5	6	7	8	9	10
Your company respond rapidly to competitors' strategies.	1	2	3	4	5	6	7	8	9	10
Your company target opportunities for competitive advantage	1	2	3	4	5	6	7	8	9	10

VIII) Customer Orientation referred to the degree to which a business to support its sales and service staff in considering client needs and satisfaction their major priorities.

Strongly disagree 1 2 3 4 5 6 7 8 9 10 Strongly agree

Your company are customer-oriented.	1	2	3	4	5	6	7	8	9	10
Your company create customer value.	1	2	3	4	5	6	7	8	9	10
Your company understand customer needs.	1	2	3	4	5	6	7	8	9	10
Customer satisfaction is one of our objectives	1	2	3	4	5	6	7	8	9	10
Your company value after-sales service	1	2	3	4	5	6	7	8	9	10

IV) General information about yourself and your company

Instruction Please mark (X) in □ that match your answer or fill in the blank

1) Your position in the company

□ Top management such as President, MD

□ Executive management such as vice president, vice MD (Operations)

□ Executive management such as vice president/ vice MD (Marketing)

□ Middle management such as Director/ vice director (Operations)

□ Middle management such as Director/ vice director (Marketing)

□ General manager / Plant Manager / Assistant Plant Manager

2) Current number of employees

□ Less than 50 □ 51-100

□ 101-200 □ 201-350

□ 351-700 □ More than 700

3) Shareholding of Thai citizens

□ 0% (หุ้น 100% Thai Citizen) □ 1-25 % (go to number 4)

□ 26-50% (go to number 4) □ 51-75 % (go to number 4)

□ 76-99% (go to number 4)

4) Which country hold the company share……

5) What industry is your company in?

□ Food and beverage □ Furniture

□ Automotive □ Electronics and appliance

□ others, please specify……

6) Estimated 2017 revenues

□ Less than 50 million baht □ 51-200 million baht

□ 201-500 million baht □ 501-1,000 million baht

□ 1,001-2,000 million baht □ 2,001-5,000 million baht

□ More than 5,000 million baht

7) How long have your company been established?

□ Less than 5 years □ 6-10 years

□ 11-15 years □ 16-20 years

□ 21-25 years □ 26-30 years

□ More than 30 years

8) How long have you taken your position?

□ Less than 3 years □ 4-6 years

□ 7-9 years □ 10-12 years

□ More than 12 years

9) How long have you work at this company?

□ Less than 2 years □ 2-5 years

□ 6-10 years □ More than 10 year

Do you need the research report?

□ Yes □ No

Thank you for you time in responding to this questionnaire!!!!

APPENDIX F
PRELIMINARY QUESTIONAIRE

Marketing – operations alignment reflective	
1. The collaboration between marketing and operations to help us use resources more efficiently.	New scale from in-depth interview
2. Businesses can better understand customer needs and the situation of its suppliers even better.	New scale from in-depth interview
3. The collaboration between marketing and operations to help us create opportunities for competition.	New scale from in-depth interview
Dimensions 1 Coordinating decisions	
1. The degree to which marketing and operations coordinate jointly in firm's goal setting.	New scale from in-depth interview
2. Marketing and operations participate jointly in short term strategic planning. (Less than 6 months)	New scale from in-depth interview
3. Marketing and operations participate jointly in long term strategic planning. (More than 6 months)	New scale from in-depth interview
4. Marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with firm strategy.	New scale from in-depth interview
5. Marketing and operations participate jointly in operational decision.	New scale from in-depth interview
6. Marketing and operations participate jointly	Carmen et al (2016)

Dimensions 1 Coordinating decisions	
in the problem solving.	
7. Marketing and operations participate jointly in the new product development.	Carmen et al (2016)
Dimensions 2 Information exchange	
1. Operations managers/professionals received enough market information.	Carmen et al (2016)
2. Marketing managers/professionals received enough operations information.	Carmen et al (2016)
3. Marketing and operations jointly share and communicate the customers' requirement.	Song and Parry (1992)
4. Marketing provides information to operations to acknowledge abut trend and direction of demand in the market.	Song and Parry (1992)
5. Marketing manager and operations manager have weekly or monthly meeting.	New scale from in-depth interview
6. Marketing and operations develop and implement information exchange policy together	New scale from in-depth interview
7. Marketing and operations exchange the knowledge together.	New scale from in-depth interview
8. Marketing staff have to be trained the operations' knowledge	New scale from in-depth interview
9. Operations staff have to be trained the marketing's knowledge	New scale from in-depth interview
10. Daily planning meeting include people from marketing and operations functions.	New scale from in-depth interview

Dimensions 3 Leadership strategy	
1. Top management set policy in pursuit of coordination between marketing and operations.	Modified from Rao et al., (1999)
2. Top management actively promotes and communicates a philosophy and culture of coordination between marketing and operations.	Powell, (1995)
3. Top management encourages staffs participation when setting alignment strategy between marketing and operations.	Flynn et al., (1994)
4. Top management set a procedure of coordination between marketing and operations. (Meeting schedule, point of alignment between marketing and operations).	New scale from in-depth interview
5. Top management set equally in the goal between marketing and operations.	New scale from in-depth interview
6. There is regular review of coordination between marketing and operations in top management meetings.	Saraph et al., (1989)
7. Top management actively encourages changes to achieve alignment between marketing and operations functions.	Anderson et al., (1995)
8. Alignment between marketing and operations initiated & orchestrated by top management.	Van Riel, C.B.M. (2008)
9. Top management pay attention to the exchange of information between marketing and operations departments of the organization	Ing. Eva Tomášková (2009)

Dimensions 4 Reward systems	
1. Marketing and operations share equally in the rewards from nonfinancial performance.	Carmen et al (2016)
2. Marketing and operations share equally in the rewards from financial performance.	Carmen et al (2016)
3. Marketing and operations perceived benefits of participation in the collaboration.	Kramer et al. (2005)
4. Marketing and operations operate under principles of shared rewards and risks.	Stank et al. (2001)
5. Sets marketing and operations objectives aligned to the organization strategy (KPI based measure).	Kaplan & Norton, (2004)
6. Performance is managed through linkage of organizational goals to marketing - operations alignment	Chew & Chong, (1999)
7. Alignment behavior is taken into account when rewarding the marketing and operations functions.	Shikhar Sarin & Vijay Mahajan (2001)
8. The degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.	New scale from in-depth interview
9. Equal incentive and reward helps achieve effective collaboration between marketing and operations.	New scale from in-depth interview
Dimensions 5 Performance evaluations	
1. We have developed performance measures that extend marketing - operations alignment.	Stank et al. (2001)

Dimensions 5 Performance evaluations	
2. We improved performance by cooperating marketing with operations.	Stank et al. (2001)
3. We constantly evaluate our cooperation to assess their ability to meet the best performance.	Joseph et al., (1999)
4. Ongoing monitoring alignment activities and progress on performance.	Van Riel, C.B.M. (2008)
5. Use evaluation data to link performance to alignment.	Kraiger, McLinden, & Casper, 2004
6. Identify a balanced range of kpis and benchmark measures that are significant to assess the value of alignment.	Anderson, (2008)
7. Alignment behavior is taken into account when evaluate the marketing and operations functions.	Shikhar Sarin & Vijay Mahajan (2001)
8. KPIs of marketing and operations functions are driven by alignment outcomes.	New scale from in-depth interview
9. KPIs (usually measure profitability, sales, efficiency and quality) were identified as the most common measures for evaluating performance of marketing – operations alignment.	New scale from in-depth interview

Customer Orientation	
1. We are customer-oriented.	Kenneth B.Kahn (2001)
2. We create customer value.	Kenneth B.Kahn (2001)
3. We understand customer needs.	Kenneth B.Kahn (2001)
4. Customer satisfaction is one of our objectives	Kenneth B.Kahn (2001)
5. We value after-sales service	Kenneth B.Kahn (2001)
Customer Orientation	
1. Salespeople share competitor information	Kenneth B.Kahn (2001)
2. Marketing shares competitor information	Kenneth B.Kahn (2001)
3. We respond rapidly to competitors' strategies.	Kenneth B.Kahn (2001)
4. We target opportunities for competitive advantage	Kenneth B.Kahn (2001)

APPENDIX G
EXPERT REVIEW

Marketing – operations alignment reflective	Item Dropped	Item Kept
1. The collaboration between marketing and operations to help us use resources more efficiently.		X
2. Businesses can better understand customer needs and the situation of its suppliers even better.		X
3. The collaboration between marketing and operations to help us create opportunities for competition.		X
Dimensions 1 Coordinating decisions		
1. The degree to which marketing and operations coordinate jointly in firm's goal setting.		X
2. Marketing and operations participate jointly in short term strategic planning. (Less than 6 months)		X
3. Marketing and operations participate jointly in long term strategic planning. (More than 6 months)		X
4. Marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with firm strategy.		X
5. Marketing and operations participate jointly in operational decision.		X
6. Marketing and operations participate jointly in the problem solving.		X
7. Marketing and operations participate jointly in the new product development.		X

Dimensions 2 Information exchange		
1. Operations managers/professionals received enough market information.		X
2. Marketing managers/professionals received enough operations information.		X
3. Marketing and operations jointly share and communicate the customers' requirement.		X
4. Marketing provides information to operations to acknowledge abut trend and direction of demand in the market.		X
5. Marketing manager and operations manager have weekly or monthly meeting.		X
6. Marketing and operations develop and implement information exchange policy together		X
7. Marketing and operations exchange the knowledge together.		X
8. Marketing staff have to be trained the operations' knowledge	X	
9. Operations staff have to be trained the marketing's knowledge	X	
Daily planning meeting include people from marketing and operations functions.		X
Dimensions 3 Leadership strategy		
1. Top management set policy in pursuit of coordination between marketing and operations.	X	
2. Top management actively promotes and communicates a philosophy and culture of		X

Dimensions 3 Leadership strategy		
coordination between marketing and operations.		
3. Top management encourages staffs participation when setting alignment strategy between marketing and operations.		X
4. Top management set a procedure of coordination between marketing and operations. (Meeting schedule, point of alignment between marketing and operations).		X
5. Top management set equally in the goal between marketing and operations.		X
6. There is regular review of coordination between marketing and operations in top management meetings.		X
7. Top management actively encourages changes to achieve alignment between marketing and operations functions.		X
8. Alignment between marketing and operations initiated & orchestrated by top management.		X
9. Top management pay attention to the exchange of information between marketing and operations departments of the organization.		X
Dimensions 4 Reward systems		
1. Marketing and operations share equally in the rewards from nonfinancial performance.	X	
2. Marketing and operations share equally in the rewards from financial performance.	X	

Dimensions 4 Reward systems		
3. Marketing and operations perceived benefits of participation in the collaboration.		X
4. Marketing and operations operate under principles of shared rewards and risks.		X
5. Sets marketing and operations objectives aligned to the organization strategy (KPI based measure).		X
6. Performance is managed through linkage of organizational goals to marketing - operations alignment		X
7. Alignment behavior is taken into account when rewarding the marketing and operations functions.		X
8. The degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.		X
9. Equal incentive and reward helps achieve effective collaboration between marketing and operations.	X	
Dimensions 5 Performance evaluations		X
1. We have developed performance measures that extend marketing - operations alignment.		X
2. We improved performance by cooperating marketing with operations.		X
3. We constantly evaluate our cooperation to assess their ability to meet the best performance.		X
4. Ongoing monitoring alignment activities and progress on performance.		X

Dimensions 5 Reward systems		
5. Use evaluation data to link performance to alignment.	X	
6. Identify a balanced range of kpis and benchmark measures that are significant to assess the value of alignment.		X
7. Alignment behavior is taken into account when evaluate the marketing and operations functions.		X
8. KPIs of marketing and operations functions are driven by alignment outcomes.		X
9. KPIs (usually measure profitability, sales, efficiency and quality) were identified as the most common measures for evaluating performance of marketing – operations alignment.	X	
Customer Orientation		X
1. We are customer-oriented.		X
2 We create customer value.		X
3 We understand customer needs.		X
4 Customer satisfaction is one of our objectives		X
5 We value after-sales service		X
Competitor Orientation		
1 Salespeople share competitor information		X
2 Marketing shares competitor information		X
3 We respond rapidly to competitors' strategies.		X
4 We target opportunities for competitive advantage		X

APPENDIX H
SCALE PURIFICATION

Marketing – operations alignment reflective	Item Dropped	Item Kept
1. The collaboration between marketing and operations to help us use resources more efficiently.		X
2. Businesses can better understand customer needs and the situation of its suppliers even better.		X
3. The collaboration between marketing and operations to help us create opportunities for competition.		X
Dimensions 1 Coordinating decisions		
1. The degree to which marketing and operations coordinate jointly in firm's goal setting.		X
2. Marketing and operations participate jointly in short term strategic planning) .Less than 6 months(		X
3. Marketing and operations participate jointly in long term strategic planning) .More than 6 months(	X	
4. Marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with firm strategy.		X

5. **Dimensions 1 Coordinating decisions**	**Item Dropped**	**Item Kept**
6. Marketing and operations participate jointly in operational decision.		X
7. Marketing and operations participate jointly in the problem solving.	X	
8. Marketing and operations participate jointly in the new product development.		X
Dimensions 2 Information exchange		
1. Operations managers/professionals received enough market information.		X
2. Operations provide information to marketing to aware of capability and operation innovation.		X
3. Marketing and operations jointly share and communicate the customers' requirement.		X
4. Marketing provides information to operations to acknowledge about trend and direction of demand in the market.		X
5. Marketing manager and operations manager have weekly or monthly meeting.		X
6. Marketing and operations develop and implement information exchange policy together	X	
7. Marketing and operations exchange the knowledge together.	X	
8. Daily planning meeting include people from		

Dimensions 2 Information exchange	**Item Dropped**	**Item Kept**
marketing and operations functions.		
Dimensions 3 Leadership strategy	**Item Dropped**	**Item Kept**
1. Top management actively promotes and		X
2. communicates a philosophy and culture of coordination between marketing and operations.		X
3. Top management encourages staffs participation when setting alignment strategy between marketing and operations.		X
4. Top management set a procedure of coordination between marketing and operations) .Meeting schedule, point of alignment between marketing and operations)		X
5. Top management set equally in the goal There is regular review of coordination between marketing and operations in top management meetings. between marketing and operations.		X
6. Top management actively encourages changes to achieve alignment between marketing and operations functions.	X	
7. Alignment between marketing and operations initiated & orchestrated by top management.	X	
8. Top management pay attention to the exchange of information between marketing	X	

Dimensions 3 Leadership strategy	**Item Dropped**	**Item Kept**
and operations departments of the organization.		
Dimensions 4 Reward systems	**Item Dropped**	**Item Kept**
1. Marketing and operations perceived benefits of participation in the collaboration.		X
2. Marketing and operations operate under principles of shared rewards and risks.		X
3. Your company sets marketing and operations objectives aligned to the organization strategy)KPI based measure.(		X
4. Performance is managed through linkage of organizational goals to marketing -operations alignment	X	
5. The degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.		X
6. Alignment behavior is taken into account when rewarding the marketing and operations functions such as the alignment of working together to reduce redundant job or reduce mistake.		X

Dimensions 5 Performance evaluations	Item Dropped	Item Kept
1. We have developed performance measures that extend marketing -operations alignment.		X
2. We improved performance by cooperating marketing with operations.		X
Dimensions 5 Performance evaluations	**Item Dropped**	**Item Kept**
3. We constantly evaluate our cooperation to assess their ability to meet the best performance.		X
4. Identify a balanced range of KPIs and benchmark measures that are significant to assess the value of alignment.	X	
5. At your company, alignment behavior is taken into account when evaluate the marketing and operations functions such as information sharing between each other, developing strategy together		X
6. KPIs of marketing and operations functions are driven by alignment outcomes.	X	
7. Your company has ongoing monitoring alignment activities and progress on performance.		X

Customer Orientation	**Item Dropped**	**Item Kept**
1. We are customer-oriented.		X
2. We create customer value.		X
3. We understand customer needs.		X
4. Customer satisfaction is one of our objectives		X
5. We value after-sales service		X
Competitor Orientation	**Item Dropped**	**Item Kept**
1. Salespeople share competitor information		X
2. Marketing shares competitor information		X
3. We respond rapidly to competitors' strategies.		X
4. We target opportunities for competitive advantage		X

APPENDIX I

SCALE USED FOR SECOND – ORDER MIMIC MEASUREMENT MODEL VALIDATION

	Dimension 1: Coordination Decision
CD1	The degree to which marketing and operations coordinate jointly in firm's goal setting.
CD2	Marketing and operations participate jointly in short term strategic planning. (Less than 6 months)
CD3	Marketing and operations are involved in deciding how to use the tactic changes according to the situation to be in line with firm strategy.
CD4	Marketing and operations participate jointly in the problem solving such as delay in production, customer complained or material shortage.
CD5	Marketing and operations participate jointly in the new product development. Such as new products, production planning.

	Dimension 2: Information Exchange
IE1	Operations managers/professionals received enough market information.
IE2	Operations provide information to marketing to aware of capability and operation innovation.
IE3	Marketing and operations jointly share and communicate the customers' requirement.
IE4	Marketing manager and operations manager have weekly or monthly meeting.
IE5	Marketing provides information to operations to acknowledge abut trend and direction of demand in the market.

	Dimension 3: Leadership Strategy
LS1	Top management actively promotes and communicates a philosophy and culture of coordination between marketing and operations.
LS2	Top management set a procedure of coordination between marketing and operations. (Meeting schedule, point of alignment between marketing and operations).
LS3	Top management encourages staffs participation when setting alignment strategy between marketing and operations.
LS4	Top management set equally in the goal between marketing and operations.
LS5	There is regular review of coordination between marketing and operations in top management meetings.

	Dimension 4: Reward System
RS1	Marketing and operations operate under principles of shared rewards and risks.
RS2	Alignment behavior is taken into account when rewarding the marketing and operations functions such as the alignment of working together to reduce redundant job or reduce mistake.
RS3	The degree to which alignment of incentive and reward systems is an important tool for alignment between marketing and operations.
RS4	Marketing and operations perceived benefits of participation in the collaboration.
RS5	Your company sets marketing and operations objectives aligned to the organization strategy (KPI based measure).

	Dimension 5: Performance Evaluation
PE1	Your company has developed performance measures that extend marketing - operations alignment.
PE2	Your company improved performance by cooperating marketing with operations by (KPIs)
PE3	Your company constantly evaluate the company cooperation to assess their ability to meet the best performance.
PE4	Your company has ongoing monitoring alignment activities and progress on performance.
PE5	At your company, alignment behavior is taken into account when evaluate the marketing and operations functions such as information sharing between each other, developing strategy together

	Reflective marketing – operations alignment
REF1	At your company, the collaboration between marketing and operations to help us use resources more efficiently.
REF2	At your company, businesses can better understand customer needs and the situation of its suppliers even better.
REF3	At your company, The collaboration between marketing and operations to he opportunities for competition.

	Customer orientation
CUO1	Your company mainly gives the importance to customer needs.
CUO2	Your company mainly gives the importance to create customer values (values means satisfy customers beyond their needs and satisfactions.
CUO3	Your company understand customer needs.
CUO4	Your company mainly gives the importance to customer satisfaction.
CUO5	Your company focuses on creating customer values aftersales.

	Competitor orientation
COO1	Your company, sale staffs share information about competitors to operations such as new product offered by competitor.
COO2	You company, marketing share marketing information with operations such as competitor marketing strategy.
COO3	Your company can immediately response to competitor strategy.
COO4	Your company aware of the opportunity to create competitive advantage such as having more market share compare to competitors, build greater customer satisfaction than competitors.

APPENDIX J

HARMAN'S SINGLE-FACTOR TEST (COMMON METHOD BIAS)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.597	21.103	21.103	7.597	21.103	21.103
2	5.360	14.890	35.993			
3	4.177	11.603	47.596			
4	3.677	10.214	57.810			
5	2.559	7.107	64.917			
6	1.605	4.458	69.376			
7	1.473	4.093	73.468			
8	1.195	3.320	76.789			
9	1.111	3.086	79.875			
10	.916	2.544	82.419			
11	.844	2.345	84.763			
12	.710	1.973	86.736			
13	.697	1.936	88.672			
14	.538	1.494	90.166			
15	.495	1.375	91.541			
16	.441	1.224	92.765			
17	.417	1.159	93.924			
18	.371	1.030	94.954			
19	.313	.869	95.823			
20	.274	.762	96.585			
21	.207	.575	97.160			
22	.170	.473	97.633			
23	.161	.447	98.080			
24	.144	.399	98.479			
25	.125	.348	98.827			
26	.103	.286	99.113			

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
27	.091	.252	99.365			
28	.079	.221	99.586			
29	.062	.172	99.757			
30	.033	.092	99.849			
31	.028	.079	99.927			
32	.017	.046	99.974			
33	.008	.024	99.997			
34	.001	.003	100.000			
35	2.037E-15	5.658E-15	100.000			
36	-1.842E-15	-5.116E-15	100.000			

APPENDIX K

MULTICOLLINEARITY TESTING FOR THE FORMATIVE (MIMIC) MODEL (VIF)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8.905	.292		30.508	.000		
	CD	.194	.024	.361	8.015	.000	.780	1.281
	IE	.008	.008	.038	.938	.349	.958	1.044
	LS	-.007	.013	-.021	-.513	.608	.978	1.023
	RS	-.302	.025	-.526	-11.979	.000	.824	1.214
	PE	.141	.011	.533	13.039	.000	.951	1.052

a. Dependent Variable: MeanMOA

BIOGRAPHY

Name	Ms. Kedwadee Sombultawee
Date of Birth	July 9, 1982
Educational Attainment	2004: Bachelor's Degree of School of Management (Marketing), Assumption University
	2005: Master of International Management (M.Sc.), University of Exeter
Work Position	Assistant to the President for Phetchaburi Silpakorn University

Publications

Sombultawee, K. and Boon-itt S. (2018). Marketing – operations alignment: A review of the literature and theoretical background. *Operations Research Perspectives*, 5(2018), 1-12.

Conference Papers

Sombultawee, K. and Boon-itt S. (2015). Theoretical perspectives on operation and marketing interface: A systematic literature review. Paper presented at the 22nd International Annual EurOMA Conference, Neuchâtel, Switzerland, 28 June – 1 July 2015.

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