DELIVERING SUPERIOR QUALITY THROUGH SUPPLY CHAIN AND MARKETING INTEGRATION: CONSTRUCTS AND PROPOSITIONS

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ABSTRACT

The impact of perceived quality on financial performance has been established in the literature. The extant literature on perceived quality is focused on marketing delivery of perceived quality, while operations management scholars traditionally focused on manufacturing delivery of quality. However, with the increasing importance of value chains in organizations’ strategies, there is a crucial need to connect supply chains with consumers in order to deliver higher perceived quality. Authors identify the constructs and develops a theoretical framework to identify how supply chain and marketing integration can drive superior quality performance.

Keywords: consumer relevant quality, supply chain, marketing, cross-functional integration, case study

INTRODUCTION

Since the early days of quality gurus, and in over decades there is still no consensus on the definition of quality. While gurus preferred clear and concise definitions of quality such as “conformance to requirements” (Crosby, 1979), and “fitness for purpose” (Juran, 1952), as markets and organizations evolved quality became a more complicated construct. As FMCG companies realized the concept of quality spans a broader scope than the traditional quality understanding limited to manufacturing, the customer focused approach dominated the quality field (Morgan & Piercy, 1998; Gale, 1994). Yet, quality programs or projects in such companies focused on internal processes through quality improvement teams, and quality circles.

In time the definitions of quality evolved incorporate the customer focus, competition and an integrated value chain approach. As a result there are many definitions of quality concept and many dimensions to the quality construct depending on the context. Among all quality
definitions, the consumer perceived quality has gotten most attention due to its impact on financial performance of the company. Management and strategy theorist argued and provided evidence on the impact of perceived quality in the bottom-line of the firm and the shareholder value (Aaker, 1989) and delivering superior customer value is distinctive capability (Day, 1994). Although vast, the research on perceived quality or consumer relevant remained mostly exclusive in distinct fields of research (Table 1) with most of them focused on marketing leadership in quality. A holistic framework to that encompasses supply chain and marketing remained unexplored and the challenges and barriers to deliver consumer perceived quality seamlessly across the organization await to be developed empirically tested.

The motivation for this study is driven by preliminary interviews and observations at a major global CPG company. The research question is developed based on industrial reality, and in line with this thinking; this study adopts an action-based, embedded research approach conducted over two years at the aforementioned company.

In this research we attempt to answer the following questions:

- What are the roles of supply chain and marketing functions in delivering consumer relevant quality?
- What are the drivers of successful delivery of consumer relevant quality and how can companies achieve superior quality performance?
- What are the enablers and inhibitors in holistic delivery consumer relevant quality?

In the next sections first, the literature will be reviewed. We will present the motivations and relevance of the research question to the academia and business reality. The research methodology will be explained in section 3. In section 4, we identify and define the constructs and conceptual model for holistic quality delivery. The conclusions and managerial insights will be presented in section 5.

**LITERATURE REVIEW**

The definitions of quality in operations management field resides mainly in Garvin’s (1984) product-based, user-based and manufacturing-based approaches. If one adopts a manufacturing based approach the focus is mainly conformance to requirements and the excellence in internal processes. As far as manufacturing is concerned there are two quality concepts: design quality and conformance quality (Ghose&Mukhopadhyay, 1993). On the other hand, if one adopts user-based approach perceived quality and objective quality are the concepts that illustrate a more externally focused, customer oriented quality. Objective quality is actual technical superiority or excellence of the products while perceived quality is the consumer’s judgment about the superiority or excellence of a product.

Among all quality definitions, the perceived quality has gotten most attention due to its impact on financial performance of the company. Aaker (1989) found that consumers’ quality perception is one of the most cited competitive advantage in a research conducted among 248 managers. Aaker and Jacobson (1994) provided evidence that perceived quality has an impact on stock price in a research conducted on 33 companies such as Apple, and American Express. Day (1994) argues that delivering superior customer value that is defined from customer’s perspective is a distinctive capability, and provides a valuable and hard to match market position. Perceived quality is seen as the major pillar for quality-based differentiation strategies and shown to drive price sensitivity (Gale, 1994; Zeithaml, Berry&Parasuraman,
1996), satisfaction (Fornell, Johnson, Anderson, Cha & Bryant, 1996), competitive advantage (Flynn, Schroeder & Sakakibara, 1994) and financial outcomes such as market share (Philips, Chang & Buzzell, 1983; Buzzell & Wiersama, 1981) and stock price (Aaker & Jacobson, 1994). In one of rare operations management studies focusing on delivering perceived quality, Flynn et al. (1995) proposes that a strong customer focus can increase quality performance through (1) less engineering change orders after production started, (2) understanding what specifications and tolerances are acceptable, (3) design of new products that better meet customers’ needs. Hard evidence from companies like HP (Young, 1985), and Xerox (Kearns, 1990) shows that a strategic focus on quality leadership can drive company’s key objectives.

The extant literature (Table 1) on perceived quality is focused on marketing delivery of perceived quality, while operations management scholars traditionally focused on manufacturing delivery of quality. Strategy and management literatures focused on quality based differentiation and quality leadership. However, with the increasing importance of value chains in organizations’ strategies, there is a crucial need to connect supply chains with customers in order to deliver higher perceived quality. We argue that an organization’s culture does not necessarily reflect an organization wide consensus on quality. The meaning and value associated with quality processes and outcomes may vary across functional areas and by hierarchical level. Therefore, the meaning of quality should be observed from multiple points of view as if there exists sub-organizations within the organization. To address this gap, this research focuses on developing a holistic approach for delivering higher perceived quality. To answer the research questions defined,

- this research identifies and defines the constructs of the framework based on management and marketing literatures,
- proposes causal relationships between constructs,
- develops propositions, and validates these propositions using the evidence gathered through in-depth case research conducted at a major multinational consumer packaged goods company over two years.

<table>
<thead>
<tr>
<th>Research domain</th>
<th>Salient Research</th>
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<tr>
<td>Management/Quality</td>
<td>Anderson (1994); Dean and Bowen (1994); Reeves and Bednar (1994); Spencer (1994)</td>
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Table 1. Examples of relevant literature on perceived quality in different research fields

In this study, we intend to contribute to operations management literature both theoretically and empirically. First, this study is a first attempt to bridge management theory and quality management in operations management field. We draw on Burns and Stalker’s (1961)
organizational models and total quality management literature to shed light on the inherent difference between supply chain and marketing function and to develop research constructs. Second, this study moves from total quality management and traditional conformance-based quality approaches to contemporary challenges in quality: consumer-focus and holistic delivery of consumer relevant quality. Third, this study employs a longitudinal embedded research methodology and presents empirical evidence based on primary and secondary data collected over one year through primary and secondary resources of information. In its research methodology, this research presents academic rigor in methodology as well in addressing the “how to implement quality management” question identified in Sousa and Voss (2008).

**RESEARCH METHODOLOGY**

This research involves a single case study developed while one of the researchers was embedded in the organization for two years. The methodological approach is motivated by the potential of empirical research to develop new, managerially-relevant, theory (Voss, Tsikriktsis&Frohlich, 2002). There are a number of capabilities that the selected research methodology should have. The first is to investigate the drivers of integration in their own context, and to avoid rigid assumptions. Second capability is to be able to account for different sources of disturbances from external and internal environment and reach as close as possible to real-life circumstances.

Third, this study follows a multivariate approach to analyzing the variables and their interactions. Case methodology is generally recognized as the most appropriate tool in this situation (Yin, 1984; Meredith, 1998).

Yin (1984) defines case study methodology as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.”

He suggests that case study methodology is appropriate for broader scope studies to cover multivariate complex conditions instead of isolated variables, and where there is need to use multiple sources of information (Yin 2002). Case studies are intended to take the audience of the research into the world of the subjects; therefore, they can provide a much richer and more vivid picture of the phenomena under study than other, more analytical methods (Marshall&Rossman, 1999).

The longitudinal nature of this research ensures the capture of cause and effect, and enables us triangulate to reveal the how and why nature of the relationships proposed in this study. Our approach is a practitioner-based to discovery-oriented approach to ensure relevancy to business reality (e.g. Jaworski&Kohli, 1993).

**Data Collection**

The case study was conducted in a large-scale multinational company that has $73 billion global turnover and reach in 180 markets while employing over fifty thousand employees. Case study was constructed using the data collected through 35 semi-structured in-depth interviews with 16 people over six months. A theoretical sampling plan has been used so that interviewees are able to reflect different organizational point-of-views on quality. The
distribution of interviewees was as follows: 4 informants are from marketing function, 6 from supply chain, 4 from quality, and 2 from product function. 7 informants held senior management positions.

Interviews are preceded by a brief description of the research project. In the first stage, they were asked to define what quality means for their functions and what are the critical components of product quality. In the second stage, they were led to open discussion on drivers that enable delivery of quality across the organization. Interviews lasted around 90 minutes. In addition to interviews, research conducted in secondary sources of information such as company’s quality vision and mission statements, current quality management system and performance metrics in supply chain and marketing. Publicly available sources of information on the company such as industry newsletters, research reports, previous media coverage has also been used.

Meredith, Raturi, Amoako-Gyampah & Kaplan (1989) argues that the critical trade-off between traditional rational artificial operations management research and case research is the balance of reliability and validity. Traditional OM research provides great extent of reliability however the research setting often limits the external validity. This research is positioned closer to the natural/existential quadrant and thus provides findings which are, possibly less reliable than traditional OM research, but closer to reality and therefore more useful.

In the next section, we define primary constructs of this study, integration and introduce the theoretical framework.

**CONCEPTUAL FRAMEWORK**

In this section, we will introduce the conceptual framework (Figure 1) starting with our focal construct integration in the next subsection.

![Figure 1. Conceptual Model](image-url)
Supply Chain And Marketing Integration

Use of perceived quality as an anchor to companies’ quality strategy brings consumer to the center of the company. Therefore, organizations that traditionally used quality functions to drive manufacturing-oriented quality performance have pressured into developing formal customer driven quality competencies to stay ahead in the market. However, this requires a major change in their organizational models. Measuring quality in the eyes of the customer requires better customer understanding, which is driven dominantly by marketing that has a user or product based quality approach. Company-centric value creation models have strongly been challenged and the value-creation paradigm has shifted to one of co-creation with consumers (Pralahad&Ramaswamy, 2004). As marketing field became embedded with the consumers, and conformance-based quality came under scrutiny in the operations management literature, the disconnectedness between marketing and supply chains become more evident. The delivery of quality requires an all-encompassing approach within organization, marketing and supply chain integration is critical. However, the differences in goals, consumer orientation, and quality understanding makes this integration a challenging task and this issue has been researched by management theorists in detail.

For instance, from a contingency theory perspective these differing views between functions within the organization are akin to Burns and Stalker’s (1961) models of organismic and mechanistic organization. The theorists argue that the objective of mechanistic organizations is to complete a specific task with the highest productivity and efficiency in a stable environment. This coincides with conformance-based quality approach that emphasizes reduction of scrap, rework and increase in inspection to fulfill completion of stable and similar manufacturing tasks in isolation to other functions. The goal of mechanistic organizations is performance as measured by productivity and efficiency. Manufacturing functions, consequently, focus on mechanistic goals and the aim of quality is increasing conformance to quality to improve performance (Spencer, 1994). On the other hand, marketing functions’ model coincides with an organismic organizational model that has close to ties to a dynamic consumer base and a changing environment. The objective in the organismic model, as name implies, is to grow and survive by analyzing and adapting to consumer needs. Table 2 illustrates the differences between two functions through the lens of organismic and mechanistic organizations.

<table>
<thead>
<tr>
<th></th>
<th>Marketing</th>
<th>Supply Chain</th>
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<tbody>
<tr>
<td>Quality Orientation</td>
<td>Consumer Orientation</td>
<td>Process Orientation</td>
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<tr>
<td>Quality Definition</td>
<td>Consumer Driven</td>
<td>Conformance Driven</td>
</tr>
<tr>
<td>Goal</td>
<td>Survive and Grow</td>
<td>Productivity and Efficiency</td>
</tr>
<tr>
<td>Performance Measure(s)</td>
<td>Consumer satisfaction</td>
<td>Internal Process KPIs</td>
</tr>
<tr>
<td>Task Structure</td>
<td>Frequent change in tasks</td>
<td>Standardization and Formalization</td>
</tr>
<tr>
<td>Environment</td>
<td>Dynamic environment anchored on changing consumer needs</td>
<td>Stable environment anchored on stable manufacturing tasks</td>
</tr>
</tbody>
</table>

Table 2. Differences between Supply Chain and Marketing through Burns and Stalker’s (1961) contingency theory lens
In strategic management literature, Day (1994) defines opposite but complementary capabilities that reside in manufacturing and marketing. Inside-out capabilities are related to manufacturing such as timely and low-cost production. Outside-in capabilities reside in marketing and involve such activities as understanding needs of customers. It is the balancing and matching of these capabilities, he contends, that enables organizations to best serve market possibilities and create superior performance. It’s has been long established in marketing literature that the coordinated application of inter-functional resources is essential for the creation of superior customer value (Narver and Slater, 1990) and harmonization of the two functions is the key to successful delivery of consumer relevant quality. Ultimately, it’s the organizations’ streamlined capability to identify and measure actual needs of customers and matching these needs with well-designed products that enables it to survive and grow in the marketplace (Kordupleski, Rust, & Zahorik, 1993).

Hence, we define integration construct below and propose supply chain and marketing integration as a driver to superior quality performance measured in the eyes of consumer:

Integration between supply chain and marketing functions is the extent that two functions share the same quality understanding, and leverage and harmonize individual functional capabilities to deliver superior quality performance that is relevant to consumers.

P1: The higher the degree of integration between supply chain and marketing functions the higher the quality performance measured in the eyes of the consumer.

In the next section, we elaborate on the antecedents of integration construct in the literature and based on the data collected through primary and secondary sources of information.

**Consumer Orientation**

Our interviews revealed confusion and clash in the definition of quality in different functions. Supply Chain informants referred to quality in terms of product being “defect-free” and occasionally mentioned the reason for poor quality as “incomplete specification” and the challenges to deliver against the incomplete specification. This emphasized the focus on conformance to specification. Inadequate machine and process capability to deliver higher quality was among the common themes. Marketing informants, however, emphasized that the quality is “what consumer wants” and however, expressed thoughts on SC’s role in delivering poor quality implying quality is conformance to specification. Internal processes and low process compliance was to blame however the assumption that consumer relevant quality attributes is embedded in design was obvious. There was ambiguity in the understanding of quality across the organization, which was hampering alignment of quality strategy between functions. The establishment of consumer-orientation is preceded by mutual understanding on consumer focused quality. Differences in quality understanding between functions has been discussed in the literature frequently but has never been modeled as a construct. Hence, ambiguity construct was modeled as an antecedent to consumer orientation.

P2: The greater the ambiguity in consumer relevant quality understanding across the organization the weaker the consumer orientation in supply chain and marketing functions.

Additionally, role of consumer orientation or customer focus in superior quality performance is studied frequently in total quality literature (e.g. Dean and Bowen 1994) and we propose:
P3: The weaker the consumer orientation the lower the quality performance.

Although, it has been established that organization wide consumer orientation is positively correlated with quality performance, we argue that it does not necessarily reflect organization wide consensus. We argue that the degree of consumer orientation should be investigated separately in supply chain and marketing functions. To validate this we first conducted research on company’s quality performance system. Performance metrics were focused on manufacturing quality and was based on design specification compliance. There was no metric designed to measure consumer satisfaction of quality. When marketing research and insight tools are reviewed we found out those tools were tailored to confirm product acceptability, to not measure consumer satisfaction. This established both supply chain and marketing functions had limited consumer orientation.

Second, the lack of consumer orientation as reflected by fragmented and conformance-based approach to quality have also evidenced in corporate vision and mission statement. As opposed to companies which are known consumer quality leaders in their respective industries, the corporate vision does not incorporate product quality or consumer in their vision statement. In the corporate quality management system in use quality is defined as:

“Quality is consistently meeting consumer requirement at the point of consumption within our regulatory, corporate and social obligations.”

Although quality definition is anchored in the consumers, it doesn’t reflect the contemporary trends in “delivering superior quality”, “exceeding expectations”, “delighting consumers” (see for instance Nestle, P&G). Therefore, lack of consumer orientation was not just in supply chain, but was also at corporate level. These findings convey a strong message that consumer-oriented quality approach is still in its infancy. Hence:

P4: The weaker the degree of consumer orientation in supply chain and marketing functions the weaker the integration between two functions.

Open Communication and Cross-functional Organizational Structures

Since the early nineties, the widespread use of cross-functional teams, relationships between functional areas and their impact on performance outcomes have become a focus for academic and managerial attention (Hutt 1995; Jaworski and Kohli 1993). In quality management, Deming’s (1981/1982) 14 points concerns the creation of an organizational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to continuous improvement of processes, products, and services, and to employee fulfillment, both of which are critical to customer satisfaction, and, ultimately, to firm survival. (Anderson, 1994).

Customer focus and continuous improvement are best achieved by collaboration throughout an organization as well as with customers and suppliers (Bowen 1994). Total quality management, for instance, traditionally has been welcomed as a useful mechanism for breaking down functional barriers (Anderson, Rungtusanatham&Schroeder 1994; Hackman&Wageman, 1995) by emphasizing strong customer focus, commitment to delivering superior customer value, and effective cross-functional cooperation (Dean&Bowen, 1994).
To ensure clarity in the terminology, cross functional structures defined as formal teams from more than one department that have periodic meetings during the interviews. When asked about cross functional teams and inter-functional working groups, informants recalled S&OP teams but no formal meetings related to quality. Although, word of mouth reflected quality related working groups within marketing, there were no cross-functional organizational structures nor consultation between functions on quality. The disconnectedness between marketing and SC and the reactive approach to quality as a consequence were apparent in our interview with Supply Chain Quality manager:

“We need to know what product attributes are relevant to consumers to deliver quality. We don’t know if marketing guys looking at this or if it’s ever going to happen.”

A scan on the internal sources of information such as organizational charts revealed there were no formal periodic cross-functional meetings on quality. Hence:

P5: The higher the lack of formal cross-functional structures between supply chain and marketing, the lower the integration between these functions.

Senior Management Support

Anderson et al. (1994) emphasizes the crucial role leaders play in creating and communicating a vision to move the firm toward continuous improvement and to provide formal and informal support in quality management.

Deming (1981/1982) defines role of senior leadership in his 14 points: for him it is clearly top management's responsibility to create and communicate a vision for quality management, to authorize and institute ongoing training, and to develop a plan of action for adopting the 14 points. Total quality researchers stress the communication and reinforcement of values and the articulation and implementation of a vision. In line with the integration construct defined in this manuscript, senior managements role in quality entails aligning organizational members' values with quality values of customer focus, continuous improvement, and teamwork. (Dean and Bowen, 1994).

Interviews revealed senior management support on aligning supply chain and marketing and a strong drive to bring functions to work together. A senior manager mentioned a recently announced decision to hold operations and marketing leadership meetings together. However, the drive to integrate these functions in the quality space fell short by lack of commitment to quality. As one marketing manager put it:

‘There is definitely a strong drive to bring[supply chain and marketing] functions together. One day, we are told, quality is on the agenda. Then, senior management communicates different priorities and we need to focus on those priorities...’

Hence,

P6: the higher the senior management support on quality the higher the degree of integration of supply chain and marketing functions.
CONCLUSION AND MANAGERIAL INSIGHTS

This study draws on management theory to define the constructs and develop the theoretical framework. However, management theory is for researchers while quality management is for managers, utilized in practice every day, and managers faced with contemporary challenges far from that of traditional total quality approach. The action-based, embedded research methodology used in this research ensures that these contemporary challenges are captured and a theoretical framework that is based on industrial reality is tested empirically.

As Reeves and Bednar (1994) put it, “… global definition [for quality] does not exist; rather, different definitions of quality are appropriate under different circumstances”. This research provides an insider’s perspective to this problem by articulating the main drivers of integrating supply chain and marketing functions. The framework proposes that the degree of integration between supply chain and marketing functions drives superior quality performance in the eyes of the consumers. However, integration is not easy to task to achieve given the fundamental differences between the two departments (Table 2). Based on the case study, we argue that there are three major drivers to achieve integration. First, organizations need to achieve consumer orientation organization-wide, however they need to be aware that supply chain and marketing functions can be separate organizations in terms of their goals and quality understanding. Second, formal cross functional structures should underpin the drive to integrate supply chain and marketing. Formal periodic meetings should be in place to ensure continuity and open communication should be clearly supported by senior management. Third, senior management need to be clear on the quality vision, ensure its consistency and priority, and present visible support in order to help functional walls are knocked out for integration.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>When it is an enabler:</th>
<th>When it is an inhibitor:</th>
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<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Harmonization of different quality perspectives to respond to consumer relevant quality challenge.</td>
<td>No common understanding of what quality means.</td>
</tr>
<tr>
<td><strong>Measures</strong></td>
<td>Quality satisfaction is measured in the eyes of the consumers and measures should be linked to internal processes.</td>
<td>Quality satisfaction measured in companies’ owns devising, metrics are internal process-oriented and disconnected from the consumers.</td>
</tr>
<tr>
<td><strong>Culture</strong></td>
<td>Open and supportive culture that emphasizes continuous improvement.</td>
<td>Dominance of quick-fix approach to product quality problems. Firefighting or simple maintenance approach to quality management.</td>
</tr>
<tr>
<td><strong>Employee reward and performance</strong></td>
<td>Reward and performance based on metrics anchored on consumer satisfaction and consumer relevant quality</td>
<td>Performance based on metrics that measures quality in functional terms, and aims to increase internal efficiency.</td>
</tr>
<tr>
<td><strong>Organizational Structure</strong></td>
<td>Openness and inter-connected functions.</td>
<td>Turf wars between departments.</td>
</tr>
<tr>
<td><strong>Quality Ownership</strong></td>
<td>Ownership at every level with clear responsibilities and metrics</td>
<td>Functional ownership of quality and clash of consumer-oriented and process-oriented employees.</td>
</tr>
<tr>
<td><strong>Senior management support</strong></td>
<td>Senior management commitment and formalization of quality strategy in business agenda.</td>
<td>Quality does not have a place in the leadership table. Localized quality programs and projects.</td>
</tr>
</tbody>
</table>

Table 3. Enablers and inhibitors of consumer relevant quality delivery
This study also identifies crucial dimensions of consumer relevant quality delivery and provides managers with insight on how to use these dimensions as enablers of quality delivery (Table 3). The main challenge in harmonization of these functions lay in aligning the quality understanding to consumer orientation and providing the necessary structure to facilitate holistic delivery of quality while providing clear direction and sense of urgency.
REFERENCES


Garvin, D.A. What Does "Product Quality" Really Mean? Sloan Management Review (pre-1986); Fall 1984; 26, 1; pg. 25


Kearns, D.T. Leadership through quality. Academy of Management Executive, 1990 Vol. 4 No. 2


Young, J.A. *The quality focus at Hewlett-Packard*. Journal of Business Strategy (pre-1986); Winter 1985; 5, pg. 6
