

A comparative case study of sustaining quality as a competitive advantage



Hung-Chung Su^a, Kevin Linderman^{b,*}, Roger G. Schroeder^b, Andrew H. Van de Ven^c

^a College of Business and Economics, University of Wisconsin – Whitewater, United States

^b Carlson School of Management, University of Minnesota, United States

^c Vernon H. Heath Professor of Organizational Innovation and Change, Carlson School of Management, University of Minnesota, United States

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ABSTRACT

Many organizations have achieved high levels of quality performance only to lose it later on. These firms that were once quality leaders can no longer compete on the quality of their products or services. This research develops a theoretical understanding of how organizations can sustain a quality advantage. It offers a conceptual definition of sustaining a quality advantage which involves not only sustaining a high level of quality performance, but also sustaining a high consistency of quality performance. A comparative case study provides evidence of three capabilities that distinguish firms with different levels of sustaining quality. These capabilities include: (1) meta-learning, (2) sensing weak signals, and (3) resilience to quality disruptions. The case analysis argues that meta-learning helps sustain a high level of quality performance, while sensing weak signals and resilience improves the consistency of quality performance. This study offers a dynamic capability-based strategy that explains how to sustain a competitive advantage in quality, which may also have implications for sustaining other operational competitive advantages.

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1. Introduction

Operations strategy scholars have long noted the importance of establishing a competitive advantage in quality. Previous research has examined the link between quality and financial performance. Higher quality increases revenue by making products more attractive and creating a market advantage or reduces cost by increasing efficiency (Buzzell and Gale, 1987; Garvin, 1988). The ‘sand cone’ model argues that a competitive advantage in quality is the foundation for other operational competitive advantages (Ferdows and De Meyer, 1990). Empirical evidence further supports that quality provides a foundation to other competitive dimensions in operations (Rosenzweig and Roth, 2004; Roth and Miller, 1992). Over the past few decades scholars have extensively studied how organizations can obtain a competitive advantage through quality performance (Ahire, 1996; Ahire and Dreyfus, 2000; Anderson et al., 1994; Benson et al., 1991; Flynn et al., 1994, 1995; Kaynak, 2003). Researchers have drawn on different theoretical perspectives to understand the relationship between quality and competitive

advantage. For example, scholars have drawn on the resource-based view (RBV) (Barney, 1991) of the firm to explain how a number of practices, and frameworks such as TQM (Flynn et al., 1994, 1995; Powell, 1995), Baldrige (Flynn and Saladin, 2001) and ISO 9000 (Corbett et al., 2005; Martínez-Costa et al., 2009; Naveh and Marcus, 2005) lead to a competitive advantage in quality.

However, we know very little about how to sustain a competitive advantage in quality. In the past few years product recalls from the long time quality leader Toyota reflect the difficulty of sustaining quality performance (Ohnsman et al., 2010; Valasic, 2010). Reports of uncontrolled acceleration in some of Toyota’s vehicles first surfaced in 2002, yet those signals were largely discounted. Ultimately Toyota’s Consumer Report’s reliability ranking slipped from number one to fifth in 2007. These events culminated in 2008, when a Toyota Avalon allegedly caused an accident that killed four people. Toyota’s market share ultimately dropped in the face of these recalls (Oliver, 2014). Other leading companies such as Sony, Hitachi and Mercedes-Benz experienced similar difficulties in sustaining a competitive advantage in quality (Fackler, 2006; Taylor, 2003). For example, throughout the 1990s Mercedes was in the top 10 and often ranked in 1st place on the J.D. Power surveys for vehicle quality. Then suddenly they dropped to 26th in 2003 and had more than 300 problems reported per 100 vehicles (Taylor, 2003). Taylor notes, “In an ever more complicated world... [Mercedes]

* Corresponding author.

E-mail addresses: suh@uww.edu (H.-C. Su), linde037@umn.edu (K. Linderman), rschroed@umn.edu (R.G. Schroeder), avandeve@umn.edu (A.H. Van de Ven).

once unquestioned position at the top of the automotive pecking order is under threat as never before” (p. 145). Although few would deny Toyota's and Mercedes-Benz's competitive advantage in quality over the past few decades, even the best have trouble sustaining it. A theoretical framework is needed to guide both practitioners and academics on strategies to sustain a competitive advantage in quality. This paper fills this gap by examining the following research question: *how do organizations sustain a competitive advantage in quality?*

To investigate this question we conduct a comparative case analysis that iterates between the literature and the case data to develop a theory on sustaining a quality advantage. The analysis draws on literature from quality management (Flynn et al., 1994, 1995), dynamic capability (Tece et al., 1997; Zollo and Winter, 2002), Red Queen Effect (Barnett and Hansen, 1996; Barnett and McKendrick, 2004; Barnett and Pontikes, 2005), organizational learning (Argote, 2013; Argyris and Schön, 1996) and high reliability organization (HRO) theory (Weick and Sutcliffe, 2001, 2007; Weick et al., 1999). The results show that three important capabilities differentiate organizations that sustain quality from those that don't. The first capability is *Meta-learning*, which continually increases an organization's ability to learn. This capability enhances an organization's ability to engage in both first-order and second-order learning. The second capability, *sensing weak signals*, gives organizations the ability to detect subtle changes that could disrupt their quality performance. Sensing weak signals involves an organization's vigilant engagements with their operations, customers and the environment. The third capability, *resilience to quality disruptions*, helps organizations quickly adapt and recover from quality disruptions when they do occur. These capabilities come together to form a dynamic capability that explains how organizations sustain a quality advantage by increasing their ability to adapt and respond to changes in the environment.

This study contributes to the literature by identifying capabilities that sustain high quality performance which prior studies have not considered. The comparative case analysis brings together literature streams that have been previously disconnected. It views sustaining a quality advantage as an ongoing race, where organizations need to evolve and adapt faster to stay ahead of the competition. Departing somewhat from previous research, we suggest that sustaining a quality advantage is not about developing an imitable resource that cannot be replicated, but instead it's about constantly evolving and improving faster than the competition. We offer an evolutionary dynamic perspective of sustaining a quality advantage which has not been fully considered in the past.

The rest of the paper has the following organization. Section 2 defines the concept of sustaining a competitive advantage in quality. Section 3 gives the conceptual background for the literature streams related to this research. Section 4 describes the case study research methodology, Section 5 presents the findings and propositions, and Section 6 summarizes the conceptual model. Finally, Section 7 discusses the implications and conclusions.

2. Defining sustaining a competitive advantage in quality

Operations strategy scholars often use high quality performance relative to competition as an indicator of a competitive advantage in quality (Ward and Duray, 2000). However, previous studies in quality management often did not differentiate achieving high quality performance from sustaining a competitive advantage in quality. Organizations that meet or exceed customer expectations achieve high quality performance (Evans and Lindsay, 2008). Yet, while achieving high quality performance at one point in time indicates a high *level* of performance, it does not indicate high *consistency* of performance. Previous studies have not fully considered the

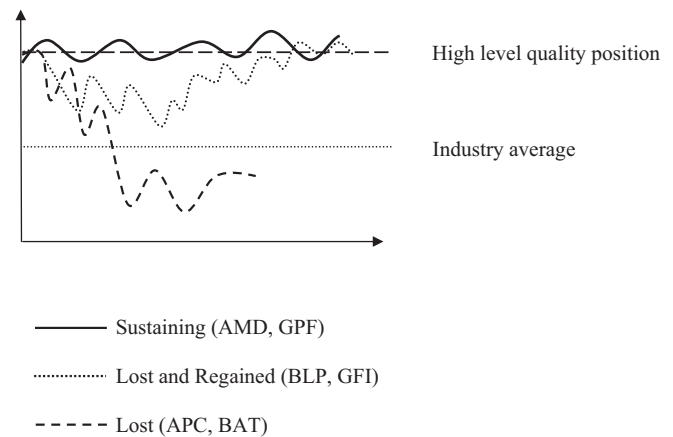


Fig. 1. Patterns of sustaining a quality advantage.

consistency dimension of performance.¹ In management literature, a high *consistency* of performance has been defined as achieving “collective outcomes of a certain minimum level repeatedly” (Hannan and Freeman, 1984, p. 153). High consistency of quality performance therefore indicates lower variance in quality performance. Organizations that sustain a competitive advantage in quality should not only achieve a high level of quality performance at a point in time but also do it consistently over time.

Fig. 1 illustrates the meaning of sustaining a competitive advantage in quality. It is important to note that this study investigates how organizations sustain a quality advantage, not about how they achieve it. Fig. 1 shows three different patterns that illustrate varying degrees of sustaining. The first pattern (solid line) shows organizations that sustain a competitive advantage in quality. They not only have a high level of performance but also have high consistency (lower variance) in performance. The second pattern (dotted line) shows organizations that lost and regained their quality performance. These organizations still meet or exceed customers' expectations (i.e. have high level of quality performance) but are less consistent. The third pattern (dashed line) shows organizations that lost their high quality performance. These organizations have lost their high level of quality performance and also have low consistency; they have the least consistency when compared with the other two cases. By distinguishing between the level and consistency dimensions of quality performance, this study defines sustaining a competitive advantage in quality as having a high level and high consistency of quality performance over time. These basic patterns were developed from the case analysis, which we describe later in the research methods section of the paper.

3. Conceptual background

Concepts from several different theories help inform the analysis of the case data. Each theory comes from a different literature stream and offers a unique perspective on how to sustain a quality advantage. In addition, prior research has not integrated these theories. The case data helped identify concepts from these theories to explain how organizations sustain a competitive advantage in quality. The following sections give an overview of each theoretical perspective that emerged from the comparative case analysis.

¹ Note that consistency refers to the organization performance on quality, such as Mercedes JD Power Quality Rating. This is different from SPC which controls process variation.

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