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## THE CONCEPTUAL FRAMEWORK OF THE PROCESS STANDARDIZATION – CUSTOMER SATISFACTION RELATIONSHIP

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Organizations employ process standardization to reduce process variability and to ensure customer satisfaction. However, excessive standardization may hinder company competitiveness due to the lack of an ability to meet varying customer needs. There is a dearth of research regarding the impact of standardization on customer satisfaction as well as the organizational practices that can potentially foster this relationship. The present research proposes an alternative approach to understanding the practices that foster standardization in organizations: the research builds upon the notion of the closeness of process standardization and continuous improvement, and further proposes the framework of the standardization – customer satisfaction relationship within the wider network of organizational practices. The present study is one of the few attempts in the current literature to frame process standardization within the wider context of the continuous improvement process in the organization and thus makes a theoretical contribution to the advancement of the scant field of knowledge on process standardization in the areas of quality engineering and production systems management.

**Keywords:** standardization, customer satisfaction, continuous improvement

### 1. INTRODUCTION

To cater to varying customer requirements, companies develop multiple product and service offerings. The increased complexity of production processes caused by the large variety of products and services halts the effectiveness of operations and may lead to lower firm competitiveness over time (Schäfermeyer, Rosenkranz,

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Holten, 2012). The diversity of the offerings challenges the effectiveness of the processes (Carlborg, Kindström, Kowalkowski, 2013; Silvestro, Lustrato, 2015). Thus, to tackle the issue of redundancy and improve performance, companies make determined efforts to standardize their operations.

Process standardization boosts enterprise performance through cost, time reduction and quality improvement (Davenport, 2005; Münstermann, Eckhardt, Weitzel, 2010). The unification of business processes leads to improved control and collaboration between departments (Wuellenweber, Koenig, Beimborn, Weitzel, 2009).

Process standardization is inherent to continuous improvement (CI) and is critical to ensure the effectiveness of improvement efforts (Anderson, Rungtusanatham, Schroeder, Devaraj, 1995; Berger, 1997). The goal of standardization and continuous improvement is to achieve higher customer satisfaction in the light of changing customer preferences, while delivering performance benefits (Anderson, Fornell, Rust, 1997; Deming, 1993; Imai, 1986; Liker, Morgan, 2006). However, excessive standardization may have a negative impact on customer satisfaction, since standard operations may not tailor to the needs of the varied customer base (Babbar, 1992; Hsiao, Chen, Chang, Chiu, 2016; Lillrank, Shani, Lindberg, 2001). Thus, in the face of the growing customization trend, companies face the conflicting trade-off to meet customer demands and deliver performance improvements (Silvestro, Lustrato, 2015).

Standardization is cardinal to continuous improvement; yet, there is a dearth, if not absence, of research regarding how factors that impact continuous improvement, influence the standardization and operational performance of the firm. To resolve this discrepancy, the proposed research provides an alternative approach to understanding the factors influencing the relationship between standardization and customer satisfaction; thus, it is argued that factors that are proven to influence continuous improvement will also foster standardization in the organizations. The present study contributes to the scant field of knowledge of process standardization by developing a conceptual framework of the process standardization – customer satisfaction relationship in the wider CI context. The study proposes an alternative approach to understanding the practices that influence standardization: the present research builds upon the notion of the closeness of process standardization and continuous improvement. The study further hypothesizes the positive influence of the practices that foster CI in the organization to have the ability to foster process standardization. The research contributes to the fields of quality engineering as well as management of production systems.

## 2. THEORETICAL FRAMEWORK

### 2.1. Standardization and continuous improvement

Standardization of operations enables organizations to remove non-value added work by reducing complexity and excessive redundancy. Organizations employ process standardization to achieve uniformity and transparency of the operations across the value chain (Wuellenweber et al., 2009). Shaw, Holland, Kawalek, Snowdon, Warboys (2007) consider standardization as an organizational effort to bring operations to a single standard business process. Standardized operations reduce the variance associated with each task, minimize ambiguity, and help employees avoid costly mistakes (Crosby, 1979; Gilson, Mathieu, Shalley, Ruddy, 2016). The unification of the processes ensures high quality of the delivered services. However, Taubitz (2014) found that excessive standardization can lead to errors and violations of occupational safety.

Shaw et al. (2007) define standardization as a part of the “meta” process of CI in the organization. Process standardization is embedded within the concept of continuous improvement, ensuring communication and information flow between the individuals and teams involved in the improvement projects, through unification of the best practices and communication tools (Matson, Stauffer, 2009; Nakamura, 1993). In the Six Sigma DMAIC cycle (Define-Measure-Analyze-Improve Control) standardization is fundamental to the Control stage, where the newly established refined processes are documented, employees are trained and the monitoring plans are established, thus making the new process an accepted standard (Boon Sin, Zailani, Iranmanesh, Ramayah, 2015; Pyzdek, Keller, 2009).

Continuous improvement is an umbrella concept tying together improvement methodologies such as Total Quality Management, Lean and Six Sigma into a comprehensive improvement approach, benefiting from the complementary nature of the methodologies (Berger, 1997). Continuous improvement is an ongoing refinement of the standards established within the organization and standardized processes are the prerequisite for the further changes (Berger, 1997; Nakamura, 1993). As a testimony to this statement, Berger (1997) provides an example of the PDCA (Plan-Do-Check-Act) loop of the Lean methodology, where every improvement efforts leads to the establishment of new standard operations that are continuously improved through the application of PDCA.

The analysis of the literature reveals the scarcity of studies on the impact of process standardization on customer satisfaction, yet less in services. The study of Münstermann, von Stetten, Laumer, Eckhardt (2010) on standardization of human resource processes provides for a rare exception. The majority of the studies on standardization assess the saving gains, often overlooking the importance of customer satisfaction, even though customer satisfaction is linked to a higher

customer retention and improved revenue (Rust, Chung, 2006; Tyagi, Gupta, 2013). The existing accounts also fail to consider standardization within the wider continuous improvement process and to assess the impact of organizational practices, that were established to foster continuous improvement in previous research, on the process – customer satisfaction relationship. Despite the importance of standardization for modern businesses, the conditions fostering effectiveness of standardization remain largely understudied.

## **2.2. Relationship between service standardization and customer satisfaction**

Customer satisfaction (CS) is typically viewed as an extent to which perceived service performance corresponds to the prior customer expectations (Anderson et al., 1997). The quality of the provided service, as perceived by the customer, has an intricate impact on customer satisfaction, and is dependent on the homogeneity of the service quality (Parasuraman, Zeithaml, Berry, 1998; Romero, Dijkman, Grefen, Van Weele, 2015; Wang, Wang, Ma, Qiu, 2010). The objective of the service operations standardization is to satisfy as many customers as possible, while accommodating only a limited number of customer needs, which is akin to the mass production of goods (Simonson, Nowlis, 2000). The standardization of processes have led to the emergence of the term “McDonaldization” in the service industries (Ritzer, 2011). Standardized processes provide the advantage of predictability and consistency of the service standard, thus delivering the same high level of service quality and customer satisfaction during every interaction with the organization (Ding, Keh, 2016; Hsieh, Hsieh, 2001). The researchers have demonstrated that customer satisfaction depends on the quality of the service; however, little research has been done to address the question of how standardization of the service affects customer satisfaction.

There is a disagreement among scholars regarding the nature of the relationship between customer satisfaction and standardization. Operations research and production management literature suggests that this relationship is positive (Crosby, 1979; Deming, 1993; Juran, 1988). In their research Münstermann, Eckhardt, et al. (2010) found that standardization of the hiring process delivered a 30% cost reduction. In economics literature, however, it is maintained that an increased customer focus leads to growing production costs, lower efficiency and productivity (Anderson et al., 1997; Hart, 1995; Wang et al., 2010). The researchers Chiang, Wu (2014) postulate that standardization of service operations leads to increased customer orientation among employees. There is also evidence of the positive impact of process standardization on job satisfaction (Chiang, Wu, 2014; Hsieh, Hsieh, 2001). However, Rust, Jeffrey, Jianmin, Zahorik (1999) assert that excessive customization can be harmful to the retention of customers. Gilson et al. (2016) have similar findings:

teams with the standard processes achieve higher customer satisfaction, however, excessive standardization may reduce employee creativity and problem solving skills, thus resulting in decreased customer satisfaction. Building on the previous research it is hypothesized that standardization positively influences customer satisfaction.

***Hypothesis 1 (H1): Standardization has a positive impact on Customer Satisfaction.***

### **3. DEVELOPMENT OF THE CONCEPTUAL FRAMEWORK FOR THE STANDARDIZATION – CUSTOMER SATISFACTION RELATIONSHIP**

Standardization of operations involves significant costs due to the investment in the design of the new processes and employee training (Wang et al., 2010). At the initial stage of standardization, the required investment may outweigh the benefits associated with higher process reliability and a minimal customer satisfaction improvement. However, effective implementation of the standardized processes will eventually bring in economies of scale and tremendous improvement of service quality (Wang et al., 2010). Despite the importance of standardization for modern businesses, the conditions fostering effectiveness of standardization remain largely understudied. The previous research has focused on identifying what level of process variety as opposed to standardization should be kept, in order to meet customer requirements (Afflerbach, Bolsinger, Röglinger, 2016). In their research, Schäfermeyer et al. (2012) find that complexity of the processes significantly hinders business process standardization. Romero et al. (2015) builds upon contingency theory and identifies three groups of factors that impact standardization: external (differences in culture and legislation), internal (organizational structure and level of company dispersion) as well as immediate (managerial preferences).

The standardization–customer satisfaction relationship is embedded within the wider organizational context, and, consequently, is affected by heterogeneous internal and external factors (Duncan, 1972). Customer satisfaction is considered as one of the major indicators of operational performance based on Imai (1986), Deming (1993); Bessant and Francis (1999); Anand et al. (2009). The proposed research builds on previous studies linking standardization to customer satisfaction. Process standardization is considered as a part of an ongoing continuous improvement process within the organization. With this assumption in mind, the further hypotheses are built on the following assumptions regarding standardization: 1) standardization is inherent to continuous improvement; 2) continuous improvement has a positive impact on customer satisfaction, thus, standardization also positively impacts customer satisfaction; 3) the relationship between standardization and customer satisfaction can be impacted by the factors, that are proven to foster continuous improvement.

To reflect the complex relationship between standardization and customer satisfaction, multiple mediators are introduced, following the operations management approach recommended by Shah and Goldstein (2006). Figure 1 provides the model of the hypothesized relationships. To operationalize the Standardization construct, it is viewed as a result of the company's focus on development of the standard operating procedures (Peng, Schroeder, Shah, 2008; Taylor, Taylor, McSweeney, 2013; Ungan, 2006), standardization of processes between company clients (Anand et al., 2009; Gonzalez, Martins, 2016; Liker, Morgan, 2006), use of the Best Practices (Chakravorty, 2009; Kaye, Anderson, 1999; Sabella, Kashou, Omran, 2014) as well as the drive for standardization of the processes between different company departments (Kim, Kumar, Kumar, 2012; Liker, Morgan, 2006; Swartling, Olausson, 2011). Table 1 provides evidence of the selected items and constructs.

### **3.1. Employee rewards and recognition**

Rewards and recognition aid in reducing employee resistance towards changes associated with process standardization and improvement projects. When not rewarded appropriately, employees may sabotage the improvement initiative (Oláh, Szolnok, Nagy, Lengyel, Popp, 2017). At the same time, organizations that have designed employee rewards and recognition systems that ensure a high level of employee involvement and participation, report better results from process improvement (Habtoor, 2016; Yang, Lee, Cheng, 2014). The given research argues that employee rewards and recognition facilitate process standardization in the company. Identification of the process standardization opportunities requires efforts on the side of the employees, and an appropriate rewards system will drive employee motivation towards higher standardization.

***Hypothesis 2 (H2): An effective recognition and reward system reinforces the positive relationship between standardization and customer satisfaction.***

### **3.2. Quality-oriented culture**

The quality-oriented culture engages employees at every level by promoting the shared value of customer focus. Consequently, in an attempt to deliver the service or product of consistently high quality, organizations tend to standardize their processes. Researchers acknowledge the fundamental role of the quality-oriented culture for effectiveness of improvement efforts (Calvo-Mora, Picón, Ruiz, Cauzo, 2013; Habtoor, 2016). Quality culture directly influences the level of employee involvement in process improvement and standardization (Tsironis, Psychogios, 2016). A sophisticated quality culture serves as an integrating tool for organiza-

tions, and helps them to overcome implementation barriers (Detert, Schroeder, Mauriel, 2000; Dow, Samson, Ford, 1999; Prajogo, Brown, 2006).

***Hypothesis 3 (H3): A quality-oriented culture positively mediates the relationship between standardization and customer satisfaction.***

### **3.3. Management commitment**

The management of the organization should be the driving force behind the improvement initiative (Bortolotti, Boscari, & Danese, 2015; Habtoor, 2016). Leadership can demonstrate its commitment to improvement and standardization by providing resources at the operational level and defining strategic goals that incorporate process improvement at the organizational level (Haikonen, Savolainen, Järvinen, 2004). Management commitment to process improvement facilitates trust in leadership among employees, which further fosters employee autonomy and proactive process improvement (Anand et al., 2009; Chromjaková, 2016). Process improvement should involve employees from the shop floor to the top-level management in order to be effective (Liker, Morgan, 2006). The leadership of organizations should exemplify the core continuous improvement values and ensure that the resources required for process improvements and standardization are allocated, thus demonstrating commitment to the improvement effort (Imai, 1986; Kaye, Anderson, 1999). Accordingly, it is hypothesized that high management commitment will lead to high levels of process standardization.

***Hypothesis 4 (H4): Management commitment reinforces the positive relationship between standardization and customer satisfaction.***

### **3.4. Training and development of employees**

Training of employees is a complex factor that can be viewed as an education on job-related skills or on the improvement method. In the proposed research, the latter stance is taken and the impact of training in improvement methodology on customer satisfaction and standardization is assessed. The previous studies largely focus on job-related training rather than on specific improvement methodology training (Pont et al., 2009; Zeng et al., 2013), and there is a general lack of studies on the impact of the improvement methodology training on operational performance. However, Pollitt (2013) observed the foundational role of training in the effectiveness of the improvement effort in the organization. Thus, it is hypothesized that training in improvement techniques will facilitate standardization in the company. The present research is built on the argument that appropriate training equips employees with the set of skills to identify standardization opportunities.

***Hypothesis 5 (H5): Training and development of employees have a positive impact on the standardization-customer satisfaction relationship.***

### 3.5. Goal setting

The proper selection and coordination of improvement projects corresponding to strategic goals can lead to an improved operational effectiveness (Choo, Linderman, Schroeder, 2007; Kaynak, 2003; Powell, 1995). The developed system of improvement projects, aligned with the strategic goals of the company, are cardinal to the sustainability of the improvement initiative beyond the initial roll-out (Anand et al., 2009; Calvo-Mora et al., 2013). For long-term effectiveness of improvement initiatives, the organization needs to rigorously select projects that meet customers' needs (Jääskeläinen, Laihonen, Lönnqvist, 2014); otherwise, the failure to adopt a customer-focused approach may lead to deterioration of organizational performance. Researchers emphasize the necessity of unified coordination and goal setting of improvement initiatives and ascertain a positive impact of goal setting on the effectiveness of the improvement initiative (Gonzalez, Martins, 2016). Thus, it is argued that the organizations exercising goal setting and project management for improvement initiatives would benefit from a higher level of process standardization. The mediator Goal Setting is adapted from Galeazzo et al. (2016), Kaynak (2003); Sabella, Kashou, Omran (2014).

**Hypothesis 6 (H6):** *Goal setting and project management reinforce the positive relationship between standardization and customer satisfaction.*

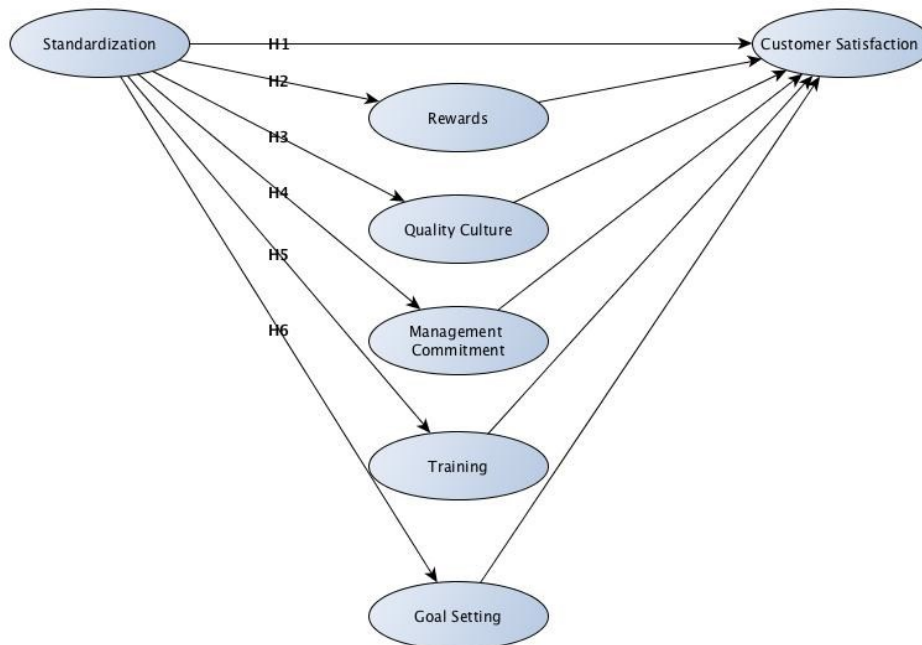


Fig. 1. Conceptual framework of the standardization – customer satisfaction relationship



Table 1. Evidence of selected items and constructs

Construct	Item Description	Supporting References
<i>Independent Variable</i>		
<b>Standardization</b>	Development of the Standard Operating Procedures for all Processes.	Peng, Schroeder, Shah, 2008; Pont et al., 2009; Taylor, Taylor, Mc Sweeney, 2013; Urgan, 2006
	Standardization of processes between served clients.	Anand et al., 2009; Gonzalez, Martins, 2016; Liker, Morgan, 2006
	Use of the Best Practices to standardize processes.	Chakravorty, 2009; Kaye, Anderson, 1999; Sabella et al., 2014
	Standardization of processes between different departments with similar operations of the organization.	Deming, 1993; Kim et al., 2012; Liker, Morgan, 2006; Powell, 1995; Swartling, Olausson, 2011
<i>Mediators</i>		
<b>Employee Rewards and Recognition</b>	Establishment of an effective recognition and reward system to stimulate employee participation in improvement initiatives.	Bessant, Francis, 1999; Deming, 1993; Dow et al., 1999; Nair, Malhotra, Ahire, 2011; Yang et al., 2014
<b>Quality Culture</b>	Strong corporate culture oriented on quality and customer satisfaction.	Bortolotti et al., 2015; Calvo-Mora et al., 2013; Dow et al., 1999; Gonzalez, Martins, 2016; Habtoor, 2016; Jayanth, Xu, 2016; Sabella et al., 2014
<b>Management Commitment</b>	Participation of management in improvement events.	Anand, Chhajed, Delfin, 2012; Bortolotti et al., 2015; Calvo-Mora et al., 2013
	Regular communication from management about CI.	Habtoor, 2016; Nair et al., 2011; Powell, 1995; Samson, Terziowski, 1999
<b>Training and development</b>	Proper training in improvement methodologies and tools for employees.	Bortolotti et al., 2015; Dow et al., 1999; Habtoor, 2016; Jayanth, Xu, 2016; Laux, Johnson, Cada, 2015; Pont et al., 2009; Yang et al., 2014; Zeng et al., 2013
<b>Goal Setting</b>	Development of a system of goals for improvement projects that focuses on customer needs.	Anand et al., 2009; Calvo-Mora et al., 2013; Galeazzo et al., 2016; Kaynak, 2003; Sabella et al., 2014
<i>Outcome Variable</i>		
<b>Customer Satisfaction</b>	Change in customer satisfaction (measured through the customer satisfaction survey before and after an improvement project).	Anderson et al., 1995; Deming, 1993; Imai, 1986; Jayanth, Xu, 2016; Piercy, Rich, 2009

#### 4. CONCLUSIONS

The proposed study contributes to the scarce field of process standardization and the practices that can further facilitate the outcome of process standardization. The quality of operations and customer satisfaction depend on customer perception; thus, organizations need to compromise between excessive customization and standardization to sustain their competitiveness. The study also contributes to the scant research on the factors impacting the standardization – customer satisfaction relationship. An alternative view on the factors impacting the effectiveness of standardization is proposed. The research proposes to consider process standardization as an integral part of continuous improvement and to study the impact of the factors that are proven to foster the effectiveness of continuous improvement on process standardization. Previous studies have overlooked the opportunity to study the impact of these practices on the process standardization – customer satisfaction relationship, and the proposed study fills this gap by proposing a conceptual framework.

The proposed framework has the potential for further academic work to drive knowledge on process standardization forward. The framework builds upon previous research and the methodological approaches taken from operations management literature. Based on the literature review, it is hypothesized that process standardization has a positive impact on customer satisfaction. Further research is needed to investigate whether this claim will remain true with the growing level of standardization, since Afflerbach, Bolsinger, Röglinger (2016) suggest to exercise caution in terms of the intensity and level of standardization: it may be reasonable to standardize processes only to a certain degree to avoid decreasing customer satisfaction. Further, the following factors are identified as the mediators to facilitate the process standardization – customer satisfaction relationship: employee rewards and recognition, management commitment, quality culture, training in the improvement methodology, and goal setting. The process standardization – customer satisfaction framework can be further used for quantitative and qualitative studies, thus contributing to the theoretical advancement of the process standardization field. The proposed framework is one of the few attempts in current literature to place process standardization within the wider context of organizational practices to ensure that the impact of process standardization is not isolated and is an integral part of the wider improvement process.

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## KONCEPCYJNE RAMY ZWIĄZKU MIĘDZY STANDARYZACJĄ PROCESU A ZADOWOLENIEM KLIENTA

### Streszczenie

Organizacje stosują standaryzację procesów, aby zmniejszyć zmienność procesów i zapewnić zadowolenie klientów. Jednak nadmierna standaryzacja może utrudnić konkurencyjność firmy ze względu na brak możliwości zaspokojenia zróżnicowanych potrzeb klientów. Brak jest badań dotyczących wpływu standaryzacji na zadowolenie klienta, a także praktyk organizacyjnych, które mogą potencjalnie wspierać tę relację. Niniejsze badanie

proponuje alternatywne podejście do zrozumienia praktyk, które sprzyjają standaryzacji w organizacjach: badanie opiera się na pojęciu bliskości normalizacji procesu i ciągłego doskonalenia, a ponadto proponuje ramy standaryzacji – relacje satysfakcji klienta w ramach szerszej sieci praktyk organizacyjnych. Niniejsze badanie jest jedną z nielicznych prób w obecnej literaturze, aby ujednoczyć proces normalizacji w ramach szerszego procesu ciągłego doskonalenia w organizacji, a zatem stanowi teoretyczny wkład w rozwój niewielkiej dziedziny wiedzy dotyczącej standaryzacji procesu.

**Słowa kluczowe:** standaryzacja, zadowolenie klienta, ciągłe doskonalenie