Abstract

Companies use system consolidation and process standardization to address various challenges, including high support costs (HR, finance, IT); lack of standardized systems, limited technological transformation; hampered access to management information due to inadequate business information and business intelligence tools; increased competition and globalization; mergers and acquisitions; and the need to comply with legislation at optimal costs. For these reasons, companies with dispersed locations, non-standardized processes, redundant processes, limited access to technology and rising support costs increasingly adopt the requirement of the subsidiarity principle, fractal systems and strategic business units, namely adaptability, consolidation and standardization. Similarly to the lean manufacturing philosophy, strategic business units translate into increased efficiency and effectiveness, including integrated procurement, economies of scale, best practice process, technological benefits, and enhanced customer service. The current paper is aimed to explore the connection between process standardization, system consolidation, lean manufacturing and the economic sustainability of an organization.

Keywords: lean manufacturing, fractal systems, strategic business units, shared service centers, subsidiarity, system consolidation, process standardization, centralization, sustainability

Research Proposal

Introduction

Entities that share services are often complex in the organizational structures, processes and operational environment. They are likely to have complex system's landscape because of their structural formation. For instance, mergers and acquisitions induce operational complexity due to the consolidation of unique systems and standardization of different processes (Ballard & Tommelein, 2012). However, the key objectives of strategic business units that are molded to deliver cost savings, process enhancements, as well as improved visibility of quality and data include system consolidation and process standardization (Deloitte, 2015). Despite the limitations in the current business industry, strategic business units continue to standardize their processes and consolidate their systems to guarantee sustainability in the future (Nenning & Heppelmann, 2013). Entities that are looking forward to invest in back office transformation initiatives such as outsourcing, corporate performance management, shared services center (SSC), business intelligence, upgraded purchasing and finance system for future sustainability must consolidate their systems and standardize their processes (Miller, Pawloski, & Standridge, 2010). Regardless of the adopted business model, the key principles surrounding lean manufacturing in the increasingly competitive global market remain the same: automation, consolidation and standardization. In line with this reasoning, the current paper will explore the impact of consolidation and standardization of common function services in large entities on the improvement of an organization's market sustainability.

Background of the Research

To outline the background of this research proposal, it is important to highlight challenges, imperatives, initiatives and innovations experienced in the previous decade regarding process standardization and system consolidation. Market conditions continue to

challenge companies in terms of financial austerity, while simultaneously having a positive impact on the environment and society in which they operate (Deloitte, 2015; Longoni, 2014). These challenges lead to imperatives, including cost reduction, increased production with fewer resources, adding value, and most importantly service improvement. Cost reduction entails elimination of waste, collaboration, standardization, automation and rationalization (Corbett, 2011). Having more with less involves efficiency, consolidation and standardization. As a result, these imperatives have been considered in various initiatives including information management, system upgrades, best practices, lean manufacturing, Just-in-Time (JIT), outsourcing, and shared services. Being associated with Japanese strategic management techniques, lean manufacturing is basically a Westernized version of JIT production and continuous improvement or Japanese *Kaizen* (Alsmadi, Almani, & Jerisat, 2012; Alukal & Manos, 2006). Lean manufacturing involves measuring and reducing inventory while streamlining the production. Lean manufacturing philosophy also entails using much less resources, including space, workers and inventory than would be used in the traditional mass-production systems to generate comparable output (Stump & Badurdeen, 2012).

Statement of the Problem

Lean philosophy has been recognized as a competitive tool that results in improved operational and economic performance. The impact of this philosophy on the triple bottom line (TBL) is contradictory. Apart from the improved economic sustainability, both positive and negative effects on social and environmental sustainability have been reported, while literature points to potential synergies between social and environmental programs (Jackson, Boswell, & Davis, 2011; Stenzel, 2010). The issue of lean manufacturing effects on the economic sustainability of an entity is not limited to the business environment, for instance, groups of academics and practitioners discuss human resource, safety and environmental

issues in the context of lean manufacturing, including, lean business and Lean Six Sigma on social networking sites (Akbulut-Bailey, Motwani, & Smedley, 2012; Campos, 2013). Additionally, the issue is present in discussions on employee well-being (Alagaraja & Egan, 2013), and the most current topical issue of environmental sustainability, as in Lean and Green Supply Chain (Agus & Shukri Hajinoor, 2012; Leonard, 2013). The fact that the concept of lean manufacturing is extensively applicable in business area and other fields warrants further discussion and research on its significance for the economic sustainability of entities that consolidate their systems, especially through mergers and acquisitions.

Despite the extensive research and implementation of the lean manufacturing principles in various disciplines, there is limited literature and guidance on how entities can stay relevant in their market longer than under traditional structure after adopting lean manufacturing practices. Furthermore, there is also a gap in literature regarding the period of time it takes for a merger or a large-scale consolidation to continue being relevant in a given market. For this reason, it is justifiable to conduct an empirical research regarding the impact of the adoption of the lean manufacturing philosophy on the sustainability of an entity in a market after system consolidation. The proposed research will redress the imbalance in literature regarding the economics of lean manufacturing, albeit from an empirical perspective. Additionally, the study will enlarge the pool of lean manufacturing literature by providing new insights through well-grounded theory.

Aims and Objectives of the Research

The central goal of the current research is to explore the connection between process standardization, system consolidation, the adoption of lean manufacturing and economic sustainability of an organization. This aim will be addressed by means of the following objectives:

1. To establish how long an organization continues to be economically relevant within its market after consolidation of systems or adoption of lean manufacturing philosophy.
2. To determine the impact of adopting the lean manufacturing philosophy on the organization's economic relevance.

Research Questions

1. How long does an entity continue to be relevant in the market after a merger or consolidation?
2. Do organizations that adopt lean manufacturing philosophy stay relevant in their market longer than traditionally structured organizations?

Overview of Methodology and Data Collection

The selection of the most appropriate methodological approaches to a study is largely determined by the suitability of the research method for meeting the research objectives. Additionally, the choice of the research method is also based on the nature of the study (Babbie, 2010). Some of the forms of a research study include analytical, descriptive, exploratory and predictive (Cozby, 2012). In regard with methodological choices, the researcher will use a multi-qualitative approach to gather and analyze data. With the use of a qualitative research design, various strategies of inquiry will be applied (Creswell, 2013). This proposed research will be chiefly exploratory, implying that it will seek to explore the connections between the lean manufacturing practices and the economic sustainability of a company. This requires the investigation of market trends and assessment of subthemes under the research topic to have a broadened understanding of the issue. According to Saunders, Lewis, and Thornhill (2007), exploratory studies are flexible to cater for any unpredictable changes regarding the direction of the research in the event that new data emerges. The research topic is suitable for the description of exploratory scenarios. Therefore, the study

will focus on the literature-based research design. This approach enables a researcher to collect and analyze data from the existing literature. In the same context, both traditional and systematic review options of the literature-based research method will be used (Creswell, 2013). That is to say, both methodological and narrative perspectives will be applied. This will involve looking for relevant resources and analyzing the collected information.

The research will also integrate the concepts of problem formulation, exploration of the existing literature and an extensive analysis of both primary and secondary data regarding the impact of lean manufacturing process on the economic sustainability of a company. The qualitative approach will also focus on the qualities of meanings and processes that cannot be quantified numerically. Various qualitative approaches will be used for this study, including participant observation, interviewing, ground theory and case study (Silverman, 2006). Grounded theory and case study are suitable approaches because the researcher will explore the activities, processes and events related to the impact of lean manufacturing philosophy on the economic sustainability of a company. Due to the fact that the proposed research is qualitative in nature, the archival research strategy will be used for secondary research. In other words, data resources or archives that have been documented by other academicians or practitioners in relation to the research topic will be used. Archival research is attainable because information regarding the research questions is readily available. Furthermore, archival research has various unique advantages for the proposed study. For example, archival resources contain primary data, which relieves the researcher from the necessity to conduct a time intensive collection of primary data. The other advantage of this approach is that it will eliminate concerns attached to institutional review. However, the researcher will have to choose the data carefully to ensure that only the appropriate information is included in the review. This is important because archival resources are vast and the researcher must

narrow them down to only relevant sources. Finally, the research questions can be addressed through an exploratory study entailing qualitative data collection and analysis.

Literature Review

From the onset of the 20th century, entities were organized as rigid structures, in which operations were managed by a strict monitoring of the performance of individuals assigned with tasks. Fortunately, modern organizations have been changed and are much more flexible, as employees have a greater scope for empowerment and take responsibility for their actions (Nenning & Heppelmann, 2013). Empowerment, delegation and decentralization are now relatively common for most entities. As opposed to the traditional rigid and centralized organization, the management in decentralized systems consciously distributes authority between the lower levels (Deloitte, 2015). Empowerment means that employees are able to be more involved in their jobs as they are engaged in decision making processes, while delegation implies that the management assigns part of their power and work to other employees. In line with lean management, the implementation of these concepts induces efficiency, which is often mirrored in the bottom line. Ethically, these best practices have affinity with some of the requirements of lean management, fractal systems and the principle of subsidiarity

The Principle-Agent Problem and Sustainable Business

The principle-agent problem emerges when an entity (agent) agrees to work in favor of another entity (principle) in line with some incentives (Shah, 2014). Typically, such arrangements may result in heavy costs for the agent, which might lead to conflict of interest and problems of moral hazard. Due to the incurred costs, the agent might purse self-interest and ignore the primary interest of the principle; thus, resulting in the principle agent problem. A sustainable business needs to have a trustworthy reputation of both individuals and the industry. This reputation requires lean management and effective leadership to align interests

for economic benefits to be achieved. By finding adaptive ways of cultivating an ethical culture in organizations, leaders can shape a sound financial future for their companies (Shah, 2014). Moral hazards and conflicts of interest can be addressed with the help of systems that evolve historically, such as fractal systems which are improved based on experience.

Fractal Systems

In contrast to the traditional linear systems, fractal systems are complex, interactive and non-linear systems that have the capacity to rapidly adapt to the dynamic environment. Such systems evolve by means of self-organization and the transformation of models in the internal environment. Similarly to subsidiarity, semi-autonomous agents or business units interact according to some predefined rules of the interaction, evolving to optimize certain measures like profitability and quality (Nenning & Heppelmann, 2013). The business units are diverse in both capability and form. They adapt to market dynamics by changing their rules, and eventually the behavior as they gain experience. These traits are prevalent in SSCs which are essentially decentralized and adaptable business units. Their adaptability can either increase or decrease based on the rules shaping their connection with the holding unit. In line with the empowerment and subsidiarity philosophy, fractal systems have a great potential of creativity because they promote human interaction and uphold professional ethics.

The Principle of Subsidiarity and Lean Organization

According to Nenning & Heppelmann (2013), to establish lean organizations and services, three rules should be considered. Firstly, the holding company must focus on supervisory functions to become stronger and sleeker. Secondly, the interactions between the strategic business units and the holding company must be structured to enable the former adopt entrepreneurial duty with top-down delegation of directorial services. This should be in line with the subsidiarity principle which holds that a larger entity (holding company) should not exercise functions that can be carried out efficiently by one strategic business unit.

Instead, the holding company should support the business unit and the coordination of its activities with the activities in its environment. Lastly, expertise-based function should be managed on all organizational levels. Figure 1 illustrates Nenning and Heppelmann's conceptual model of a lean organization.

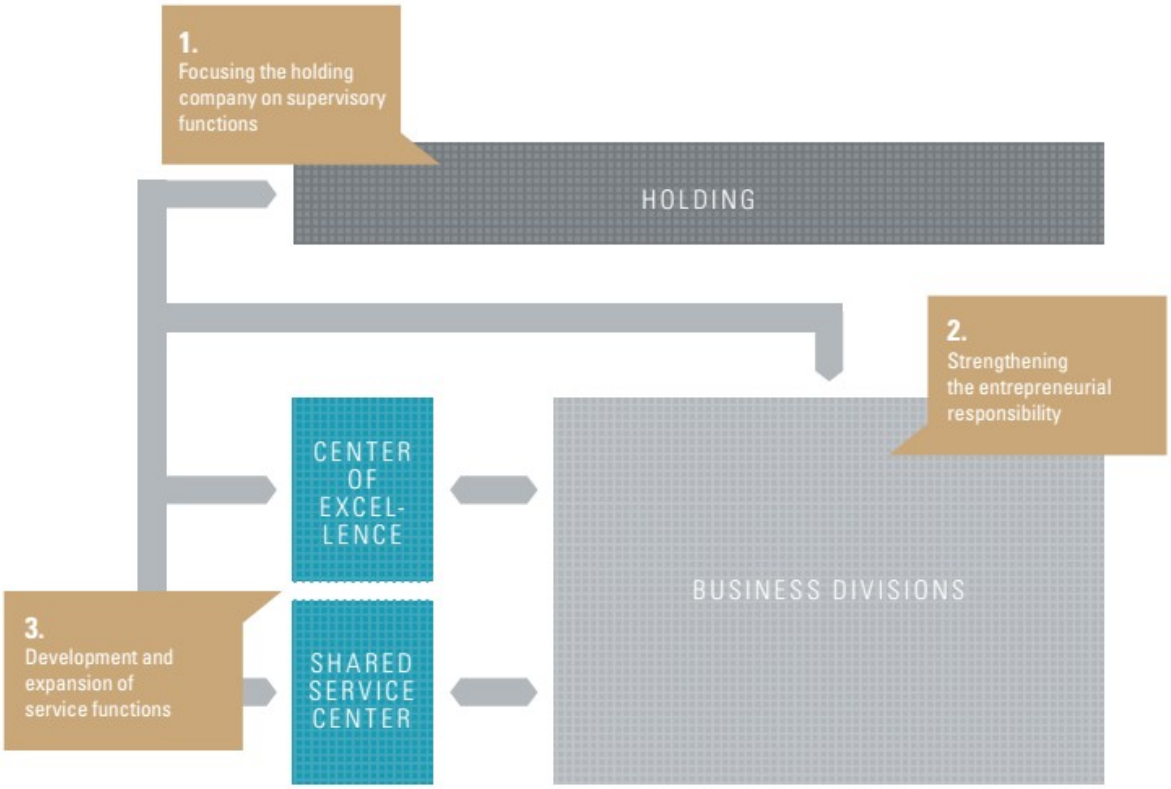

Figure 1. Conceptual objective of lean organization (Nenning & Heppelmann, 2013).

Process Standardization and System Consolidation

Since the mid-1980s, large entities have been standardizing processes and consolidating their systems to develop shared service centers, but there is still a growing interest in this strategic initiative, which is used to secure economic sustainability of a company (Deloitte, 2015). Shared service centers are an apt example of the variation of the lean manufacturing philosophy, which is focused on cost reduction and continuous improvement (Nenning & Heppelmann, 2013). The growing interest in lean practices is related to the acknowledgement of the strategic value of consolidating systems and standardizing processes (Ahmad, Zakuan, Jusoh, & Takala, 2012). In the same line, the

implementation of strategic business units is also motivated by the fact that they help companies reduce their operational costs, enhance service levels and improve controls. According to Deloitte (2015), companies such as Baxter Healthcare and General Electric successfully applied the SSC concept in the 1980s. Other companies that have consolidated their systems and standardized operations include Ford, Intel, Pfizer & Gamble, Oracle, BP, Shell allergen and Whirlpool. In fact, these companies have sustained their competitive advantages for more than 10 years due the implementation of the shared service concept (Deloitte, 2015; Jones, 2013). It is imperative to understand how system consolidation and process standardization differs from centralization. Table 1 summarizes the differences between strategic business units and centralization.

Table 1.

Differences between Traditional Structures and Lean-based Configuration

Attribute	**Centralization/Holding Company(Traditional)**	**Strategic Business Units (Lean Management)**
Key performance target	Central control and cost reduction	Continuous improvement and cost reduction
Accountability and orientation	Corporate	Business units
Run by	An accountant	An entrepreneur
Likely location	Corporate	Neutral (independent from corporate business unit)

Economic Sustainability and Subsidiarity

Practitioners and academics in the realm of business management become increasingly aware of the connection between business operations and sustainability (Longoni, 2014; Tenescu & Teodorescu, 2014). An organization's operations function is its core functional unit being responsible for the production and delivery of products or services (Kumar & Suresh, 2009). The driving forces behind the growing significance of sustainability

in operations management include legal or regulatory obligation; perceived marketing benefits (Agus & Shukri Hajinoor, 2012; Hasle, Bojesen, Jensen, & Bramming, 2012); demands from investors calling for long-term reliability; internal ethical values; environmentalists' demand to limit the human impact on third parties and the environment (Longoni, 2014); and finally, the competitive pressure emanating from the acknowledgment of the cost advantages associated with minimizing energy consumption, waste production and over-utilization of materials and the resulting economic benefits of green behavior (Dües, Tan, & Lim, 2013; Lindgreen & Swaen, 2010). To pursue economic, social and environmental goals, operations departments are increasingly investing more in innovative technologies and effective business models. One of the areas that continue to attract attention is the adoption lean management principles in operations management. The following subsection sheds more light on this concept by reviewing its application and impact on the sustainability of an organization.

Lean Manufacturing Philosophy

Lean manufacturing originates from the Japanese culture (Dominici & Palumbo, 2013). Due to scarcity of economic resources, the Japanese have been culturally cautious to manage the allocation and utilization of resources, including labor, space and time. In this regard, it has been a strategic initiative to maximize yield from the scarce resources (Antony, 2011). Further, the Japanese tried to sustain the best possible human relations and avoid conflicts. This culture forms the tenets of lean management that entail waste minimization, respect for all workers and continuous improvement (Ahmad et al., 2012). In addition, the ethical aspects of lean management are aimed at eliminating conflicts of interest and moral hazards induced by the principle-agent problem (Shah, 2014). The concept was developed in Japan by Toyota Motor Corporation. Rooted to Toyota, lean management is synonymous to efficiently organized processes (Nenning & Heppelmann, 2013). As highlighted before, the

philosophy emphasizes the avoidance of waste in systems and processes. Therefore, significant attention is paid to the identification and finding solution to the problems that might result in any kind of waste (Furlan, Vinelli, & Dal Pont, 2011). Additionally, operations have been improved continuously to eliminate waste and increase productivity. It is in line with these measures that Toyota managed to reduce the time needed for manufacturing a car. This is a good example of both technical efficiency and operational sustainability.

Logically, achievement of positive effects on technical efficiency of a production process or system requires innovative technical means of production. Typically, improvements include methodological and technological transformations (Miller et al., 2010). That is to say, an entity needs to upgrade or use new technologies in its production to obtain the best output from the available inputs. Lean manufacturing philosophy plays a vital role here because lean tools and techniques are designed to reduce or rather eliminate redundant activities and wastes, which prevent a system or process from bringing the maximum output (Cottyn, Van Landeghem, Stockman, & Derammelaere, 2011). Essentially, economic sustainability is a strategic concept that is used to determine the business a company should invest in; the amount of financial resources that should be allocated to a project; the resources and capabilities needed to serve customers; the organizational structures and business models that should be implemented in subsidiaries; the time and money that should be used to improve human resource development among others (Stone, 2012). These and other strategic questions determine not only how a company will allocate its resources, but also how the company will sustain its competitive advantage.

Since early 1990s, lean manufacturing has been adopted by many companies seeking to improve quality, increase efficiency and reduce costs. Academic literature on the financial benefits of lean manufacturing presents mixed results, which are contradictory in terms of

benefits. According to Jones (2013), the sustainability of lean manufacturing is a competitive advantage. The author emphasized that a positive correlation exists between return on assets and return on inventory, which serves as metrics of leanness for an organization (Jones, 2013). Therefore, companies must strive to identify areas that need fine-tuning to improve quality and output, which in turn serves as a competitive advantage. The changing business environment requires more adaptable and responsive processes and systems (ElMaraghy, 2012). ElMaraghy (2012) points that economic sustainability and manufacturing competitiveness can be facilitated by advances in system design, evaluation, control and planning, as well as evolving paradigms such as changeability, mass customization, flexibility and configurability. This observation confirms the assumptions reflected in the work of Corbett (2011) which indicates that lean management contributes to business excellence. In Jones' (2013) study, 45% of the sampled companies reported that they have a competitive advantage attributed to leanness. In the same context, 60% of the sampled companies demonstrated that they had a steady economic sustainability for over a decade. To conclude, standardization, consolidation and lean manufacturing have a positive impact on the economic sustainability of an organization.

Conclusion

The above proposal reviewed the connection between the adoption of the lean manufacturing and the sustainability of companies that transform their traditional systems to the contemporary consolidated systems. It still needs to be explored how companies can adopt and manage lean practices through consolidation of systems in order take advantage of the synergy and improve their operational sustainability. In the present globalised economy, companies face massive pressure in an attempt to sustain their competitive advantage and optimize profitability. Companies of all sizes and from different sectors can build and sustain their competitive advantage by adopting sustainable development practices and principles,

including lean manufacturing and strategies that catalyze convergence between sustainability and profitability. Finally, companies can gain competitive advantage and synergies through process standardization and system consolidation.