Organizational Transformation: Strategic Application of Lean Six Sigma for High Performance

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ABSTRACT

This paper sets forward a model for the strategic implementation of Lean Six Sigma to maximize financial gain. This paper is designed to circumvent challenges to implementation and effectiveness in Lean Six Sigma through the emphasis on strategic implementation and discussion of pursuant benefits. As new industries standardize Lean Six Sigma as a preferred methodology of organizational improvement, scholarship examining case studies and contextual challenges and methodological adaptations have emerged. This scholarship mainly focuses on change management and organizational improvement highlighting the challenges and processes of combined Lean Six Sigma implementation. This paper devises an alternative strategy that will realize the benefits of Lean Six Sigma. Improvement Projects must be strategically selected based on management practices involving strategy, metrics, and process management. Improvement needs to be driven by leadership and strategy using key metrics to drive decisions on improvement. A more specific understanding of leadership from the perspective of the Excellence Model and the principles of Deming can be developed through analytical scholarship.

Keywords: Lean six sigma; organizational excellence; organizational transformation; high performance organizations.

INTRODUCTION

Lean Six Sigma is an improvement methodology for business and organizational excellence that has gained widespread acceptance since the late 1990s. Businesses still fail to take advantage of potential for Lean Six Sigma to deliver transformation and financial gains. This article proposes that the potential of Lean Six Sigma is best achieved in the implementation of the strategy for strategic, rather than merely operational, gains. Organizational Improvement, or the enterprise wide implementation of Lean Six Sigma, benefits business most when founded on a more strategic view of the priorities for improvement based on an understanding of the performance characteristics of the value stream elements that bring the intended strategy to life. Leaders encouraging the development of such models that clarify performance characteristics and operationally defines strategy are in a better position to design process, set measures and assess priorities for improvement. Whilst financial and operational benefits have been widely reported using Lean Six Sigma, improvement activities within organizations can remain at a small scale tactical level without a coherent intent to progress the strategies of an organization within core value streams serving markets. This more strategic approach to improvement clearly argues that seeing Organizational Improvement or Lean Six Sigma as a core element of the broader Business Excellence philosophy will allow businesses a more strategic and sustainable implementation that delivers measurable improvement for an organization. This paper engages with the need for surrounding organizational culture and implementation approaches to critically implement Lean Six Sigma to maximize financial gains. Success of the business improvement strategy is increased when an engaged, dynamic approach is taken to implementation.
This paper first sets out the model of Lean Six Sigma in the context of Organizational Excellence to contextualize the argument for strategic implementation. This is expanded in a brief overview of the emergence of Lean Six Sigma and a discussion of the barriers that arise in implementation. These barriers are what challenge businesses and prevent Lean Six Sigma being a completely universal application, and as such, the paper delves further into these. The case for a model of strategic implementation is made through the exploration of Lean Six Sigma as a philosophy and discussion of the theory itself. In addition, a process to create the models and apply this approach in planning for improvement in a more strategic fashion is provided. This paper is designed to develop business knowledge of not only the tenets of Lean Six Sigma but also the potential for greater financial gain with careful, planned and organization-specific implementation.

EMERGENCE AND IMPACT OF LEAN SIX SIGMA

The current culture of focus on organizational improvement methodologies emerged out of the Total Quality Management (TQM) philosophy during the 1970’s and 1980’s and continued as TQM evolved into the Business or Organizational Excellence Models. Continuous Improvement was a core element in all of the world wide Organizational Excellence models. Various models emerged but by the late 1990’s Lean Six Sigma were accepted as the most effective improvement methodology. Edwards Deming (1986; 1994) largely identified a theory to explain sustainable high performance for organizations. He discussed in detail a set of management principles known as "Profound Knowledge" and threats to practice called "Diseases and Obstacles" (Deming 1982; 1994). Deming's System of Profound Knowledge that has greatly influenced the development of the Excellence Frameworks worldwide consists of four interrelated parts: appreciation for a system; understanding of variation; theory of knowledge; and psychology. The set of principles and diagram have been expanded to include Deming’s emphasis on understanding customers and markets. The importance of including this original information, regarded as formative in the creation of Lean Six Sigma and certainly integral to the culture of Organizational Excellence, is to establish the unique approach offered by strategic implementation.

These principles are core to the management philosophy underlying the whole approach to Organizational Improvement and Excellence:

1. Understand the Market (or Customer) - Outside In Thinking
   Knowing what customers value impacts improvement design and action
2. Appreciation of a System – Systems Thinking
   Understanding the system of work and their interdependencies influences the understanding of root causes of problems as well as the design of solutions
3. Understanding Variation – Statistical Thinking
   Understanding and reducing variation are the keys to success. Learning what are the major drivers of variation and then introducing changes that impact these drivers is key. The only way to demonstrate that change is an improvement is through the shift in the pattern of variation of performance.
4. Theory of Knowledge
   Improvement comes from learning (plan-do-study-act) about a current situation, the key drivers that explain poor performance and the solutions that are effective in improving performance.
5. Psychology
   All people work in a system. Outcomes are improved when people who are affected by the changes are engaged to work on the system. Encouraging cross functional team work becomes paramount.
Deming’s writing elaborated his thinking about ‘Profound Knowledge’, the points for management and the obstacles to the philosophy. He reiterated the importance of understanding customers and markets as part of the successful organizational management system. This was being emphasized at a time when this was not at the forefront of management thinking. He amplified his ideas on Leadership and the Management of People (Deming, 1994) placing emphasis on valuing learning and using Learning Cycles to drive improvement as well as providing a practical way to learn using the action learning model. His constant statement reflecting one of his key principles was "There is no substitute for knowledge." He continued to advocate his theory as a means of transforming the world's leadership and management practices. This is the work that influenced the establishment of the Business or Organizational Excellence Frameworks and ignited the drive for organizational improvement capability and demonstrated performance.

Every framework (e.g., Australian (2011), Baldrige (2015 – USA Based), EFQM (2013, European Based)) emphasized the creation and application of improvement capability within an organization. This implied the development and application of a model for improvement that was project or work based. Many approaches to organizational improvement also seen as process improvement were promoted across the world. These were applied and modified by organizations to suit themselves (Evans and Lindsay 2014).

The late 1990’s saw the popularity of a methodology for improvement labelled Six Sigma borne out of the observation of the application of the Excellence Framework by Motorola and the subsequent application by more organizations, particularly General Electric (Mandell 1999). The Six Sigma approach became very popular. Simultaneously, the interest in the work of Toyota grew as a means of understanding the basis of their success in terms of the quality of their products, capturing market share and being a great financial success. This led to an emphasis on Lean thinking as underpinning improvement. The spread of Business or Organizational Excellence Frameworks for many nations around the world from the late 1980’s onward continued to focus attention on the notion of capability to drive
improvement within an organization in order to achieve high levels of performance. The development of these frameworks was stimulated by the key ideas, models and principles of Deming. A generic model showing the major elements of the framework or philosophy is shown below.

![Figure 2: Major Elements of the Organizational Excellence Models](image)

Source: Authors’ own compilation

The model shown (Figure 2) provides a view of the major elements of the Organizational or Business Excellence Frameworks. The drivers of Excellence are seen as the areas of Leadership and Customer Focus. Strategy, Information and People are seen as enablers of Excellence. These processes are the core impetus for the creation of excellence, initiating the delivery of high levels of performance against a balanced set of indicators. Each of these areas is broken down into key performance systems within an organization. These vary across the frameworks of the world. However, there is great consistency in models used.

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Despite initial tensions over which constituted a better model of organizational improvement, it became apparent that the synergy of both methodologies offered organizational practitioners a more powerful tool set. Lean methodology encouraged businesses to examine the factors inhibiting the flow of work in terms of the degree of non-value add work or waste. In this way, the methodology encouraged a holistic view in order to optimize value streams. Six Sigma, a statistical-based methodology, focused on reducing the mistakes made in the work produced for internal or external customers - the most costly form of waste. Applying both methodologies provided a more valuable and comprehensive improvement.
framework. Six Sigma and Lean both distinctly reflected the roots of the continuous improvement history (Sunder, 2013). Lean Six Sigma and the application of Define, Measure, Analyse, Improve and Control (DMAIC – see Figure 3) as a phased model for guiding improvement project work became de rigueur (Pepper and Spedding, 2010; Snee, 2010; Antony 2011).

![Figure 3: DMAIC Model](image)

*Source: Authors’ own compilation*

Great emphasis was placed on creating and applying improvement capability within the organisation if it aspired towards high levels of performance. The popularity of the methodology for improvement was enhanced by the widespread reporting of the benefits of its application particularly in financial terms. Antony and Banuelas (2002) reported that 75% of the companies they studied had gained benefits in the order of a US$1 billion or more. They reported the impact for Motorola (1987-1994), General Electric (1995-1998) and Allied Signal (1992-1996). Their findings showed that Lean Six Sigma accentuated financial returns to the balance sheet of an organization. In 1999, General Electric Company spent over half a billion in Six Sigma initiatives and received over US$ two billion in benefits for the fiscal year (Linderman et al. 2002). This focus on achieving both productivity and financial benefits continued to drive a worldwide interest in the field.

As stated earlier, a set of key principles or premises underpin thinking on organizational excellence and also Lean Six Sigma as model of organizational improvement. Deming in his writing and teaching focused on the idea of quality meaning delivering what the market wanted at a price they would pay but in a dependable and predictable way. In essence the argument is that ‘Sustainable High Performance’ for an organization stems from the application of the principles of Deming’s Profound Knowledge and Practices that underpin Business Excellence or Improvement. The combination of these leadership modelled practices creates the essence of strategic thinking and execution for any organization.
OVERCOMING CHALLENGES TO IMPLEMENTATION

Sustainable High Performance’ is the acquisition of a deep understanding of the needs of the market (customer) and then designing a value stream to deliver the desired experience. Articulating and communicating this strategic view helps engage all in the value stream with the intentional vision. Executing and operating this design so that the value stream performed for the market in a reliable, dependable and efficient way would place any organization in a very strong competitive and sustainable position. Imagine a sporting team where individuals or subgroups interpreted what they had to do on the field of play or during a competition independently of one another! All groups in the Value Stream would have access to ‘The blueprint’ – engaging with it and using it to guide alignment and across teamwork. Leaders would work hard to drive execution to the design and to ensure organizational elements don’t drag teams away from an aligned and integrated strategy. In other words, leaders would not leave it to chance that different groups would be in synch but would clearly define critical points of fit and interdependence. This would influence organizational activity from planning and communication to goal setting and performance measurement. In essence, the strategy here is calling out how the whole should function and the critical interdependencies that need to be achieved – the strategic themes.

Figure 4: Drivers of Sustainable High Performance

Source: Authors’ own compilation

In the complex world of organizations, perfect execution to a design or strategy is unlikely. Many external and internal factors influence performance in a value stream driving a lack of predictability and dependability and increasing waste and costs. There will always be a gap between the design – the ideal and the current situation. Improving the organization by learning why things are happening and then making changes that are a measurable improvement to close the gaps is a key aspect of Deming’s approach. He outlined a chain reaction where reducing waste and rework would improve productivity, increase value added work, reduce non value add work (wasteful and slow practices) and so reduce costs and improve quality – win more of the market share.
Leaders need to diagnose the critical gaps in their intended design and apply the talents and energies of the organization to close the gaps. You cannot fix everything. Random fixes don’t deliver the key shifts for the organization. Instead the regular collaborative analysis of the value stream performance helps create a program for improvement which needs to be deployed on a regular basis. So leaders need to demonstrate strategic learning by improving governance so as to achieve organizational improvement. This process will never go away. The organization will always be changing, adapting, improving. Organizations that can identify their strategic and operational priorities for improvement and carry them out are likely to sustain high levels of performance (represented in Figure 5 below).

![Design, Manage, Improve Value Streams](image)

**Figure 5: Interdependence of Organizational Excellence and Improvement**  
*Source: Authors' own compilation*

It follows that a widespread disciplined approach to closing critical gaps becomes a key competency for all organisations. Here lies the science of improvement. As thinking has evolved in the world of organisational improvement through the application of Deming’s ideas and those of others, the concepts and methodologies of Lean Six Sigma has become very popular. Continuous improvement was an imperative for the natural way of operating for any high performance organisation. It had to be part of the DNA for sustainable high performance to emerge. For Deming the valuing of learning and knowledge (Theory of Knowledge principle) and people (Psychology principle) are instrumental for creating a high performance organisation. For him it was releasing the talents of the working teams in the organisation so that people were not prisoners of their work systems but worked on improving their work systems. This needed a common disciplined approach that all could learn and practice and therefore establish a culture of improvement.
CONCLUSION

Isolated improvement projects initiated in different parts of the organization and supported in only some areas of an organization does not add up to an effective organizational improvement campaign that delivers results in the critical areas of the business. Improvement Projects must be strategically selected based on management practices involving strategy, metrics, and process management. Improvement needs to be driven by leadership and strategy using key metrics to drive decisions on improvement. A more specific understanding of leadership from the perspective of the Excellence Model and the principles of Deming can be developed. Various writers have sought to identify the leadership response or practices that are congruent with Deming’s principles and the overall management philosophy underpinning the science of improvement. Leadership is necessary for the promotion and support of a Lean Six Sigma program. Many of the texts that write about creating a culture for Lean Six Sigma are describing fundamental management practices embedded in the Business Excellence Frameworks. The term Lean Six Sigma can refer to a whole of organization strategy to create a culture of improvement and drive high levels of performance.

REFERENCES

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