Organisational Excellence as a key Driver in Achieving Organisational Learning

by

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DECLARATION:

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Date: March 2012

OPSOMMING

Volatiliteit, globalisering, turbulensie en konstante verandering is ‘n uitdaging waarmee die sake-omgewing deesdae te doen kry. Baie strategieë is voorgestel en getoets deur maatskappye ten einde by te bly in die onvoorspelbare sake-wêreld. In hierdie tesis word ‘n projek wat in ‘n anonieme Suid-Afrikaanse maatskappy (The Company) uitgevoer is om op die uitdagings te reageer, by wyse van ‘n dryf na operasionele uitnemendheid, geanaliseer en geëvalueer aan die hand van die mate waarin sodanige aksies organisatoriese leer bevorder het.

The Company het ‘n projek geloods waarin Lean Manufacturing, Six Sigma en Clear Leadership Engagement gekombineer is op soek na operasionele uitnemendheid.

In Hoofstuk 1 word die konteks uiteengesit en die navorsingsvraag geformuleer as die vraag in watter mate organisatoriese leer deur operasionele uitnemendheid bepaal word.

In Hoofstuk 2 word die kern prosesbegrippe bespreek en gedefinieer. Dit is: *Lean Manufacturing, Six Sigma, Lean Six Sigma* en *Clear Leadership Engagement models.* Die hoofstuk gee ook ’n oorsig oor die hoofpraktyke en tekortkominge van elke model.

Hoofstuk 3 bespreek die konseptuele basis van die navorsing. Dit is die konsepte: Organisatoriese Leer en Lerende Organisasie. Instrumente om te diagnoseer of ’n organisasie leer, word voorgestel, asook ’n model van Organisatoriese Leer wat gebruik sal word om die verband tussen Organisatoriese Leer en Operasionele Uitmuntendheid te bepaal.

Hoofstuk 4 fokus op die projek wat The Company onderneem het. In hierdie hoofstuk word die “reis” na operasionele uitnemendheid beskryf; hoe dit ontstaan het, die rolspelers wat betrokke was en die stappe wat op die reis geneem is.

In Hoofstuk 5 beoordeel die kombinasie van Lean Six Sigma, Lean Manufacturing en die engagement modelle wat deur die Company gebruik is. Die hoofstuk probeer ontrafel wat die motivering vir hierdie kombinasie is en hoe dit in die praktyk uitgewerk het. In die hoofstuk word gepoog om die logika van hierdie ongewone kombinasie te peil. Ander ondernemings het verskillende vorms van verbetering in isolasie geïmplementeer, maar dit is selde dat ’n mens ’n maatskappy vind wat operasionele verbeteringsmetodologieë kombineer met ’n engagement model.

In Hoofstuk 6 kom al die teorieë en empiriese gegewens bymekaar. Dit is in hierdie hoofstuk waar die verhouding tussen die nastrewing van Operasionele Uitnemendheid en Organisatoriese Leer getoets word. Die navorser gebruik die sewe kenmerke van Lerende Organisasies wat tevore geïdentifiseer is om ’n positiewe verband tussen Organisatoriese Leer en Operasionele Uitnemendheid aan te toon.

Uit die navorsing was dit duidelik dat daar ’n positiewe verband is tussen die nastrewing van Operasionele Uitnemendheid en Organisatoriese Leer. Maar, wat die navorsing nie kon beantwoord nie, is die graad of spoed van leer wat met die nastrewing van Operasionele Uitnemendheid verbind kan word, of watter persentasie leer die organisasie oor ’n gegewe tydperk bereik het.

SUMMARY

Volatility, globalisation, turbulence and constant change are some of the challenges facing the business environment today. Companies have proposed and tested many strategies to cope with the unpredictable world of business. In this thesis, a project by an anonymous South African company (The Company) to respond by improving organisational excellence is analysed and evaluated against its success in fostering organisational learning.

The Company initiated a project in which Lean Manufacturing, Six Sigma and Clear Leadership Engagement were combined in search of operational excellence.

In Chapter 1, the context is set out. The research question is formulated as follows: to what extent does organisational learning depend on organisational excellence?

Chapter 2 discusses and defines key process concepts. These are: Lean Manufacturing, Six Sigma, Lean Six Sigma and Clear Leadership Engagement Models. The chapter also outlines the key practices and the shortcomings of each process.

Chapter 3 discusses and defines the conceptual building blocks of the thesis. These are the notions of organisational learning and learning organisation. Tools used to diagnose whether an organisation is learning are introduced together with an Organisational Learning model to be used to assess the relationship between Organisational Learning and Operational Excellence.

Chapter 4 focuses on the project of the Company – the Operational Excellence "journey". How the journey was conceived, the players were involved and steps taken to drive it are described.

In Chapter 5, the combination of Lean Six Sigma, Lean Manufacturing and the engagement models that the Company used, is assessed. The chapter attempts to unravel the reasons behind this combination and determine how this combination worked in practice. It is through this chapter that an attempt is made to explain the logic of this unusual combination. Other businesses have implemented different forms of improvement in isolation, but it is rare to find a company that combines operational improvement methodologies with an engagement model.

In Chapter 6, all the theories and empirical evidence come together. In this chapter, the relationship between Pursuing Operational Excellence (POE) and Organisational Learning is tested. The author uses the seven salient characteristics of learning organisations, distilled by the researcher, to prove the positive relationship between Organisational Learning and Operational Excellence. Through this chapter, the researcher answers the question whether a positive link exists between POE and Organisational Learning.

It was clear from the research that there is indeed a positive link between POE and Organisational Learning. What the research could not determine is the degree or the rate of learning linked to POE, or what percentage of learning the organisation achieved over a period of time.

Acknowledgements

It has been wonderful to explore the Company and examine the journey it has travelled as it Pursued Operational Excellence. I am grateful to have been part of the team and to have been exposed to the journey of Pursuing Operational Excellence (POE), and also linking this journey to its impact on Organisational Learning.

I shall forever be indebted to all the people who availed themselves for interviews and gave their insights, views and interpretation of what POE is and how they experienced the journey of POE.

The research took its toll on my wife and my two boys while I was busy compiling the final document. I would like to thank them for their patience, love and support during this time.

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Glossary

Term	Explanation
5S	A methodology whereby the work environment is standardised, with decisions made as to *what* should be kept, *where* it should be kept, and *how* it should be stored. The term '5S' refers to: 1. ..... sort (arranging tools and equipment in an order that promotes work flow) 2. ..... shine (keep the workplace clean as well as neat) 3. ..... set in order (keep only essential items in the workplace) 4. ..... standardise (operating in a consistent and standardised fashion) 5. ..... sustain (maintain standards)
ANOVA	Analysis of variance is basic statistical technique for analysing experimental data.
BB	Black Belt
BPM	Business Process Management. The professional unit within the Company which consults on process improvement and support
CEO	Chief Executive Officer
CI	Continuous Improvement
CPI	Continuous Process Improvement
CIO	Chief Information Officer
CLE	Clear Leadership Engagement
CODN	Cost of Doing Nothing
CODS	Cost of Doing Something
CSF	Critical Success Factor
DMAIC	Define, Measure, Analyse, Design and Control (Process Phases)
DPMO	The number of defects per million opportunities
DOE	Design of Experiment
FMEA	Failure Mode and Effect Analysis

GB	Green Belt
JIT	Just-in-Time. A system for producing and delivering the right items at the right time in the right amounts to the right place
GDP	Gross Domestic Product
Kaizen	The term comes from Kai, which means change, and Zen, which means good; together they stand for continuous improvement
KPI	Key Performance Indicator
KRA	Key Responsibility Area
Line	Employees (non-managerial) doing administrative work
LSS	Lean Six Sigma
MBB	Master Black Belt
MIS	Management Information System
PEC	Production Environment Centre
POE	Pursuing Operational Excellence
Shop-floor	Production environment
SIPOC	Supplier, Input, Process, Output and Customer
TPM	Total Production Management
TPS	Toyota Production System
TQM	Total Quality Management
Visual Management	A system that makes it easy for employees to know how a system or process is performing and what they are expected to do
VOC	Voice of the customer
VSM	Value Stream Mapping
WIP	Work-in-progress

Chapter One

The Research Question

1.1 Organisational Learning and Operational Excellence

The nature of business internationally and the impact of globalisation has left one wondering how business copes with different working conditions. Of course, the key to the changing environment is the constant changing economic conditions and perpetual diverse political landscape. It is also difficult to ignore the many methods and means that are constantly introduced in the marketplace in an attempt to cope with the constant changing business environment.

Jamali *et al.* argue that 21st century organisations are facing an unprecedented wave of change and a business environment characterised by flux, velocity, turbulence, uncertainty and volatility.[1] Jamali *et al.* contend that modern organisations seem to have little choice but to adapt to the relentless pace of change, or face the risk of extinction. Furthermore, the advent of globalisation, intensifying competition, the proliferation of international global agreements and standards, the ascendancy of knowledge workers and changing lifestyles and expectations has necessitated adjustment and adaptation.[2] Hitt argues that to survive, an organisation must achieve excellence and, by doing so, the organisation will enhance its chances of survival and excellence - two sides of the same coin.[3] Garratt points out that the central idea of action learning is that, for any organism or organisation to survive, its rate of learning must be equal to, or greater than, the rate of change in its environment.[4]

Competitive advantage can be defined as the asymmetry or differential in any firm attribute or factor that allows one firm to serve the customer better than others and hence create improved customer value and achieve superior performance.[5]

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1 Jamali D, Sidani Y and Zouein C. 2009. The learning organisation, 103.

2 Jamali D, Sidani Y and Zouein C. 2009. The learning organisation, 104.

3 Hitt WD. 1995. The learning organisation, 17.

4 Garratt B. 2007. Learning is the Core of Organisational Survival, 38.

5 Ma H. 1999. Creation and pre-emption for competitive advantage, 259.

O'Keeffe contends that the rate at which individuals and organisations learn may become the only sustainable competitive advantage and that current circumstances tell us that learning is no longer a choice, but a necessity.[6] In O'Keeffe's view, only those constituencies, which already possess or develop competitive orientations and company-wide learning initiatives, have the potential to create superior customer value and a competitive advantage.[7]

A competitive advantage arises from the differential among firms along any dimension of firm attributes and characteristics that allow one firm to create a better customer value than others.[8] Generic sources of competitive advantage include ownership of asset or position; access to distribution and supply; as well as proficiency. Here, proficiency is defined as a combination of knowledge, competence and capability.[9] Ma H highlights a number of methods or ways in which a company can obtain a competitive advantage, but the kinetic advantages seem more relevant to the research.[10]

A kinetic advantage allows a firm to actually perform its business activities more effectively or efficiently than rivals.[11] This kind of advantage often features the following capabilities: knowledge and competence; entrepreneurial capabilities – the ability to locate valuable customers and to create or identify new market opportunities; technical capabilities that enhance creativity, efficiency, flexibility, speed, or quality in a firm's business processes; organisational capabilities that help mobilise employees, foster Organisational Learning and facilitate organisational changes; and strategic capabilities that enable the firm to create, integrate and coordinate its multiple streams of knowledge and competencies and reconfigures and redeploys them along changing market opportunities.[12]

Today, organisations face a very competitive environment. This applies to almost all organisations around the world. Being a developing country that faces challenges, such as unemployment, South Africa must be responsive to change – and especially companies that operate in this country.

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6 O'Keeffe T. 2002. Organisational learning: A new perspective, 130-137.

7 O'Keeffe T. 2002. Organisational learning: A new perspective, 130-137.

8 Ma H. 1999. Creation and pre-emption for competitive advantage, 259.

9 Ma H. 1999.Anatomy of competitive advantage, 710.

10 Ma H. 1999.Anatomy of competitive advantage, 710.

11 Ma H. 1999.Anatomy of competitive advantage, 710.

12 Ma H.1999.Anatomy of competitive advantage, 710.

Against this background, the notion of Organisational Learning has become an important aspect of Knowledge Management that involves recognising, generating, documenting and distributing, and transferring between a person's explicit and tacit knowledge to increase organisational effectiveness.[13] It also involves development of a system for collecting and maintaining data, information, experiences and lessons, as well as an understanding how to facilitate social interaction so that both explicit and tacit knowledge are developed and exchanged.[14]

Proponents of a knowledge-based approach to competitive advantage argue that a firm's primary purpose is to create and apply knowledge.[15] Tacit knowledge is grounded in experience and difficult to express through mere verbal instruction. Individuals know it, but cannot always articulate it, and it also is difficult to codify. Then it is passed on to others through direct experience and is therefore termed "subjective knowledge", "personal knowledge" or "procedural knowledge".[16] On the other hand, explicit knowledge can be formalised, codified and communicated and is often gained through formal education and training programs, but it can also be gained through experience on the job.[17] Thus, it is important to manage closely both tacit and explicit knowledge in attaining a competitive advantage.

Organisational Learning is defined as the acquisition of knowledge by individuals and groups who are willing to apply it in their jobs in making decisions and influencing others to accomplish tasks important for the organisation.[18] A key element of Pursuing Operational Excellence (POE) is continuous learning by members of an organisation in order to achieve sustainable results and thus be superior to their competitors. It is assumed that an organisation, which has developed a learning culture, will be more resilient and innovative in challenging times.

There is a growing realisation in this new environment that companies should not only aim at survival, but should also strive for excellence to ensure continuity and survival.[19] Efficiency

13 Alvarex JA, Noe RA, Simmering JM. 2003. Knowledge Management, 213.

14 Alvarex JA, Noe RA, Simmering JM. 2003. Knowledge Management, 213.

15 DeNisi AS, Hitt MA and Jackson SE. 2003. Managing Knowledge for Sustained Competitive Advantage.

16 DeNisi AS, Hitt MA and Jackson SE. 2003. Managing Knowledge for Sustained Competitive Advantage.

17 DeNisi AS, Hitt MA and Jackson SE. 2003. Managing Knowledge for Sustained Competitive Advantage.

18 DeNisi AS, Hitt MA and Jackson SE. 2003. Managing Knowledge for Sustained Competitive Advantage.

19 Jamali D, Sidani Y and Zouein C. 2009. The learning organisation, 104.

and cost reduction, centralised decision-making, stable operations and a focus on internal operations have allowed value creation, quality, responsiveness and innovation, with all of these latter streams corresponding in turn to the Learning Organisation paradigm.[20]

1.2 The research question

Stating the belief that there is an integral link between Organisational Learning and Organisational Excellence is one thing, but it is a different matter to describe and analyse the link.

To start with, there still is no general agreement on what Organisational Learning entails and then there is the question as to how an organisation launches a process of moving towards learning in order to respond to the challenges that operating in a global space present.

Against this backdrop, the first and general objective that drives this thesis can be formulated as follows: *The quest to investigate the relationship between Organisational Excellence and Organisational Learning.*

To give this question substance and to root it in real organisational experience, a South African company was identified that actively entered into a "journey" to develop more robust capabilities to cope with the ever changing business environment. This company, which will be referred to as "the Company", developed a project to "Pursue Operational Excellence" (POE) that was defined as a combination of Lean Manufacturing Principles with Six Sigma and what they called Clear Leadership Engagement.[21]

A case study of the above "journey" allowed the general research question to be sharpened to the question: *In what way and to what extent did the "journey" towards Organisational Excellence support Organisational Learning (where learning is defined as the organisation's capability to adapt to new, improved processes and performances)?*

The Company defines a POE state as an environment that has thinking people, produces with zero defects, and continuously seeks opportunities to improve the way things are done in the business. In this environment, the leadership ensures that employees are engaged and are given an opportunity to run their own business within the scope of their processes.

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20 Jamali D, Sidani Y and Zouein C. 2009. The learning organisation, 104.

21 Clear Leadership Engagement is terminology only used by the Company as it Pursues Organisational Excellence.

The Six Sigma methodology involves a focus on the reduction and removal of variation by the application of an extensive set of statistical tools and supporting software, whilst Lean Thinking focuses on the reduction and removal of waste by process and value analysis.[22] According to Bendell, the Six Sigma (SS) approach has proven itself highly effective in terms of delivering cost savings and increasing customer satisfaction.[23] The idea of Lean Thinking, argues Bendell, is that of a company setting its sight explicitly on perfection - in other words, continually ensuring a decline in cost; zero defects; zero inventories and endless product variety.[24]

On the other hand, the Company has defined the Clear Leadership Engagement (CLE) as a three-dimensional concept that includes leadership culture, leadership behaviour and employee perception. This is measured by way of an LE Survey, where staff members assess alignment of the current culture against the objectives of the Company Leadership Promise.

All in all, there is a prima facie case that POE would engender a culture of Organisational Learning, which aspect this thesis explores in greater detail.

1.3 Research Methodology

The aim of this study (supported by the background given by the various perspectives on Organisational Learning, Lean Six Sigma [LSS], SS and Lean Manufacturing [LM]) is to explore and confirm, or disconfirm, a link between Organisational Learning and Organisation Excellence. The research is fundamentally conceptual by nature and explores the following topics: SS, LM, LSS and Organisational Learning. There are other topics that are also discussed in the research, but they are Company-specific. These topics are Clear Leadership Engagement (CLE), Organisational Excellence and Operational Excellence. The definition, characteristics and application of these concepts are Company-specific and will be interpreted in the context of the Company.

The name of the Company, names of people interviewed and some of the material that may appear obvious to the reader have been kept confidential to protect the Company's identity and also for information security purposes. The Company has allowed the researcher to

22 Bendell T. 2006. A review and comparison of six sigma and the lean organisations, 256.

23 Bendell T. 2006. A review and comparison of six sigma and the lean organisations, 257.

24 Bendell T. 2006. A review and comparison of six sigma and the lean organisations, 257.

undertake the research on condition of anonymity. For this reason, some of the concepts have been changed, but the meaning, definition and application have been maintained.

The idea behind the case study is to link theoretical research to Organisational Learning and empirical evidence gathered by means of interviews and data on POE. The Company provides a real-life context where POE is present and Organisational Learning literature provides the base for the link. The Company is used as a case study to enrich the research from the experience and application of the tools linked to POE. Therefore, the research is conceptual and explorative by nature, with the case study serving as enrichment to the conceptual research.

The research takes a multi-dimensional approach in an endeavour to show a positive link between Organisational Excellence and Organisational Learning. The conceptual nature of the study focuses on an understanding of LM, SS, LSS and Organisational Learning. These concepts are explored with the view to find definitions, characteristics, common practices, critical success factors, applications of the concepts and, where possible, lessons learnt by other organisation as they apply the concepts to their specific organisations. The engagement model, as understood by the Company, is also described in detail.

The researcher's aim is to superimpose the notion of Organisation Learning on the Company in relation to the practices put in place in pursuit of Organisational Excellence. Organisational Learning was a foreign concept in the Company and when the Company was POE, the intention was never to learn as an organisation, but to ensure that customers enjoy superior service.

In-depth interviewing and evidentiary documents were used as primary and secondary sources of data collection from different role players and key individuals. The interviews were structured with clearly defined questions attached as Appendix A and consistently used for each interviewee. The interviews were also interactive, where discussions ensued even beyond the bounds of the questions posed. The nature of discussions varied according to the levels of the individuals and also their levels of involvement in the POE journey. One of the key challenges encountered in the interviewing process was the level of excitement to discuss POE, but this brought with it topics outside the scope of the interview and time was lost in some instances.

Strategic documents that contained all material relating to the Operational Excellence journey were collected and obtained from different sources within the Company. The quarterly

communiqué, normally sent to all staff members about current affairs and different developments within the Company, also provided clarity on what some of the concepts were about and was written in black and white on what certain topics implied or meant for the business.

Data was collected from different sources within the Company, including those from project leaders who were part of tracking the projects. The data collected included the number of people trained in Six Sigma, the number of projects implemented, savings achieved through projects, a number of innovative ideas from staff, a conversion rate of ideas and, generally, the levels of customer experience that had been achieved as a result of Pursuing Operational Excellence. Every single piece of information related to the project was collected from different sources of data, though not all the data collected was used since the research is fundamentally conceptual by nature and the data is used as a secondary source to provide insight into what the Company experienced and achieved during the implementation or the process of POE.

Once all the evidence had been collected, and the initial cases study narrative documented, the major participants of the project reviewed the factual portion on the case study for consistency and correctness. This was done as part of validating data collected and ensuring that the Company was not misrepresented in the research.

The research will focus only within the scope of the case study selected. The area of focus will be the Company, with a clear focus on the Production Environment. The author will spend considerable time expanding on the key concepts of the research, namely Lean Manufacturing Principles, Six Sigma Methodology, Clear Leadership Engagement and Organisational Learning. Other concepts, such as competitive advantage, may be brought into play to make a point, but will not be focus areas.

1.4 Thesis outline

The research begins with an overview of what the researcher intends to cover during the process of the research. Chapter one also covers the introduction of the problems, not forgetting to outline the importance of the study and its limitations. In chapters two and three the researcher dwells on the literature reviews. The three concepts of POE (Six Sigma, Lean Manufacturing and Clear Leadership Engagement) are outlined and defined in chapter two. Chapter three examines the definition of Organisational Learning and Learning Organisation, and goes further to cover the diagnostic tools available to measure Organisational Learning.

The chapter concludes with the models selected for the research and covers the salient characteristics of Learning Organisations.

Chapter four focuses on how the journey unfolded towards POE and all the necessary phases are outlined. Chapter five focuses on the results derived from data collection as well as information and literature review. The importance of the results, in relation to POE and Organisational Learning, is analysed. In this chapter a link is identified and quantified. In chapter six, the researcher concludes the research with the findings of the study and also indicates whether there is a need for further research on the topics in question.

Chapter Two

Lean Manufacturing, Six Sigma, Lean Six Sigma and Clear Leadership Engagement

2.1 Introduction

In order to investigate the link between Organisational Excellence and Organisational Learning, the theoretical concepts need to be explored and outlined. In this chapter, an attempt is made to outline, define and explain the theory of Lean Manufacturing, Six Sigma, Lean Six Sigma and Clear Leadership Engagement. Literature from different sources was used to obtain the necessary information. The aim of exploring these concepts emanates from the practices that have been observed within the Company that is studied. The author intends to use the conceptual understanding of the concepts as defined, explored and contextualised by different authors within the body of knowledge in order to understand whether the tools, practices and methodology put in place by the Company are consistent with what is contained in the literature. Part of the exploration will include historical material on how other companies have performed, developed and grown in the application and implementation of the concepts.

2.2 The theory of Lean Manufacturing

Poppendieck contends that Lean Manufacturing is much more than a technique; it is a way of thinking and the whole system approach that creates a culture in which everyone in the organisation continuously improves operations.[25] She points out that Lean Production, on the other hand, is described by five elements: Lean Manufacturing; Lean Product Development; Supply Chain Coordination; Customer Distribution and Lean Enterprise Management.[26] This,

25 Poppendieck M. 2002. Principles of Lean thinking, 1-5.

26 Poppendieck M. 2002. Principles of Lean thinking, 1-5.

in essence, means Lean Manufacturing is part of the Lean Production System, whereas Lean Manufacturing and Lean Thinking have been linked to mean the same thing. Lean Thinking and Lean Manufacturing will be used interchangeably during the research to maintain the author's views without losing meaning to concepts themselves. Lean Thinking examines the value chain and asks: How can things be structured so that the enterprise does nothing but add value and does that as rapidly as possible? All the intermediate steps, all the intermediate time and all the intermediate people are eliminated. Poppendieck contends that all that is left is the time, the people and the activities that add value for the customer.[27]

Poppendieck defines Lean as a process to get the right things to the right place at the right time at the first time, while minimising waste and being open to change.[28] On the other hand, Bendell summarises Lean as the systematic pursuit of perfect value by means of the elimination of waste in all the aspects of the organisation's business processes.[29] Bendell argues that Lean requires a clear focus on the value element of all products and services and a thorough understanding of the detailed operations of the business processes which provides the product or service.[30] Doolen and Worley share Bendell's view in defining Lean Manufacturing as the systematic removal of waste by all members of the organisation from all areas of the value stream.[31] Value streams are all the activities that contribute to the transformation of a product from raw material to finished product, including the design, order taking and physical manufacturing.[32]

Comm and Mathaisel contend that Lean has several key features that differentiate it from other similar initiatives. They include the following:[33]

1. Lean is a dynamic process of change, driven by a systematic set of principles and best practices aimed at continuous improvement;
2. Lean refers to the total enterprise, from the shop floor to the executive suite, and from the supplier to customer value chain;
3. Lean requires rooting out everything that is non-value-added; and

27 Poppendieck M. 2002. Principles of Lean thinking, 1.

28 Poppendieck M. 2002. Principles of Lean thinking, 3.

29 Poppendieck M. 2002. Principles of Lean thinking, 3.

30 Bendell T. 2006. A review and comparison of six sigma and the lean organisations, 257.

31 Doolen TL and Worley JM. 2006. The role of communication and management support in a lean manufacturing implementation, 230.

32 Doolen TL and Worley JM. 2006. The role of communication and management support in a lean manufacturing implementation, 230.

33 Comm CL and Mathaisel DFX. 2000. A paradigm for benchmarking lean initiatives for quality improvement, 119.

4. becoming Lean is a complex business - there is no single thing that will make an organisation Lean.

Lean production makes optimal use of the skills of the workforce by giving workers more than one task, by integrating direct and indirect work, and by encouraging continuous improvement activities.[34] Lean production is able to manufacture a larger variety of products at lower costs and higher quality, with less of every input compared to traditional mass production; in other words, with less human effort, less space, less investment and less development time.[35] Dahlgaard and Kollberg define five principles that can assist in reducing waste and building a Lean enterprise.[36] The principles are defined and discussed below:

1. Identification of customer value;
2. Identification of the value stream for each product;
3. Making the value flow without interruptions;
4. Letting the customer receive value from the producer; and
5. striving for perfection or pursuing perfection or continuous improvement.

Add nothing but value (eliminate waste). The first step in Lean Thinking is to understand what value is and what activities and resources are absolutely necessary to create that value. Once this is understood, everything else is waste. To develop breakthroughs with Lean Thinking, the first step is learning to identify waste. If something does not directly add value, it is waste, argues Poppendieck. She goes further to identify seven types of manufacturing waste: overproduction, inventory, extra processing steps, motion, defects, waiting and transportation.[37]

Perez and Sanchez argue that a company that is driving the elimination of everything that does not add value to the product or service will exhibit the following indicators in their daily work.[38] The indicator should either decrease or increase as the company progresses towards a Lean production environment:[39]

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34 Dahlgaard JJ and Kollberg B. 2007. Measuring lean initiatives in health care services, 13-18.

35 Dahlgaard JJ and Kollberg B. 2007. Measuring lean initiatives in health care services, 13-18.

36 Dahlgaard JJ and Kollberg B. 2007. Measuring lean initiatives in health care services, 13-18.

37 Poppendieck M. 2002. Principles of Lean thinking, 3.

38 Perez PM and Sanchez MA. 2001. Lean indicators and manufacturing strategies, 1435.

39 Perez PM and Sanchez MA. 2001. Lean indicators and manufacturing strategies, 1435.

1. Percentage of common parts in company products should increase;
2. Value of work in progress in relation to sales should drop;
3. Inventory rotation must go up;
4. The number of times and distance that parts are transported should come down;
5. The amount of time needed for changes should decrease; and
6. the percentage of preventive maintenance over total maintenance should increase.

Do it right the first time. The slogan encouraged workers to feel responsible for the products moving down the line; and encouraged them to stop the line and troubleshoot problems when and where they occurred. An accompanying similar slogan is “Zero Defects”, which would translate to “test first”. In other words, don’t code unless you understand what the code is supposed to do and have the right and authority to determine whether the code works. This method puts the responsibility of the process back into the hands of the employees. The failure and success of the company now lies in the hands of employees and they are the ones who are empowered to make decisions during the production line to the point of stopping the production line if there is a fault in one of the parts required for the next step.[40]

Centre on the people who add the value. According to Poppendieck, a truly Lean plant has two key organisational features: It transfers the maximum number of tasks and responsibilities to those workers who are actually adding value to the car on the line and, in place, it has a system for detecting defects that quickly traces every problem, once discovered, to its ultimate cause.[41] She further contends that the people doing the work are at the centre of resources, information, process design authority, decision-making authority and organisational energy. Centring on the people who add value means upgrading the skills of employees through training and apprenticeships. It means forming teams that design their own processes and address complete problems and that staff groups and managers exist to support each other.[42]

40 Poppendieck M. 2002. Principles of Lean thinking, 4.

41 Poppendieck M. 2002. Principles of Lean thinking, 4.

42 Poppendieck M. 2002. Principles of Lean thinking, 4

Flow Value from Demand (Delay Commitment). The idea of flow is fundamental to Lean production. Poppendieck argues that, if you do nothing but add value, then you should add the value in as rapid a flow as possible. If this is not the case, then waste builds up in the form of inventory, transportation, extra steps or waste motion.[43] According to the pull system, nothing is done unless and until a downstream process requires it. The effect of pull is that production is not based on forecast, and commitment is delayed until demand is present to indicate what the customer really wants.[44]

Continuously Striving for Perfection. As the first four principles are implemented, staff members should begin to understand the system even better, and from this understanding they should generate ideas for more improvement. In a Lean system, it becomes even leaner and faster and waste is ever easier to identify and eliminate. A perfect process delivers just the right amount of value to the customer.[45] Womack and Jones further set out more principles in the latest edition of Lean Consumption, relating to continuous improvement:[46]

(i) Solve the customer's problem completely by ensuring that all the goods and services work, and work together;

(ii) Don't waste the customer's time;

(iii) Provide exactly what the customer wants;

(iv) Provide what is wanted exactly where it is wanted and

(v) continually aggregate solutions to reduce the customer's time and hassles.

Searching for continuous improvement in products and processes is another key element of Lean production and requires the involvement of all production employees and the support of top management.[47] The continuous improvement indicator is measured by the number of suggestions per employee per year, while the percentage of these suggestions that are eventually implemented in the company values measures the top management support and the quality of suggestions.[48] Involving everyone in the work of improvement is often accomplished through quality circles, and this is tied to an elaborate scheme for

43 Poppendieck M. 2002. Principles of Lean thinking, 5.

44 Poppendieck M. 2002. Principles of Lean thinking, 5.

45 Poppendieck M. 2002. Principles of Lean thinking, 3-5.

46 Womack JP and Jones DT, 2005. Lean Solutions, 15.

47 Perez PM and Sanchez MA. 2001. Lean indicators and manufacturing strategies, 1436.

48 Perez PM and Sanchez MA. 2001. Lean indicators and manufacturing strategies, 1436.

implementing suggestions, rewarding employees and feeding back information on the status of the suggestion.[49] Another technique used in the search for continuous improvement, is the involvement of production line workers in the identification and adjustment of defective parts arriving at the quality control department and, in some factories, the workers may even give warning to stop the production line, or do it themselves to avoid any defective parts from moving along to the next production stage.[50]

The Lean concept has the following limitations, as identified by Oriel Group Operational: "shop-floor-focused, limited range of application, lack of rigorous analysis, difficult to transfer concept from production environment, argon and overemphasis on cultural issues."[51]

2.3 The Six Sigma Methodology

Six Sigma came as a result of Motorola realising that they were losing a large portion of their business and productivity through the cost of non-quality. This included not only the 2600 parts per million losses in manufacturing; but lost business due to defective parts and support of systems in the field that were unreliable.[52] Raisinghani *et al.* reports that Bill Smith, a Motorola engineer, found that the quality level associated with a measure of Six Sigma corresponds to a failure rate of two parts per billion and adopted this as a standard. Motorola developed a programme to achieve this lofty goal and coined it "Six Sigma". Below is shown why a 99 per cent quality level is not acceptable, as reported by Raisinghani:[53]

1. At major airports' 99 per cent quality means two unsafe plane landings per day
2. In mail processing, 99 per cent quality means 16 000 pieces of lost mail every hour
3. In power generation, 99 per cent quality will result in seven hours of no electricity each month
4. In medical surgery, 99 per cent quality means 500 incorrect surgical operations per week
5. In water processing, 99 per cent quality means one hour of unsafe drinking water per month

49 Ahlstrom P and Karlsson C. 1996. Assessing changes towards lean Manufacturing, 29.

50 Sanchez A and Perez P M. 2001. Lean indicators and manufacturing strategies, 1436.

51 www.orielinc.com

52 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 492.

53 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 492.

6. In credit cards, 99 per cent quality will result in 80 million incorrect transactions in the UK each year.

Motorola has defined Six Sigma as a rigorous and proven process for improving each of tens of millions of processes that generate the goods and services that a company produces.[54] Six Sigma is quantified as 3.4 defects per million. Raisinghani argues that to define Six Sigma in simple terms is not possible, because it encompasses the methodology of problem solving and focuses on optimisation and culture change.[55] According to Raisinghani, Six Sigma accomplishes its goal by utilising an extensive set of rigorous tools, uncompromising use of statistical and advanced mathematical tools and a well-defined methodology that produces rapid significant results.[56]

Man contends that Six Sigma is a disciplined; customer-focused process designed to help organisations to move towards the creation of near-perfect products and services.[57] He indicates that the word or term "Sigma" is a statistical term that measures how far a given process deviates from perfection. The central idea behind Six Sigma is that if you can measure how many defects you have in a process; you can systematically figure out how to eliminate them and get as close to zero defects as possible, argues Man. According to him, to achieve Six Sigma qualities, a process must produce no more than 3.4 defects per million opportunities. The goal of Six Sigma is to increase profits by eliminating variability that undermines customer loyalty. It is a methodology that provides a business with the tools to improve the capability of their business processes.[58]

The Six Sigma methodology follows a five-step process defined by Dahlgaard and Dalhgaard-Park.[59] The Define, Measure, Analyse, Implement, and Control (DMAIC) process improvement methodology is described below:

Define: Identification of the process or product that needs improvement. This step utilises tools like Pareto Analysis and Project Charter for analysis.

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54 Dahlgaard JJ and Dahlgaard-Park SM. 2006. Lean production; six sigma, 270.

55 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 491.

56 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 491.

57 Man J. 2002. Six Sigma and Lifelong learning, 197.

58 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 26.

59 Dahlgaard JJ and Dahlgaard-Park SM. 2006. Lean production; six sigma, 271.

Measure: Identify those characteristics of the product or process that are critical to the customer's requirements for quality performance and which contribute to customer satisfaction. The tools of analysis employed here include, but are not limited to, Descriptive Statistics, and Process Capability Analysis.

Analyse: Evaluate the current operation of the process to determine the potential sources of variation for critical performance parameters by using a Detailed Process Map and Fish-bone Diagram.

Implement: Selection of those products or process characteristics that must be improved to achieve the goal. This is achieved by implementing improvements, Experimentation and documenting the New Process.

Control: Ensure that the conditions for the new process are documented and monitored via Statistical Process Control (SPC) methods. Depending on the outcome, it may become necessary to revisit one or more of the preceding phases.

The Oriel group has identified limitations with respect to the Six Sigma methodology.[60] These include the following: top-down implementation, project-focused reliance on experts, methodology and jargon, overemphasis on financial results and overemphasis on analysis.

2.4 The rise of Lean Six Sigma

In his book, *Lean Six Sigma for Service*, George argues that Six Sigma is limited to process quality tools and does not have the process's speed tools and similarly, Lean does not possess the tools to bring a process under statistical control, nor does it define a sustaining infrastructure or emphasise customer focus, as does Six Sigma. Thus, achieving the goals of an enterprise to improve return on invested capital by gains in customer satisfaction and waste reduction ultimately requires both Lean tools and Six Sigma methodology.[61] George argues that the idea behind Lean Six Sigma is to have a Lean process organisation with Six Sigma capability.[62]

Lean Six Sigma can be described as a methodology that focuses on the elimination of waste and variation, following the DMAIC structure, to achieve customer satisfaction with regard to

60 www.orielinc.com

61 George ML. 2003. Lean Six Sigma for Service.

62 George ML. 2003. Lean Six Sigma for Service.

quality, delivery and cost, and focuses on improving processes, satisfying customers and achieving better financial results for the business.[63]

Generally, companies implement the Lean Six Sigma (LSS) program as an operational strategy to drive for cost reduction and strive towards Operational Excellence as well as to survive in the competitive environment.[64] An LSS organisation would include the following three primary tenets of Lean management:

1. It would incorporate an overriding philosophy that seeks to maximise the value-added content of all operations.
2. It would constantly evaluate all incentive systems in place to ensure that they result in global optimisation instead of local optimisation.
3. It would incorporate a management decision-making process that bases every decision on its relative impact on the customer.

An LSS organisation would include the following three primary tenets of Six Sigma:

1. It would stress data-driven methodologies in all decision-making so that changes are based on scientific, rather than ad hoc, studies.
2. It would promote methodologies that strive to minimise variation of quality characteristics.
3. It would design and implement a company-wide and highly structured education and training regimen.

Overall, the commonly understood combination of Lean and Six Sigma tools reduce waste, improve flow of the operation, eliminate errors, increase customer focus and decrease variability.

2.4.1 Lean Six Sigma Tools

The DMAIC phases of LSS provide a very effective structure for a process improvement project. After starting a project it may evolve to use more Six Sigma tools or Lean tools, or a

63 Carretero JA, Rahim A and Salah S. 2010. The integration of Six Sigma and Lean Management, 249-251.

64 Jeyaraman K and Kee Teo L. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

mix of both.[65] The DMAIC phases and the details of each phase of this integrated LSS approach are as follows:[66]

Define

(1) Introduce Total Quality Management (TQM), Six Sigma, Lean, LSS methodologies and tools.

(2) Identify opportunities; evaluate and select the proper project and team.

(3) Draft the project; develop the charter, time-line plan, change management plan, financial case (COPQ and waste) and scope (the charter gets updated as the project progresses).

(4) Understand the customer requirements or the VOC: Use the SIPOC diagram to document the high-level process and the Critical To Quality (CTQ) characteristics; it also helps in preparing for the VSM exercise by understanding the basic flow and who the suppliers and customers are. Use the Quality Function Deployment (QFD), matrix lists CTQ, QFD and baseline as part of the measure phase.

(5) Identify the LSS suitable tools and approach to the selected project; identify whether the focus is on product flow or variability.

Measure

(6) Start the process characterisation and assemble the project metrics to establish the baseline performance: Build the measure phase data collection plan (especially for baseline data); understand the data and present it graphically, using: control charts, run charts, bar charts, pie charts, histograms, box plots, scatter diagrams and Pareto charts, which can also be used in other phases. Use descriptive statistics to measure the central location and variability of the data.

(7) Measure process capability (use process capability indices, Defects Per Million Opportunities (DPMO) and process sigma level).

(8) View the current process: Map the current state VSM to understand it, identify waste and improve it (use value stream metrics, which include inventory, lead time, cycle time, value-added versus non-value-added activities and downtime). Draw a process flow chart and document the current process.

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65 Carretero JA, Rahim A and Salah S. 2010. The integration of Six Sigma and Lean Management, 249-251.

66 Carretero JA, Rahim A and Salah S. 2010. The integration of Six Sigma and Lean Management, 249-251.

(9) Use a Kaizen Event approach to implement and conduct brainstorming of potential causes.

(10) Revise and detail the financial analysis, including COPQ: Identify and financially quantify cost of variation and defects. Consider the eight wastes (the hidden factory, where unnecessary work of repeated motion, measurements and rework is happening. It is part of COPQ, which is part of the measure phase. Therefore, it makes sense to introduce Lean thinking and the concept of waste as part of this phase).

(11) Identify and financially quantify waste (this will not be complete until the VSM exercise is done and it may include soft savings as well).

(12) Use an MSA to validate the reliability of the data (study the variable gauge repeatability and reproducibility).

(13) Use a cause and effect diagram to brainstorm potential variables or inputs that affect the process output.

(14) Identify potential process or design failures using Failure Mode And Effect Analysis (FMEA).

(15) Select the vital few potential inputs and identify the quick hits that do not require further analysis (also called just-do-it items).

Analyse

(16) Implement the quick hits or quick improvement actions.

(17) Build a data collection plan to analyse which of the potential inputs is critical.

(18) Use graphical tools to investigate the reasons for variation and differences in processes by different factors (for example: use interval effects plots, multi-variants charts, box plots and other tools).

(19) Develop hypothesis on the sources of variation and strength of relationships (using hypothesis tests, confidence intervals and other statistical tools).

(20) Use correlation, regression and analysis of variance to study how inputs relate to, and impact, outputs.

(21) Identify a list of the few critical inputs or Key Process Input Variables (KPIVs) to pass to the next phase for improvements.

(22) Analyse the current state VSM: Analyse unnecessary steps and ways to minimise waste within and between steps. Analyse the flow of products and information. Analyse lead time, cycle times, downtime, changeover time and rework.

(23) Create a future state VSM to implement in the next phase: maximise value-added content and eliminate waste.

Improve

(24) Optimise the settings of the critical inputs and improve processes using benchmarking, regression analysis, process simulation, DOE and other graphical tools, such as box plots and control charts.

(25) Document the standard operating procedures and best practices, including the revised process map and MSA requirements.

(26) Build an improvement implementation action plan to start the implementation of the recognised improvements.

(27) Use a Kaizen Event to implement improvements, such as: Improve time and motion; improve cell design; consider human factors and work balance. Production smoothing by flow distribution and mixing can be used as a Lean tool in this phase. Implement single piece flow and reduce batching. Standardise processes and use Kanban. Use TPM and a quick changeover approach, in other words, single minute exchange of dies. Use the 5S approach. Use mistake-proofing techniques. Use the visual workplace approach.

Control

(28) Validate and update the FMEA, MSA, process capability, Sigma level and control charts.

(29) Design a control plan using mistake-proofing approach and re-assign responsibility to process owner: Monitor the performance metrics (KPIVs and key process output variable or KPOVs) to ensure they are in control and design visual workplace controls. Design an audit plan and corrective actions (a good practice in auditing the project after it is done, is that the belt should conduct reviews of results with the process owner after three, six and 12 months of the date when the project is handed over to the process owner. Market demands and CTQ are dynamic. A review of CTQ can be done as part of the audit, which may trigger new opportunities).

(30) Reconfirm the financial analysis: Conduct a cost-benefit analysis. Review and approve the analysis by finance.

(31) Hand over responsibilities, train process owner on using the control plan and monitor continuously.

2.4.2 Lean Six Sigma Critical Success Factors (CSFs)

CSFs are defined as the essential things that must be achieved by the company to identify which areas will produce the greatest "competitive leverages", and are those actions and processes that can be controlled by the management team to achieve the organisation's goals.[67]

Jeyaraman and Kee undertook a study to examine the relationship between the CSFs of LSS as the independent variables and the LSS implementation success as a dependent variable with the effect of an organisational belief and culture being considered as a moderating variable.[68] The study's results were as follows:

List of items on CSFs for LSS Implementation[69]

Management engagement and commitment

1. Top management assumes responsibility for LSS performance.

2. Acceptance of responsibility for LSS by departmental heads.

3. Top management supports long-term LSS improvement process.

4. Importance attached to LSS by the top management in relation to cost and schedule objectives.

5. Degree to which the top management considers LSS improvement as a way to increase profits.

6. Degree of comprehensiveness of the LSS plan within the company.

7. Commitment of the top management to employee training.

Reward and recognition system

8. Effectiveness of performance measurement.

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67 Jeyaraman K and Kee Teo L. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

68 Jeyaraman K and Kee Teo L. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

69 Jeyaraman K and Kee Teo L. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

9. Fairness of individual or team-based performance measurement.

10. Reward and recognition for actual performance improvement.

Competency of Master Black Belt and Black Belt

11. Visibility of the MBB/BB in driving the LSS program.

12. MBB/BB accesses to top management.

13. Autonomy of the MBB/BB.

14. Utilisation of MBB/BB professionalism as a consulting resource.

15. Effectiveness of the MBB/BB in improving company performance.

Company financial capability

16. Adequate budgeting or funding to support LSS projects.

17. Adequate budgeting or funding to set up IT infrastructure for data analysis using Minitab.

18. Adequate budgeting or funding to set up classroom training with computer facility.

19. Adequate budgeting or funding to reward a successful project.

Frequent communication and assessment on LSS result

20. Use of LSS problem-solving tools/techniques to solve problems.

21. Good communication between different departments.

22. Effective top-down and bottom-up communication.

23. Clear, consistent communication of mission statement and objectives.

Project selection, prioritisation, reviews and tracking

24. Having project selection and prioritisation on projects that improve company competitive advantage, business profitability, process cycle time, throughput(??) yields, etc.

25. A periodic project review to ensure projects proceeded according to schedule.

26. A project tracking system to track the project status.

Project success stories and best practices sharing

27. Extent to which LSS data (cost of quality, defects, errors, scrap, etc.) are used as tools to manage LSS performance.

28. Extent to which LSS project success stories and best practices are available to employees.

29. Extent to which LSS project success stories and best practices are available to managers and supervisors.

30. Extent to which LSS project success stories and best practices are displayed at employee workstations.

Effective LSS Training Program

31. Specific LSS training (Yellow/Green/BB training) given to employees throughout the company.

32. LSS awareness training among employees is ongoing.

33. Training in problem identification and problem-solving skills, quality-improvement skills and waste-identification skills.

34. Training in statistical techniques (such as histograms, control chart, design of experiments and regression analysis).

35. Availability of resources for employee training in the company.

36. Training in interactive skills (such as communication skills, effective meeting skills and leadership skills).

Establish LSS Dashboard

37. Extent to which LSS results (yield improvement, cost reduction, scrap reduction, etc.) are used as tools to manage performance.

38. Extent to which LSS dashboard is available to employees.

39. Extent to which LSS dashboard is available to managers and supervisors.

40. Specificity of LSS goals within the company.

2.5 Pursuing Operational Excellence through Lean Six Sigma

This section will focus mainly on the success stories that have seen and enjoyed the benefits of using Six Sigma. The focus is on the positive impact of Six Sigma in management system based on Yudi and Hiroshi's management system model.[70] The management system is classified according to driver, enabler and performance and is defined as follows.[71]

70 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

71 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

Driver: The items include company direction, vision, mission, objectives, strategy and organisational expectations.

Enabler: Soft infrastructure, stock resources, processes and flow resources.

Performance: Output, outcome and financial results.

The driver cluster is intended to define corporate tenets and philosophy, while the enabler cluster is aimed to define and focus on the critical point of improvement activities for achieving future goals and the performance cluster is intended to confirm the effectiveness of strategic activities and their relationship to performance.[72]

Another key element of the positive impact of Six Sigma is the Critical Success Factors (CSF). Many researchers have discussed the CSFs of Six Sigma, and have frequently mentioned them in major articles, such as top management leadership and commitment, communication, organisational culture, employing the very best people as project leaders of full-time projects and linking with other management functions.[73] The CSFs of Six Sigma in a management system are listed below, and are categorised as driver or enabler cluster.[74]

a) The synergy between the top management team (leadership, commitment and involvement) as project supporter, with the selected best people on middle management as project leader on a full-time basis as a Driver

b) Linking Six Sigma with business strategy and strategic project selection (Driver)

c) Linking Six Sigma with financial benefit (Enabler)

d) Linking Six Sigma with human resources management, i.e. reward system and career promotion plus leader development (Enabler)

e) Linking Six Sigma to the customer needs and feedback (Enabler)

f) Effective and intensive training for understanding Six Sigma methodology, tools and techniques (Enabler)

The research team studied six global companies, namely Sony, Du Pont, GE, Honeywell, Caterpillar and Dow, and the findings presented have been collected through a combination

72 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

73 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

74 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

of primary data: interviews and questionnaires and secondary data: company annual reports, company newsletters, academic reports and relevant books. An understanding of CSFs for each company has been achieved.[75] The details of the CSFs on each company are described below:[76]

(a) Sony

Driver: Improve strategic planning and policy deployment through formulising the definition of critical and strategic project on top-down basis. In Sony, the project was decided by champions whose role was formulised through the D (Define) part as the first step of the DMAIC methodology.

Enable: Six Sigma has brought Sony three valuable cultures, namely: VOC, a culture to identify, listen, and reflect the customer; Voice, Cause and effect diagram, a culture in which to summarise business issues in a single diagram; and CTQ, a culture in which to identify who is to achieve the target, when, and to what extent.

*Performance***:** Six Sigma enabled the company to realise more than ¥30 billion in financial benefits within the first three years of its implementation. One of the best practices of Six Sigma implementation at Sony Corporation was in the marketing and sales division.

Critical Success factor: Top and upper management leadership Synergy between top and middle management. Strategic project selection links Six Sigma with corporate culture. Effective training follows up and communicates success stories throughout the company.

(b) Du Pont

Driver: Clarify and improve strategic planning formulation. The project selection was prioritised based on their linkage to CSF and a strategic plan, as well as the financial or customer benefits with the guidance of Six Sigma philosophy.

Enabler: Data-driven approach behaviour linking a reward system with project accomplishment to improve employee motivation and morale, linking project achievement and the belt system certification with career promotion, linking training outcome with financial output and assigning selected top people for full-time involvement.

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75 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

76 Yudi A and Hiroshi O. 2010. Innovation in management system by Six Sigma, 172-185.

Performance: $3 Billion financial benefit, with $300,000 average project benefit through bottom-line saving and top-line growth with elimination of the non-value-added. For example, one of the Du Pont projects has eliminated ten of the 14 steps previously required. As a result, the unit cost of processing one page was reduced by 53 percent.

Critical Success factor: Top and upper management commitment and involvement, linking Six Sigma with business strategy, financial outcome and human resources; strategic project selection; intensive training; expert networking and communication through an e-Tracker System.

(c) General Electric (GE)

Driver: Improve strategic planning and policy deployment. At GE, as mentioned by the former CEO, Jack Welch, during the first Six Sigma introduction, there will be no Six Sigma project approved unless the bottom-line impact has been identified; thus, it has a strengthening effect on the project carried out for improvement and in turn improves strategic planning.

Enable: Borderless organisation. Six Sigma created an environment of free and open ideas. GE monitors the Six Sigma process quarterly through customer surveys and daily manufacturing checks by the internal engineers, improving training effectiveness by linking it with career promotion. All professional, supervisory and managerial employees must, as a minimum, be GB trained, and have done a project for promotion to a higher level.

Performance: In 1998, *Business Week* reported that GE had saved $330 million through Six Sigma. In 2009, GE was ranked among the top ten in *Fortune Magazine*'s listing of the 50 most admired companies in the world - evidence of their sustainability performance.

Critical Success factor: Top and upper management leadership and enthusiasm, linking Six Sigma with business strategy, financial reward and career promotion. Intensive and massive training was implemented and employed the very best people as project leaders on a full-time basis of understanding Six Sigma methodology, tools and techniques - linking Six Sigma with customer needs and feedback.

(d) Honeywell and Allied Signal

Driver: Six Sigma was at the heart of Honeywell's on-going strategy to drive four of the initiatives: growth, productivity, cash and people. In these areas, the company mainly focused on cost cuts, increase in productivity, new product development, growth, effective cash flow management, and healthy customer and employee relationships.

Enable: Improved common language for problem-solving through systematic, scientific and statistical approach; integrated Six Sigma Plus into the way its employees thought and also into the organisation's culture; enhanced customer focus by utilising "VOC" through new customer relationship management; proactively assigned highly talented employees as part of developing the next generation of leaders.

Performance: Based on the 2001 annual report, Honeywell estimates that Six Sigma has saved $3.5 billion since 1995 by cost reduction. The most significant benefit of the Six Sigma Plus initiative was that it enabled the company to understand the needs and requirements of its customers.

Critical Success factor: Top and upper management leadership. Understanding Six Sigma methodology, tools and techniques; linking Six Sigma with corporate culture; strategic project selection; linking Six Sigma with customer needs and feedback; while employing the very best people as project leaders. Full-time BBs; linking Six Sigma with financial outcome.

(e) Caterpillar

Driver: Enhance effectiveness of the strategic plan: the project selection process prioritises projects based on their linkage to CSFs and strategic plan, as well as the financial or customer benefits.

Enabler: Six Sigma has fostered an open work environment where top and upper management will listen to proposals from any employee, regardless of their status. Six Sigma enhances communication quality through an e-Tracker System, which has documented Six Sigma projects. Caterpillar utilises a structured process to select high-potential employees to become Six Sigma BBs.

Performance: Achieved $41.52 billion in sales and revenues in 2006 through cost reduction and revenue growth; improved the value of the corporate brand. Caterpillar was named one of America's healthiest companies. Caterpillar was also awarded the gold level "Well Workplace Award" and MBNQA.

Critical Success factor: Top and upper management leadership Synergy between top and middle management. Strategic project selection is linking Six Sigma with corporate culture, effective training, follow-up, communication of success stories company-wide and linking Six Sigma to customers.

(f) Dow Chemical

Driver: Strengthening company philosophy and providing a synergistic manner as the way to do work. Six Sigma has driven people to solve problems systematically and scientifically.

Enabler: Data-based problem-solving approach. The number of employees' reduced; an improvement in inventory utilisation by focusing on different aspects of supply-chain management, reducing the average day's sales in inventory for agricultural chemicals by nearly 10 percent.

Performance: The annual report in 2003 states that, reflecting the success of Dow's efforts to reduce costs, expenses were down to 13 percent in 2003 from 2002. The Six Sigma project at Dow Chemical plant has improved profitability and is adding $3 million annually.

Critical Success factors: Top and upper management leadership. It is linking Six Sigma with career promotion, there is intensive and massive training, and employing the very best people as project leaders. Full-time BBs understanding Six Sigma methodology, tools and techniques.

2.6 Management systems before and after Lean Six Sigma implementation

Piercy and Rich follow three financial service companies in the United Kingdom that were implementing a Lean transformation programme to analyse the benefits of the system. The paper findings highlight significant improvement in quality and cost positions with minimal investment through adoption of Lean tools in the pure service context.[77]

Piercy and Rich argue that decision-making, before Lean implementation, was a management prerogative and deployed top-down, but things changed when Lean was implemented. A flatter structure was introduced with shared goals and values. There was also minimum status differential in the Lean environment. In terms of organisational structure, the organisation moved from a specialist repetitive activity to a de-layered management structure with workers holding broad worker knowledge of processes and products. A cross-skilling and

77 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

flexible design came into play with the newfound Lean philosophy. The research team found that, in the old dispensation, departmental budget, performance and productivity were about servicing as many customers as possible in the shortest time possible. However, Lean Six Sigma introduced value delivery measured at a point of service or customer impact.

In the old system, work was designed around separated functions specialised and controlled by industrial engineers, but the new way of doing things through Lean ensured that the environment had a "one-stop" shop. The emphasis for Lean is on whole task, flexible use teams, and employees, acting independently, are empowered to resolve customer issues. Old methods used skilled-to tasks, with customers routed to employees using information technology and advanced telephony systems. In this environment, employees are controlled by "scripts" used to guide the conversation with the customer. Environments where Lean has not been implemented tend to eliminate labour through automation and tolerate high attrition or absenteeism, whereas the Lean production line treats employees as "value-adding" resources. Team activities with joint planning and problem-solving are some of the key drivers of the operation.[78]

Workforce strategy, in terms of performance prior to the implementation of Lean, depended more on time standards established per task with defined routines, whilst Lean Six Sigma encouraged meeting the customer needs effectively and reducing failures as a top priority.[79] Group incentives, gain sharing, linked to skills and mastery of product processes assist the business in motivating employees to give their best in the business environment.[80] Where a Lean environment is encouraged at team and inter-team levels, business information is widely shared and there is constant training in process improvement.[81] However, before Lean implementation, training was limited to employees at leadership levels.[82]

2.7 Clear Leadership Engagement (CLE) [83]

A successful initiative, such as Six Sigma, requires top management involvement and provision of appropriate resources and training. An example is Jack Welch, the former CEO

78 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

79 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

80 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

81 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

82 Piercy N and Rich N. 2009. Lean transformation in the pure service environment, 65-67.

83 Operational Improvement Management; PITSTOPS Skills Workbook, 2009.

of General Electric, who strongly influenced and enabled the restructuring of the business organisation and changed the attitude of the employees towards Six Sigma.[84] Jeyaraman and Kee argue that, without the continuous support and commitment from top management, the true importance of the initiative will be in doubt and the energy behind it will be weakened.[85]

CLE is a system of team engagement to ensure that the right people talk about the right things in the right way, at the right time and place, thereby improving individual and business performance.[86]

CLE is also viewed as a business operation's transformational initiative aimed at shaping leadership behaviour and competency into action for sustainable business performance, focused on involvement through communication for commitment, innovation and continuous improvement. These also involve a new way of creating understanding; thinking about and doing business.[87]

2.7.1 Components of Clear Leadership Engagement[88]

Clear in CLE refers to the combination of thinking people continuously improving the way they do their work, thereby eliminating waste and producing with zero defects.

Leadership is regarded as consistency in behaviour, style and techniques. The idea is that the best mechanic is not the best workshop manager.

Engagement is defined as setting a clear direction (vision of the future); alignment of objectives and measurement; and leadership techniques (goal-setting, problem-solving, structured meetings as a habit, continuous improvement of skills, performance-measurement, -review and -feedback, and finally recognition and reward).

2.7.2 Clear Leadership Engagement Model[89]

The concept of CLE also promotes an environment in which people are inspired to do their best. Part of the POE journey is about developing the framework for a management system

84 Operational Improvement Management; PITSTOPS Skills Workbook, 2009.

85 Jeyaraman K and Kee TL. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

86 tSUE'NME Magazine; March 2009 edition

87 tSUE'NME Magazine; March 2009 edition

88 Operational Improvement Management; PITSTOPS Skills Workbook, 2009.

89 Operational Improvement Management; PITSTOPS Skills Workbook, 2009.

that supports high performing teams. This system is also called “a process of translating boardroom strategy into action at all levels”.

The company creates a prosperity partnership with its employees, creating a great place to work at, to do business with, and in which to invest. The system is outlined below:

Clarity of purpose and direction

The leadership of the business sets a clear direction by clearly communicating strategic objectives and organisational goals to ensure that these are fully understood by everyone. All know where they, as a company, are going. This means everyone understands the context of the Company vision; the nine strategic goals, the core values and code of ethics and also how all these link to their individual departments and teams. For staff on the shop floor, this means each one of them knows why they need to perform their duties and have a sense of the purpose of their duties in relation to the whole organisation. Employees understand the link between what they do and how the Company makes money, which is driven through clear job description, performance metrics and scorecards. All know exactly what to focus their energy on every day.

Structure, Alignment and Focus

Create meaningful work where everyone in the Company understands how their jobs contribute to the results of the broader organisation and they have clear work instructions and appropriate metrics to effectively evaluate their own, as well as their team’s, performance. Leadership ensures that the top-level organisational structure is aligned with strategy.

Effective Leadership Culture

Practice a participative leadership style and visibly lead by example. Everyone is treated in a fair and transparent manner, and diversity is embraced at all levels. The company leadership is fully committed and subscribes to the clear engagement methods, which enable active involvement and participation of all staff.

This area refers to leadership and culture. Leaders lead their team with credibility. Staff members view the leader as their coach. They can trust the leadership, as the leader removes obstacles; displays the right behaviour (walks the talk) and because the leader has the right skills to listen and not to tell.

Employee Engagement

In an effort to support a culture that supports thinking people, leadership will encourage and guide people to express themselves freely in a disciplined and professional manner. To this end, an environment will be created where everybody takes full accountability for his/her actions and are committed to the achievements of the overall team.

Achieve engagement through the PITSTOPS methodology, which encourages the involvement of every role player in the operation. The staff members are involved in setting daily targets, planning their work and scheduling their work. Their team meetings are focused, energised, self-disciplined and highly productive.

Business processes, systems, resources and competence optimisation

The intention of the business is to provide customers with a great experience by equipping staff members to deliver service with zero defects. To this end, leadership will ensure that everybody in business operations have equal opportunities to acquire and develop the required skills and knowledge to carry out their jobs competently. Through this system, people will be encouraged to learn, grow and improve their performance continuously through on-going coaching and skills-development.

An environment that focuses on continuous improvement and increased profitability will be developed by intentionally striving to do things better, by continuously finding ways to improve, simplify and optimise work processes, whilst taking the needs of the customer, potential risk and cost implications into account.

Performance measurement, recognition and reward, performance improvement and coaching

Through the prosperity model, the environment will create high performance teams by recognising, rewarding and celebrating success and making the Company a great place to work at. As the business pursues this goal, a culture of a positive attitude and sense of self-worth will be cultivated. Each staff member is encouraged to make a meaningful contribution by holding each other accountable for embracing the code of conduct and delivering superior service and results.

In this environment, staff members are made aware of the interdependencies across all areas of the business, and that actively building relationships and sharing knowledge with members of teams is important for the success of the business.

Some studies show that 61% of top performing companies link their rewards to their business

strategies, while lower performing companies create minimal linkage.[90] Across all GE business, no one will be promoted without the Six Sigma training and completed project; this in itself is an impressive behaviour driver.[91]

* * * * * *

Overall, this chapter covered key concepts in terms of methodology behind Operational Excellence, which includes Lean Six Sigma; Lean Manufacturing and Six Sigma. The chapter also introduces the engagement model adopted by the Company. Key attributes of each methodology are outlined, together with the critical success factors on which various authors had touched.

The aim of this chapter was to explore the topics, as mentioned above. The exploration of the topics is key in analysing the practices in place in the Company, and will also assist in understanding the concept as seen by other authors in the body of knowledge. It is important to evaluate and check for consistency in the Company's practices and how these concepts are understood and applied. The next chapter will focus on Organisational Learning, a concept that the author would like to superimpose on the Company to check whether the practices put in place will indeed lead to learning.

90 Jeyaraman K and Kee TL. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

91 Jeyaraman K and Kee TL. 2010. A conceptual framework for critical success factors of lean six sigma, 194-197.

Chapter Three

Organisational Learning

3.1 Introduction

In the preceding chapter, the concepts of Lean Manufacturing, Six Sigma, Lean Six Sigma and Clear Leadership Engagement were introduced, and examined as were the characteristics of each concept that play a prominent part in the application of such concept in a business environment. The understanding, application and possibly combination of these four concepts could assist the business environment in responding to the question whether a company will be responsive to the dynamic and cruel global business environment.

The focus of this chapter is to explore the concept of Organisational Learning in an effort to later superimpose the theory on the Company that is implementing or Pursuing Organisational Excellence and it will also present views around Organisational Learning and the Learning Organisation. The previous chapter focused on the mechanical part of a working environment where systems are put in place to improve the operation standards of an organisation. Organisational Learning brings about the softer part of an organisation and examines how systems that are put in place improve the organisation's ability to withstand the test of time.

3.2 Learning Organisation Background

A Learning Organisation should be dedicated to improving the learning context and strategically strengthening the organisation's competency to facilitate knowledge creation and innovation and deliver marketplace-based competency.[92] Organisational Learning occurs when individual members detect the discrepancy between actual and expected results, and try to correct errors, or challenge the underlying assumptions.[93] A successful learning organisation is primarily concerned with the continuous generation of new knowledge to add to existing stocks of assets, whereas knowledge management is primarily centred on the

92 Ahmed KP and Wang LC. 2003. Organisational Learning, 4.

93 Hong J. 1999. Structuring for Organisational learning, 174.

formalisation, storage, sharing, distribution and co-ordination of existing knowledge assets throughout the organisation while building and exploiting core competencies that yield superior performance.[94]

Learning Organisations learn about learning. In simple terms, they only endeavour to learn about their own business, but attempt to understand the processes by which individual and Organisational Learning take place. In this way, they can improve and accelerate the process of building and applying new knowledge. Because of their superior ability to learn and share, Learning Organisations appear more able to anticipate and even create new customer needs and thus generate new sources of competitive advantage.[95]

3.3 Organisational Learning Defined and Characterised

In the hyper dynamic business contexts, Organisational Learning is the process by which the organisation constantly questions existing products, processes and systems; identifies strategic positions; and applies various modes of learning in order to achieve a sustained competitive advantage.[96] Organisational Learning is further defined as the process by which managers become aware of the qualities, patterns and consequences of their own experience and developmental models to understand these experiences.[97] Other authors define Organisational Learning as a process in which an organisation's members actively use data to guide behaviour in such a way as to promote the on-going adaptation of the organisation.[98] They argue that it is a process that requires individual cognition and supports the ability for organisational adaptation.[99]

Organisational Learning occurs when members of the organisation act as learning agents for the organisation, responding to changes in the internal and external environments of the organisation by detecting and correcting errors in organisational theory-in-use, and

94 Pemberton JD and Stonehouse GH. 2000. Organisational learning and knowledge assets, 186.

95 Pemberton JD and Stonehouse GH. 2000. Organisational learning and knowledge assets, 187.

96 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 14.

97 Appelbaum SH and Gallagher J. 2003. The competitive advantage of organisational learning, 41.

98 Appelbaum SH and Gallagher J. 2003. The competitive advantage of organisational learning, 43.

99 Appelbaum SH and Gallagher J. 2003. The competitive advantage of organisational learning, 43.

embedding the results of their inquiry in private images and shared maps of the organisation.[100]

Organisational Learning is more than just having employees returning to a B-school; it is about the ability to harness and use the knowledge for competitive advantage. It is also about the ability of an organisation to learn from itself; its mistakes, its inefficiency and its employees.[101] Organisational Learning is said to be about increasing an organisation's problem-solving capacity and about changing behaviour in ways leading to improved performance at individual, team and organisational levels.[102]

Armstrong and Foley summarise various definitions of a Learning Organisation as a form of organisation that enables the learning of its members in such a way that it creates positively valued outcomes, such as innovation, efficiency, better alignment with the environment and competitive advantage.[103]

3.4 The Difference between Organisational Learning and Learning Organisation

Yeo argues that Organisational Learning refers to the learning process and activities that occur within the organisation, whereas Learning Organisation refers to a particular organisational form.[104] The Learning Organisation proactively pursues congruency between contextual factors and the environment to facilitate Organisational Learning.[105]

A Learning Organisation is an organisation in which everyone is engaged in solving problems, enabling the organisation to experiment, change and improve continuously; and increase its capacity to grow, learn and achieve its purpose.[106]

According to Yeo, Organisational Learning tends to be academic by nature, whilst Learning Organisation is practice-orientated and about which consultants often write.[107]

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100 Moilanen R. 2001. Diagnostic tools for learning organizations, 7.

101 Appelbaum SH and Gallagher J. 2003. The competitive advantage of organisational learning, 46.

102 Stewart D. 2001. Reinterpreting the learning organisation, 142.

103 Armstrong A and Foley P. 2003. Foundations for a learning organisation, 75.

104 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

105 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

106 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

107 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

Burnes *et al.* argue that a Learning Organisation is the highest state of Organisational Learning in which an organisation has achieved the ability to transform itself continuously through the development and involvement of all its members.[108]

3.5 Focuses of Organisational Learning

The concept of Organisational Learning has quickly evolved to cover various aspects of organisational management. There are three levels in the development of Organisational Learning.[109] The first phase corresponds to the cognitive level: this is where organisational members are exposed to new ideas. As a consequence, they expand their knowledge and start thinking in a different way.[110] The second phase is behavioural, where employees start to internalise a new perspective and, consequently, they alter their behaviour.[111] The third and last phase is when performance improvement occurs when the change in behaviour leads to measurable improvement in results (superior quality, better delivery, market share value increase or other tangible profits).[112]

Through an extensive literature review, six concepts of Organisational Learning were identified: Collectivity of individual learning; Process or system; Culture or metaphor; Knowledge management, Creativity and innovation and Continuous improvement.[113]

Collectivity of individual learning[114]

Ahmed and Wang conclude that Organisational Learning occurs when individuals within an organisation experience a problematic situation and inquire into it on the organisation's behalf. They experience a surprising mismatch between expected and actual results of action and respond to that mismatch through a process of thought and further action that leads them to modify their images of organisation phenomena and to restructure their activities so as to bring outcomes and expectations into line, thereby changing the organisational theory-in-use. The ability of a workforce in an organisation to learn faster than those in other organisations constitutes the only sustainable competitive advantage at the disposal of a Learning

108 Burnes B, Cooper C and West P. 2003. Organisational learning, 454.

109 Curado C. 2006. Organisational Learning and organisational design, 31.

110 Curado C. 2006. Organisational Learning and organisational design, 31.

111 Curado C. 2006. Organisational Learning and organisational design, 31.

112 Curado C. 2006. Organisational Learning and organisational design, 31.

113 Ahmed KP and Wang LC. 2003. Organisational Learning, 9.

114 Ahmed KP and Wang LC. 2003. Organisational Learning, 9.

Organisation. Therefore, it is critical that the primary focus of an organisation should be on valuing, managing and enhancing the individual development of its employees. However, collective learning cannot take place if all the employees in an organisation are prevented from learning.

Process or system[115]

Organisational Learning is the process whereby organisations understand and manage their experiences. The organisation purposefully enhances its information processing and problem-solving capabilities. To this end, organisations are referred to as information processing systems; acquiring, interpreting, distributing and storing information within the organisation. Therefore, four components of the Organisational Learning are proposed: knowledge acquisition, information distribution, information interpretation and organisational memory.

Culture or metaphor[116]

Culture serves as a sense-making mechanism that guides and shapes employees' values, behaviours and attitudes, and it is through values that behaviour flows and is guided. An organisation's culture imposes "coherent order" and meaning, and enables the institutionalisation of an appropriate sense-making structure to facilitate interpretation of unfamiliar events. Culture enables an organisation to best utilise its knowledge and experience for establishing and achieving desired goals, and learning about wisdom as the process of discerning judgements, and action based on knowledge.

Knowledge management[117]

Organisational Learning is referred to as changes in the state of knowledge and involves knowledge acquisition, dissemination, refinement, creation and implementation. It also involves the ability to acquire diverse information and to share common understanding so that this knowledge can be exploited, as well as the ability to develop insights and knowledge, and to associate among past and future activities.

Organisational knowledge is stored partly in individuals in the form of experience, skills and personal capacity and partly in the organisation in the form of documents, records, rules, regulations and standards. Organisational memory maintains the organisational knowledge

115 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 10.

116 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 11.

117 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 12.

base, acts as the foundation of knowledge accumulation and creation, and reflects the absorptive capability of organisations.

Wang and Ahmed argue that the understanding of the impact of Organisational Learning on knowledge management can be taken from the "ontological dimension" of Nonaka and Takeuchi's knowledge creation model, which is the process of knowledge transfer among individual, group, organisational and inter-organisational levels.

Continuous improvement and incremental innovation[118]

The Learning Organisation is a state in which learning is continuously being striven towards and is more an aspiration for a continuous process, rather than a single product. A Learning Organisation is viewed as one where "people continuously expand their capacity to create the results they truly desire; where new and expansive patterns of thinking are nurtured; where collective aspiration is set free and where people are continually learning how to learn together" argue Ahmed and Wang.[119] A Learning Organisation should consciously and intentionally devote itself to the facilitation of individual learning in order to continuously transform the entire organisation and its contexts.[120] Continuous improvement is aimed at achieving incremental innovation; therefore a Learning Organisation dedicates itself to incremental innovation through effective learning mechanisms.[121]

Focus on creativity and innovation[122]

Traditional strategies are competition-based: strategies are oriented toward building advantages over the competition. Guided by this principle, Organisational Learning conforms to system thinking and stresses the capacity for problem solving or information processing, which leads to incremental improvement.[123] Unlearning involves changing the dominant culture, encouraging continuous experimentation, setting up good information access and human resource practices and reward systems, and providing good leadership in a Learning Organisation.[124]

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118 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 12.

119 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 12

120 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 12.

121 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 12.

122 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 13.

123 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 13.

124 Hong J. 1999. Structuring for Organisational learning, 176.

Organisations need to stand on a more revolutionary viewpoint and make breakthroughs and quantum leaps, which require fundamental changes in organisations.[125] Organisational Learning will have to expand its function to facilitate the change in order to enable the organisation to gain a leadership position.[126] Based on this assumption, Organisational Learning needs to adopt a sixth focus of innovation and creativity; and possess the following features:

a) *Triple-loop learning*: It is essential that organisations move onto this higher level of triple-loop learning, which constantly questions existing products, processes and systems by strategically asking where the organisation should stand in the future marketplace, rather than merely single- and double-loop learning which simply ask what is wrong, how to correct it and how to prevent errors.

b) *Organisational unlearning*: People do not tend to abandon current beliefs and methods as long as they seem to produce reasonable results and until incontrovertible evidence, usually in the form of failures, convinces them to accept new paradigms. The insistence on existing beliefs and methods inhibits learning; therefore Organisational Learning is often accompanied with a certain degree of organisational unlearning. In a sense, Organisational Learning is more about organisational unlearning in order to create quantum leaps.

c) *Knowledge creation*: Organisational Learning is not restricted to knowledge accumulation, dissemination, retention and refinement. Knowledge creation is the core competency for organisations to move to a higher platform of competitive success. Innovation capacity is referred to as a continuous process of knowledge creation. However, there is more evidence that, in order to achieve sustainability, organisations need to facilitate knowledge creation through radical changes, which requires triple-loop learning accompanied by organisational ambition, wisdom and courage.

d) *Creative thinking*: Creativity is the seed of all innovation, and the psychological perceptions of innovations (the implementation of people's ideas) within an organisation are likely to impact the motivation to generate new ideas. Breakthrough innovation involves unexpected leaps of creativity and insight, rather than simply

125 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 13.

126 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 13.

following predictable trajectories. Organisational Learning needs to incorporate a higher degree of creativity to achieve quantum leaps.

e) *Competence-oriented:* Traditional competition-based strategies drive organisations to build up competitive advantage by doing business better and cheaper than competitors. Organisational Learning needs to focus on building competence, both organisation-based and marketplace-based, to undermine competitors' innovations. Organisational Learning's objective should be set to make current competition irrelevant and open new market opportunities.

f) *Linked to organisational sustainability*: Organisational learning is related to organisational outcomes and connected to continuous improvement. However, in response to the current turbulent market's value innovation, the creative quality process will be the only sustainable competitive advantage in future. Organisational Learning should facilitate the creative quality process to deliver value innovation in the marketplace in order to achieve organisational sustainability, rather than temporary profitability and incremental changes within the current competitive framework.

3.6 Characteristics of a Learning Organisation

A thorough review of post-1995 studies with a measurement orientation, suggests that some frequently mentioned qualities of a Learning Organisation include leadership, strategy, participative policy making, teamwork, self-development opportunities, information flow, structural considerations, a learning climate, experimentation opportunities as well as learning reward availability.[127] The Learning Organisation should be the one where Organisational Learning truly occurs.[128] The Learning Organisation is the one that is able to create, acquire and transfer knowledge, and at the same time it manages to modify its behaviours, reflecting new knowledge and new perspectives. This organisation is characterised by presenting a special ability to perform five main tasks.[129]

1. *Systematic problem solving:* This activity makes use of philosophy alongside with improving quality methods. In these tasks, there is a permanent search for overcoming difficulties and finding solutions. This is all about relying on the scientific method,

127 Jamali D and Sidani Y. 2008. Learning organizations: diagnosis and measurement in a developing country context, 67-68.

128 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 9.

129 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 9.

rather than guesswork, for diagnosing problems and insisting on data, rather than assumptions, as the background for decision-making. This is known as "fact-based management".[130] Employees in this environment are provided with tools in four areas: generating ideas and collecting information; reaching consensus, analysing and displaying data; force-field analysis and planning actions.[131]

2. *Experimentation:* This activity involves the systematic search and validation of new knowledge. In this task, as in the previous, the use of a scientific methodology is essential and there are obvious parallels with the problem-solving activity. However, experimentation is generally motivated by catching opportunities and not by current difficulties.

3. *Learn from past experiences:* This activity happens when organisations reanalyse carefully their failures and successes, evaluating them systematically and recording the corresponding lessons, so that it allows for organisational members to access them in a free and simple way.

4. *Learning from others:* This activity reflects the learning that does not come out of self-reflection and analysis. Sometimes, the most interesting ideas can be generated from looking outside the immediate working environment and acquiring a new perspective.

5. *Transferring knowledge:* This activity makes learning something more than a local phenomenon. This task allows for knowledge to be leveraged rapidly and efficiently throughout the organisation. Ideas that are widely shared produce maximum impact.

It is a collective learning process that results in a change in organisational behaviour, and the organisation learns when the change in one person's behaviour influences the behaviour of others, leading to mutual behavioural change, whereas collective learning aims at increasing the collective competence of the organisation's members, which is not just the sum of individual competencies.[132]

130 Garvin DA. 1993. Building a Learning Organisation, 81-89.

131 Garvin DA. 1993. Building a Learning Organisation, 81-89.

132 Falkenberg R. 2005. The learning organisation: the evolving reality, 42.

3.7 Organisational Learning Diagnostic Tools in the market

Organisational Learning Diagnostic Tools measure the Organisational Learning capability.[133] This is a way to check if the organisation is able to learn, or whether the ground is fertile for learning. Since Organisational Learning is the process towards a Learning Organisation, it is imperative to focus on the tools to diagnose if an organisation is learning. It needs to be noted that there is no agreement among the authors on what constitutes a measure of Organisational Learning.

The core of the diagnostic tools is in creating a holistic picture of an organisation and seeing the present state of the Learning Organisation. Moilanen[134] argues that the diagnosing and measuring tools should be able to pick up specific salient features to indicate whether an organisation is learning. The key areas for both individual and Organisational Learning are as follows:[135]

a) Driving forces cater for building a Learning Organisation as a priority and the company invests funds and human resources to ensure the success of the project. Leaders should also support and encourage the learning of staff;

b) Finding the purpose refers to learning what is seen as a vital part of the organisation's competitiveness, and the goal of the organisation directs staff development and learning;

c) Questioning is concerned with the organisation eliminating any learning obstacles, and staff members are not afraid to make, or recommend, changes;

d) Empowering ensures that people are coached to master new processes and techniques and employees apply their learning to develop their work; and

e) evaluating drives the development of goals that are meaningful, and employees are able to assess the outcomes and methods of the work of their own teams.

Organisational Learning capability is considered as the organisational and managerial characteristic that facilitates the Organisational Learning process or allows an organisation to

133 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 225.

134 Moilanen R. 2005. Diagnosing and measuring learning organizations, 74-75.

135 Moilanen R. 2005. Diagnosing and measuring learning organizations, 74-75.

learn.[136] Through an analysis of Organisational Learning, facilitating factors were grouped so that a simplified, essential set of dimensions for Organisational Learning was obtained.[137] The team came up with five key factors that can be analysed or added in a questionnaire to determine the learning capability of an organisation.

These dimensions were considered as the most underlined facilitating factors in the literature. The factors are as follows:[138]

1. *Experimentation.* The degree to which new ideas and suggestions are attended and dealt with sympathetically. This includes factors such as support for new ideas; continuous training or workers who want to learn and improve.
2. *Risk taking.* The tolerance of ambiguity, uncertainty and errors.
3. *Interaction with the external environment.* The degree of relationships with the external environment.
4. *Dialogue.* The sustained, collective inquiry into the processes, assumptions and certainties that make up everyday experience. The team considers communication, diversity, teamwork and collaboration.
5. *Participative decision-making.* The level of influence employees have in the process of decision-making. Factors considered incorporate delegation, flexible organisational structure or knowledge of the organisation.

The Organisational Learning Capacity (OLC) measurement instrument aims to capture the organisational propensity to learn and is based on a comprehensive analysis of the facilitating factors for Organisational Learning.[139] The facilitators were obtained from the Learning Organisation and Organisational Learning literature in an attempt to develop a comprehensive instrument. The team of Alegre, Chiva and Lapiedra argues that these dimensions represent an important contribution to the literature on Organisational Learning as they are based on an exhaustive literature review and the research presented here has also statistically

136 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 225.

137 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 226.

138 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 226.

139 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 225.

validated them.[140] The items that constitute the questionnaire for testing learning in organisations are shown below.

Items composing the OLC scale:[141]

Theme 1: Experimentation

V1. People receive support and encouragement when presenting new ideas.

V2. Initiative often receives a favourable response, so people feel encouraged to generate new ideas.

Theme 2: Risk-taking

V3. People are encouraged to take risks in this organisation.

V4. People often venture into unknown territory.

Theme 3: Interaction with the external environment

V5. It is part of the work of all the staff to collect, bring back and report information about what is going on outside the company.

V6. There are systems and procedures for receiving, collating and sharing information from outside the company.

V7. People are encouraged to interact with the environment, competitors, customers, technological institutes, universities and suppliers.

Theme 4: Dialogue

V8. Employees are encouraged to communicate.

V9. There is free and open communication within the work group.

V10. Managers facilitate communication.

V11. Cross-functional teamwork is a common practice.

Theme 5: Participative decision-making

V12. Managers in this organisation frequently involve employees in important decisions.
V13. Policies are significantly influenced by the views of employees.

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140 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 232.

141 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 232.

V14. People feel involved in main company decisions.

3.8 The concepts that underpin Organisational Learning

Burnes, Cooper and West have designed four propositions emanating from the arguments put forward by proponents of Organisational Learning.[142] The proponents of Organisational Learning argue that the change, now, is so fast and so prevalent that, if organisations fail to keep pace with it, they will not survive. Also, the speed and prevalence of change is such that it cannot be managed in the traditional manner by a few senior managers, but must become the responsibility of everyone in the organisation.[143] To this end, the team has developed four common propositions that underpin the concept of Organisational Learning. These are listed as follows:[144]

> P1. In order to survive, an organisation must learn to change at least as fast as its environment changes. That is to say, an organisation's ability to keep pace with changes in its environment is dependent on its ability to learn.
>
> P2. The degree to which an organisation needs to move away from traditional forms of learning towards Organisational Learning, is dependent on the degree of instability (change) in its environment.
>
> P3. In the past, maintaining alignment with the organisation's environment was the responsibility of a few senior managers. However, the environment is now changing so fast that it is beyond the ability of a small elite group of managers to keep pace with the necessary changes. It is the responsibility of every employee in the business.
>
> P4. The entire workforce must be involved in identifying and implementing the need for change, which, in turn, requires them to be involved in learning, if the organisation is to keep aligned with its environment.

3.9 Organisational Learning: A new perspective

This section will cover an overview of O'Keefe's Organisational Learning model, termed *A New Perspective*. Seven characteristics of Organisational Learning have been identified from

142 Burnes B, Cooper C and West P. 2003. Organisational Learning, 452-453.

143 Burnes B, Cooper C and West P. 2003. Organisational Learning, 452-453.

144 Burnes B, Cooper C and West P. 2003. Organisational Learning, 452-453.

an extensive review of the literature, which are outlined as follows:[145]

a) Learning antecedents;

b) Environment of innovations;

c) Perceived need and learning mechanism;

d) Executive challenge and learning process;

e) Cultural imperative of resourcing learning;

f) Organisational-wide learning; and

g) Learning Organisation.

The length of time required to diffuse the various attributes (sub-elements) of each individual characteristic differs across organisations.[146] Each stage of the model will be described step-by-step below.

Learning antecedents

Customer responsive culture is a customer-driven learning culture that supports the value of thorough market intelligence and the necessity of functionality co-ordinated actions directed at gaining a competitive advantage.[147] With its external emphasis on developing understanding with regard to customers and competitors; the market-driven learning organisation is well-positioned to anticipate the developing needs of its customers, and to respond through the addition of innovative products and services. Thus, customer focus is an important aspect of a learning orientation.

Anthropomorphism is the attribution of human form or qualities to non-human entities.[148] The current acceptance of Organisational Learning involves anthropomorphism, as the known theory glosses over if, and how, organisations learn, which is far from self-evident. Organisations do not have brains, but they have cognitive systems and memories. As individuals develop their personalities and beliefs over time, so too will organisations develop their views and ideologies: According to O'Keeffe, "Organisations select the stimuli

145 O'Keeffe T.2002. Organizational Learning: a new perspective, 130-137.

146 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

147 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

148 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

to which they respond, because they typically face much more information than they can sensibly process".[149]

For several decades, the world's most prescient observers of societal change have predicted the emergence of a new economy in which intellectual prowess, not machine capability, would be the critical resource. The organisational significance of each employee within a company, irrespective of size, becomes key. They suggest that, in excellent companies, employees can be identified as a key resource. According to their research in excellent companies, tools did not substitute thinking; intellect did not overpower wisdom; analysis did not impede action. Rather, these organisations worked hard to keep things simple in a complex world.

The research showed that these companies demanded the highest quality and they fawned on their customers; they listened to their employees and treated them like adults; they allowed their innovative product and service "champions" enormous leeway; and they allowed some chaos in return for quick action and regular experimentation.

It is O'Keeffe's view that "The ability of individuals must be liberated, and while strategy, organisation and process are important, it is the workforce that is the means and driving force for organisational success".[150]

Even though people only appear as costs on the balance sheet, they are assets in that they are, or should be, a productive resource. People are a resource that needs maintenance and proper utilisation, which has a finite life and an output greater than its cost.

It is the performance of the overall organisation that determines its survival; therefore it is necessary to control it, ensure that acceptable standards are maintained and that the necessary action is being taken to correct deviation from standards.[151] O'Keeffe contrasts the notion of need for control in modern organisations with the development of information technology and increasing numbers of "knowledge employees" who are less likely to respond to autocratic management.[152] O'Keeffe rather sees employees as seeking opportunities for challenge as well as outlets for creative ability, while enjoying the stimulation of working with like-minded individuals. Dissatisfaction with the existing paradigm is creating an empty

149 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

150 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

151 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

152 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

space in the control process, which the concept of Organisational Learning is endeavouring to fill.[153]

The pace of product, technology and market change continues to accelerate as learning organisations and competitors become more nimble, flexible and responsive to customers' needs. As traditional sources of competitive advantage become more fleeting, conventional approaches to formulating and implementing organisational strategy will not provide managers with the tools and insights they need to compete.

Globalisation does not just mean conducting business across national borders. It also means expanding competition for almost every type of organisation. Today's executives must understand that they face foreign competitors as well as local and national ones. Such globalisation presents management with the challenge of learning to operate in diverse cultural settings.

Now, consumers have wider choices and are becoming more sophisticated in their selection of products and services. According to O'Keeffe, they expect new and improved products, superior service and lower prices. The two major forces driving globalisation have been market growth and cost reduction initiatives.

In recent years, both trade and political barriers have been lowered, or eliminated altogether, by the creation of multi-country trading blocks.

Environment of innovations[154]

O'Keeffe states that organisations, which operate in fast-changing competitive environments, are pressurised to learn in order to survive the threats of hostile competitors and difficult environments. O'Keeffe argues that the only sustainable competitive advantage is an organisation's ability to learn faster than its competitors. Thus, knowledge diffusion initiatives become a vital consideration for Organisational Learning and effectiveness.

Young, dynamic organisations emphasise creativity and innovation as key factors of organisational culture; whereas older, more mature companies may find the implementation of learning initiatives a particularly challenging activity.

153 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137

154 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137

It would appear, argues O'Keeffe, that innovation and change are best realised as continuing; imaginative and proactive organisational enhancements, rather than isolated, spasmodic change episodes. A complex environment calls for an integrated workforce and transformational and facilitative leadership.

Perceived need and learning mechanism[155]

Learning occurs when organisations synthesise, and then institutionalise, people's intellectual capital and learning, their memories, culture, knowledge systems, routines and core competencies. Employees may come and go, and leadership may change, but an organisation's memories preserve behaviours, norms, values and mental maps over time.

As an organisation addresses and solves problems of survival, it builds an organisational structure that becomes the repository for lessons learned. It also creates core competencies that represent the collective learning of its employees, past and present. As members of the organisation leave and new ones join and are socialised, knowledge and competence are transferred across generations of learning.

Executive challenge and learning process[156]

Learning cannot occur in a vacuum; it requires executive management commitment and functional support in order to develop from discrete to organisation-wide activity. Within Learning Organisations, management pronouncements are seen as contingent, rather than definitive, but always remain an important part of the strategic decision-making process.

Cultural imperative of resourcing learning[157]

Effective learning is contingent on establishing a culture that promotes inquiry, openness and trust. Thus, Organisational Learning has two facets: a tangible "hardware" facet that consists of learning mechanisms, and an intangible "software" facet that consists of shared values and beliefs that ensure that the mechanisms produce actual learning (i.e. new insights and behaviours), and not mere rituals of learning. Organisational culture is a normative system of shared values and beliefs that shapes how an organisation's members feel, think and behave.

155 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

156 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

157 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

Organisational-wide learning[158]

The learning process demands unlearning as much as learning. Unlearning involves the process of restructuring past successes to fit the changing environment and situational conditions. Errors, failures, environment uncertainty or poor performance frequently trigger it. Under any circumstances unlearning is difficult, yet it can be a prime source of innovation, improvisation and experimentation in new ways of doing things. It leads to the creative process of learning, change and strategy development.

O'Keeffe firmly believes that the best type of learning occurs when people want to accomplish something and they have access to the kind of information necessary to achieve their objective. Learning happens best when people want to do something and get the information they need to accomplish their purpose.

Central to the success of any learning programme, is the concept of failure. All learning takes place in the context of failure. If you are learning to do something and it does not involve failure, you have not learned anything.

The demands of the 21st century will require business organisations to become more customer focused, using employee talent to create, share and utilise information as part of a broad-based competitive strategy. Another part of this transition will see organisations undergoing significant structural change, developing horizontal networks of task-focused teams leading to flatten organisational structures. The horizontal organisations will be organised around processes rather than tasks, driven by customer needs and inputs, and dependent on team performance.

As networks of teams replace traditional hierarchies, knowledge becomes the main organisational resource. Accordingly, open communication, creating shared meaning and understanding among team members will be one of the most critical skills for organisational members. The ability to facilitate such teams and create an organisation that can effectively use them will also be important management skills. A key implementation task is to create a context and a reward system that supports learning, encourages innovations and risk-taking by reducing the fear of making mistakes, the fear of receiving harsh criticism and anxieties associated with different types of learning. The ability to listen to others and create shared

158 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

meaning is extremely important, because it provides the environment for sharing data and experiences and for creating a common base for knowledge.

The process also requires norms that facilitate inquiry into each other's assumptions, data, experience and thinking, which closes the loop and returns us to the antecedents identified as being important in the creation of a Learning Organisation.

Learning Organisation[159]

A learning company is an organisation that facilitates the learning of all its members and continuously transforms itself and it is an organisation skilled at creating, acquiring and transferring knowledge, and at transforming itself to reflect new knowledge and insights.[160] However, it is important to note that it is the employees within organisations, rather than organisations themselves, that learn. It is individuals who create organisational transformation.

Effective learning requires an organisation to resolve the paradox of how to relax its control over the learning process, while channelling the benefits from it. In other words, no matter how well-matched are the goals, methods and educational principles of a given development activity; unless the participant subscribes to its value, timing and personal pertinence, learning is unlikely to ensue. For learning to be effective, it needs to coincide with the processes of the individual learner's maturation, self-fulfilment, perspective and self-determination; it needs to relate to, and build on, what individuals bring to their learning.

The learning is inextricably bound up with organisational change and will seek to develop beyond first-order learning towards second-order change, which is learning how to evolve the capacity to generate new insights continuously. It involves the discomforts of experiencing the uncertainties and ambiguities associated with the iterative processes of change. It requires managers to redefine their roles and responsibilities as members of a professional community of co-learners who will facilitate risk taking and openness required for reflective practice, in which questioning and self-doubt are as important as certainty and control.

Achieving a Learning Organisation, then, requires activity on a wide range of fronts. It demands serious, far-reaching and probably uncomfortable commitments and change from senior management that penetrates to the very basis of the organisation. The necessary

159 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

160 O'Keeffe T. 2002. Organizational Learning: a new perspective, 130-137.

structural changes require new work arrangements, a comprehensive break with traditional managerial elitism and sincere efforts to attract the commitment of the workforce.

3.10 Learning Organisation Critical Success Factors

The critical success factors are an indication of what organisations need to do to ensure that the processes and systems put in place to strive towards a Learning Organisation are in line with standards identified as supporting a Learning Organisational culture. A comparison is made of the critical success factors of Knowledge Management, Six Sigma and Lean Six Sigma.[161] The idea is to link the common elements of each and see if there is indeed a theoretical link.

The first critical success factor is that learning must be seen as a continuous process, consisting of acknowledgement of change and small trial-and-error experiments.[162] This would have been conducted in an attempt to move the process forward (for example, models built, role-plays undertaken) as a way to measure the current process, defining a gap between the current state and the desired state, the communication of the perceived gap and the allocation of resources to carry out the process.[163]

The second critical success factor is that people development plays a critical role in ensuring that an organisation continues to learn and that the process is sustainable. The key factors include the demonstration of questioning processes, which allow creative tension to form. The outcome of these questions allows individuals to influence and be involved in developing the process, resources are made available which individuals can use (for example, time and money) - an inquiry and reflection process that can provide the same principles that an apprenticeship is viewed to have, i.e. individuals create shared visions and the development of mental models.[164]

The third and last critical success factor is the importance of listening to the customer. The element is represented by a process that allows organisations to obtain knowledge about their customers, which allows customers easy access to contacting an organisation to solve their problems. The communication of solved problems is placed back into the organisation to

161 Chong CS. 2006. KM Critical success factors, 230-233.

162 Chong CS. 2006. KM Critical success factors, 230-233.

163 Chong CS. 2006. KM Critical success factors, 230-233.

164 Chong CS. 2006. KM Critical success factors, 230-233.

other individuals, and the problems identified are used to test the current business environment.[165]

3.11 Conclusion

Five salient characteristics of an effective Learning Organisation have been identified through factor analysis, namely employee participation, learning climate, systematic employee development, constant experimentation and a learning reward system.[166] Organisation Learning Mechanisms (OLMs) are the cultural and structural facets of an organisation that facilitates the development of, improvement of, and renewal of a learning organisation.[167] The study by Armstrong and Foley identifies four facilitating mechanisms, or the context within which learning could occur, which is the learning environment, identifying learning and development needs, meeting learning and development needs and finally applying learning in the workplace.[168]

Through a literature review, five concepts of Organisational Learning were identified: focuses on: the collectivity of individual learning, on the process or system, on the culture or metaphor, on knowledge management and on continuous improvement.[169] The Learning Organisation is the one that is able to create, acquire and transfer knowledge and, at the same time, manages to modify its behaviour, reflecting new knowledge and new perspectives.[170] This organisation is characterised by presenting a special ability in performing five main tasks, which are: systematic problem solving, experimentation, learning from past experience, learning from others and transferring knowledge.[171]

Over the past two decades, organisational research has revealed three broad factors that are essential for Organisational Learning and adaptability: a supportive learning environment, concrete learning processes and practices, and leadership behaviour that provides reinforcement.[172] Each block has subcomponents described as follows:

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165 Chong CS. 2006. KM Critical success factors, 230-233.

166 Jamali D and Sidani Y. 2008. The Learning Organisation Learning organisation: diagnosis and measurement in a developing country context, 58.

167 Armstrong A and Foley P. 2003. Foundations for a learning organisation, 74.

168 Armstrong A and Foley P. 2003. Foundations for a learning organisation, 75.

169 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 9.

170 Curado C. 2006. Organisational Learning and organisational design 36.

171 Curado C. 2006. Organisational Learning and organisational design, 36.

172 Edmondson AC, Garvin DA and Gino F. 2008. Is yours a learning organisation?, 110.

Supportive learning environment: Psychological safety, appreciation of difference, openness to new ideas and time for reflection.

Concrete learning processes and practices: This block involves the generation, collection, interpretation and dissemination of information. Links to these include experimentation to develop and test new products and services; intelligence gathering to keep track of competitive, customer and technological trends; disciplined analysis and interpretation to identify and solve problems; and education and training to develop both new and established employees.[173]

Leadership that reinforces learning: This environment has managers who invite input from others in discussions, ask probing questions, listen attentively, encourage multiple points of view, and provide resources, time and venues for identifying problems and organisational challenges.[174] Knowledge-intensive organisations abandon formal structures and reach co-ordination through social reward and internal normative systems, instead of hierarchical control.[175]

Upon reviewing all the tools, Organisational Learning Mechanisms, organisational learning diagnosis tools, and views from other authors on what the key characteristics of learning organisations are, the researcher drew up his own list of salient characteristics that would be compared or used to determine whether a POE organisation was indeed learning. The following six salient characteristics of Learning Organisations were identified:

Systematic problem-solving: In this environment, considerable effort is spent on measuring key factors, striving for specific quantifiable measures and discussion of metrics as a learning activity.[176] Systematic problem-solving makes use of philosophy together with improving quality methods, and there is a permanent search for overcoming difficulties and finding solutions.[177]

Experimenting, Innovation and Risk-taking: A Learning Organisation has an environment that supports the trying of new things, curiosity about how things work, and accepting failures. Changes in work processes, policies and structures are a continuous series of

173 Edmondson AC, Garvin DA and Gino F. 2008. Is yours a learning organisation?, 110-111.

174 Edmondson AC, Garvin DA and Gino F. 2008. Is yours a learning organisation?, 110-111.

175 Curado C. 2006. Organisational Learning and organisational design, 39.

176 Appelbaum SH and Gallager J. 2003. The competitive advantage of organisational learning, 50.

177 Curado C. 2006. Organisational Learning and organisational design, 36.

learning opportunities.[178] Exploration consists of the development of learning routines that the organisation establishes to ease the development of new products and processes. Flexibility, research, risk-taking, experimenting and innovation are significant components of this knowledge management strategy.[179] Experimentation is defined as the degree to which new ideas and suggestions receive attention and are dealt with systematically.[180] Risk-taking is understood as the tolerance of ambiguity, uncertainty and errors.[181]

Learning from others and past experience: Learning from the past is an activity that happens when organisations carefully reanalyse their failures and successes, evaluate them systematically and record the corresponding lessons, so that it allows for organisational members to access them in a free and simple way, whilst learning from others reflects the learning that does not come out of self-reflection and analysis, but could come from outside the environment.[182]

Transferring of knowledge: A critical factor in achieving organisational competitiveness is the ability to transfer knowledge effectively.[183] The effectiveness of the transfer of knowledge can be measured using key performance indicators in the following categories:[184]

a) Innovation and learning: such as new products, improved technology, increased patents and improved human capital;

b) Processes: such as new systems, reduced cycle time and reengineering processes;

c) Customer satisfaction: such as increased customer numbers, increased repeat orders and reduced customer complaints; and

d) Financial: such as improved profit, reduced cost and increased sales.

Participative decision-making: Emphasis is placed not only on the collection and collective interpretation of information, but also stresses that giving individuals and groups the authority to act on this collective interpretation requires changes to traditional managerial

178 Appelbaum SH and Gallager J. 2003. The competitive advantage of organisational learning, 50.

179 Curado C. 2006. Organisational Learning and organisational design, 33.

180 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 226.

181 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 227.

182 Curado C. 2006. Organisational Learning and organisational design, 36.

183 Fang S, Hung YR, Lok P and Rhodes J. 2008. An integrative model, 246.

184 Appelbaum SH and Gallager J. 2003. The competitive advantage of organisational learning, 47.

roles and the creation of a participative and empowering organisational culture.[185] From the perspective of Jamali and Sidani, employee participation is about stakeholders significantly influencing policies, employees expressing opinions freely to their peers and superiors, employee input being accorded due attention and consideration, and lastly employees taking part in policy and strategy formulation.[186]

Dialogue: Dialogue is defined as a sustained collective inquiry into the processes, assumptions and certainties that make up everyday experiences, and it is also viewed as a basic process for building common understanding and allows one to see hidden meanings of words, first by revealing these hidden meanings in their own communication.[187] Ortenblad argues that, in dialogue, a group explores complex and difficult issues from many points of view, individuals suspend their assumptions, but they communicate their assumptions freely, and the result is a free exploration that brings to the surface the full depth of people's experience and thought, and yet can move beyond their individual views.[188]

Leadership involvement and a clear learning strategy: Teare argues from studies of organisations and a considerable body of anecdotal evidence, where organisational life is strongly influenced by organisational leaders, in particular the vision, style of leadership and motivation that enable them to make things happen and inspire others to follow their direction.[189] He further contends that the recipe for effective leadership encompasses clarity of vision (derived from the ability to reduce a complex reality to the critical essentials), credible communication and interpersonal skills (to sell the vision and inspire people to action), sincerity, generosity and self-mastery (to inspire trust and withstand the loneliness of leadership), and high levels of motivation and physical energy (to achieve the extraordinary).[190] This view is shared by Yeo, who argues that the direction and contents of learning are influenced to a large extent by the organisation's mission and vision.[191] He also suggests that the extent and capacity of learning should be driven by top management, with a strong commitment to develop learning initiatives. Amy argues that leaders face a threefold

185 Burnes B, Cooper C and West P. 2003. Organisational learning, 453.

186 Jamali D and Sidani Y. 2008. Learning organizations: diagnosis and measurement in a developing country context, 68.

187 Alegre J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 228.

188 Ortenblad A. 2001. On difference between organisational learning and learning organisation, 130.

189 Teare R. 1997. Enabling organisational learning, 315.

190 Teare R. 1997. Enabling organisational learning, 315-316.

191 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

responsibility, which makes organisational learning a high priority, creates the psychological and cultural conditions to enhance collective learning, and shapes contextual factors to create transfer of learning from the individual to the organisational level.[192]

Leaders articulate vision, are engaged in its implementation, frequently interact with members and become actively involved in education programs.[193]

These salient characteristics of a Learning Organisation will be used to evaluate, or do a diagnosis, of the Company being studied to determine if it has traces of these factors, or if the organisation exhibits any of the characteristics. The idea is to do a comparison of an organisation that implements POE against the salient characteristics.

192 Amy HA. 2007. Leaders as facilitators of individual and organizational learning, 213.

193 Appelbaum SH and Gallager J. 2003. The competitive advantage of organisational learning, 50.

Chapter Four

Pursuing Operational Excellence (POE)- the Journey of a Company

4.1 Introduction

Chapter four covers the journey that a South African company undertook in its POE. This chapter covers the activities, consultation, training, challenges, wins, losses and successes. All the phases that the company underwent on its journey to achieve Operational Excellence are discussed. Key to this chapter is the role players and different departments that were involved in making it possible for the project to be kick-started and sustainable. In this chapter, of interest are the different views with respect to the nature of the project. Not everyone is in agreement about the sequence of the phases followed and there are different schools of thought on the relevance of different phases.

This chapter explores the steps that the Company took as it Pursued Operational Excellence. These steps include implementing some practices and methodologies outlined in the preceding chapters on Lean Manufacturing (LM), Six Sigma (SS), Lean Six Sigma (LSS) and Clear Leadership Engagement (CLE). What the researcher would be checking is the consistency by which the practices of LM, SS, LSS and CLE are applied, as defined conceptually by various authors, and also what is done within the Company. The end result would be to link the practice of POE with Organisational Learning and also to test the conceptual views expressed by different authors on LM, SS, LSS and CLE.

4.2 How the journey began

In 2005, the Operations Director was appointed the Director of the Company. According to the Operations Director at the time, the executive had a number of simple questions that troubled him. How does the Company add value to the entire organisation in its current form? If this unit were to be outsourced and competed against similar environments in the open playing field, how would it fare? The feedback he got was shocking and even more troubling than the questions he posed.

This led to the beginning of the journey of transforming the Company. The journey started with visits to different sites, and meetings with managers, the executive, team leaders and staff. Throughout the visits and discussions, the Operations Director picked up two things that compelled him to want to be changed. Firstly, the Company was functioning like a utility, which meant that it was not part of the core competence of the Company and, to him, this was a serious concern.

Secondly, he noted that the operations, whilst covered in paperwork, resembled a manufacturing factory in terms of how customer requests were processed. With this knowledge, he started to ask more questions and make more observations about all the operations and he picked up that there were no metrics or measuring instruments in place. Process flows were not visible and people were going about doing their work like robots.

With this observation, he remembered that he was accountable to his employers to add value to the operation and the money they had invested in the operation. He was concerned about the shareholders' investments and how they benefited from this operation. In his opinion, this operation was not adding value and would definitely not be able to compete against other similar operations. But what was more concerning to the Operations Director was the fact that, in its current form, the operation was not sustainable and could not stand out amongst the crowd.

Given the research that he had done on the overall operation and its status, the challenge he faced was what to do with the information. It was important for the Operations Director to understand how business in general gains a competitive advantage and where the possibilities exist for one company to gain such an advantage. He identified three areas where a company could gain a competitive advantage over its competitors while remaining sustainable, and he was of the view that each had its own organisational culture.

The first area was Product Leadership: given that the Company was commoditised and the variation in product offering was limited, the Operations Director concluded that there was no chance of gaining competitive advantage by being the leader in product development, especially with the lifespan of products being so short.

The second area was Customer Centricity: the Operations Director considered this area to be a key aspect of the business which could differentiate one business from another if done well. How customers experience the Company was critical. Be it on the telephone, face-to-face, or by way of processing requests, this had to be done well. The Operations Director believed that this was a minimum requirement for any business to exist and prosper; however, he was convinced that Customer Centricity alone could not achieve it and would not allow a company to gain competitive advantage over its competitors. He was of the view that the third element was the main contributor to the achievement of customer centricity.

The third area was Operational Excellence: After his research and several visits to different sites, the Operations Director was convinced that, if the organisation took care of its heart, everything else would follow. He said that a car without an excellent engine would not succeed, but he also took this further by saying that the customer was the driver, the POE was the engine and the key element of POE was Operational Excellence.

With Operational Excellence as the ultimate goal for the Operations Director, the road ahead was now well-defined. At this stage, his research guru, the Research Director, entered the process.

The Operations Director approached and tasked the Research Director to examine alternatives, as the business wanted to change its core systems. In his quest to find alternatives, the Research Director came across Six Sigma. At the time, Six Sigma was mainly focused on reducing deviation and ensuring that the process delivered as per requirements. Any deviation from the process output was investigated using Six Sigma tools to arrive at a solution.

The research team implemented a pilot project to check the suitability of Six Sigma to the Company's environment. The methodology produced results as per expectation; however, there were areas of concern that the team encountered during the pilot phase. The main areas of concern were the absence of metrics or measurable items; also linked to this were measuring instruments to determine progress. Another element was the process maturity level of the organisation at that time and whether the organisation was receptive to such changes.

In an effort to introduce the Six Sigma methodology, the Company embarked on a massive and aggressive training programme that had over 3000 people trained in Six Sigma White and Yellow Belts. A number of people were also Green-Belt trained and were busy with projects.

At the same time, the Operations Director approached the Change Executive, the director for change management. Her mandate was simple, yet difficult and complex. She had to find a way to help drive the transformation that the Operations Director had in mind. The Operations Director clearly stipulated to the Change Executive what, at that time, he observed within Business Operations. He saw an operation that:

a) did not have a clear purpose or direction;

b) was functional, and yet dysfunctional;

c) could not determine whether it was successful; and

d) had no clear understanding of processes and did not have clear processes in place.

What the Operations Director saw were people who did not know what they needed or how and what the outcome would be. The Change Executive was called to help the Operations Director in driving a cultural change on the employees' side, whilst the Research Director would help to drive a cultural change on the side of the process. The two individuals were to become the key engineers in driving two key elements of transforming the Company into a centre of excellence.

The Change Executive and the Research Director started on blank pages with only one item on it "Transform the Company machinery into a process culture and ensure that the Company gains a competitive advantage by providing excellent customer experience through process excellence".

The Production Environment Director, chief architect of POE, argued that POE was adopted because of the need for business to have process efficiency and consistent customer experience. His view was that POE was a direct enabler of the Operating Model, which drove simplicity, standardisation, employee engagement, low levels of variation and consistent customer experience. Leadership took a stance that process excellence was a strategic imperative that was not negotiable.

The Production Environment Director contended that a number of key deliverables were driven, including the following:

a) A daily production meeting which took place every morning in teams to discuss the previous day's performance and plans for the next day. The intention of these meetings, according to the Production Environment Director, was to get the team to hold each other accountable for the success and failure of the operations. Teams had an opportunity to find ways and means to improve the operation.

b) Understanding of processes. This matter was driven by having high level process maps at each staff desk. This enabled staff to evaluate the process and advise if changes were necessary.

c) Introduction and application of metrics. With the lack of measuring instruments in place, this was a challenge. The Integrated Processing Director's opinion was that all operations should have something they could measure and track. The process of putting metrics on the boards in each team began with much resistance and silent revolutions, but the metrics started coming up on boards. Teams started discussing metrics daily. With time, every process had metrics with process control charts to view the levels of variation.

d) The Kaizen Ideas Project. Teams were encouraged to review their operations and identify bottlenecks. Whatever challenges they faced, they had to classify them into two categories: Just Do (the team could just execute without further investigation) and Six Sigma (teams needed to take up a Yellow Belt project and apply Lean Six Sigma tools to analyse the problem further and in detail).

e) Process awareness via White Belt. In order to cement and introduce the process culture, staff members were taken for White Belt training in Lean Six Sigma methodology. The Integrated Processing Director, the Research Director, the Lean Six Sigma Coach and the Operations Director argued that the intentions here were to introduce staff to the concepts of Lean Six Sigma. According to the Change Executive, the idea behind White Belt training was to take the level of engagement to another level. She argued that if staff were to raise questions about process variability and engage fruitfully on operational matters, then they would require a different level of intelligence and this was what the process awareness campaign was about.

f) Advanced process awareness via Lean Six Sigma Yellow Belt training. This was meant to close the gap on ideas (Kaizen Ideas) raised through the production meetings, so that those ideas could be investigated and a decision made if the process really required

change, and at what level. The one thing the project owners were trying to avoid was to put staff under pressure to analyse processes with tools with which they were not familiar.

g) More advanced programmes through Green and Black Belt in Lean Six Sigma. Kaizen Ideas that required more comprehensive analysis and skills would then be handed to qualified Black Belts.

4.3 Pursuing Operational Excellence Enterprise Journey: Changing the business

In line with Six Sigma methodology, production meetings were introduced to ensure that discussions at production level were consistent with Six Sigma principles. In these discussions, the focus was on metrics and the team had to answer five simple questions as they began the day:

- What went well yesterday?
- What did not go well?
- What can we do today to please the customer?
- What are the challenges or obstacles that will stop the team from reaching the goal?
- What action steps will be taken to ensure that the challenges are addressed?

In this way, staff began to engage each other every morning in operational matters and came up with their own solutions to their problems. Where a problem was considered to be beyond their scope, it would be escalated to the next level of management.

Due to the complexity of processes and the amount of waste that was dominant in the processes, the Company introduced Lean Manufacturing concepts. As part of changing the way operations were run, the Company introduced another Lean concept in the form of five S (5S). This was in an effort to ensure that, amongst other things, staff did not waste time looking for items they would need for work and also to ensure that there was no wastage in production due to staff being unable to locate the specific items they needed for their operations. An audit would be conducted regularly to check the standards and consistency in the operations across the Company.

As part of the production meeting, the staff would engage in discussions on what caused them not to reach their respective targets. To ensure that the challenges that were raised during the production meeting were not ignored, another method was introduced to ensure that ideas coming from the team were managed and used to address operational issues.

To this end, Kaizen Ideas were introduced to the workplace. Kaizen is all about innovative ideas that seek to address the challenges that staff members faced daily. Each team was challenged to come up with ideas for all the challenges they faced, and also to suggest ideas to reduce waste, or identify processes that could be improved.

Each Kaizen Idea would be analysed according to the following guidelines:

a) Just Do Idea: This is when the idea can be executed without any further analysis. The change in process can be implemented and benefits tracked over time.

b) Six Sigma would be a project that required further analysis and the degree of complexity was higher. Here, staff members may have had to combine the tools of Lean and Six Sigma to arrive at, or test the feasibility of, the solution proposed for the problem.

As a result of the Kaizen Ideas and feedback given to staff on the progress of their ideas, it became easier for them to come up with more and more ideas.

4.3 Effecting the Transformation of the Company

The Operations Director shared one simple concept with the Change Executive: “One cannot compete in a car race with a Ferrari that has a Toyota engine”. The engine is important for participating in an effective and winning race, but so is the driver. The Operations Director saw the driver as being the customers whom the Company services, and the engine as being the processes that ensure that excellent customer experience is guaranteed.

The journey for the Change Executive began with finding the true north, and this was done via CAPS, which is defined as the Compass Aligned Performance System. With this method, clarity of purpose is created and the true north is found. The CAPS was linked to the CEO’s nine strategic goals, which were linked to different focus areas in the Company. Once this was done, the Operations Director saw a need for the Company to have a purpose that will drive its activities.

The challenge was how to bring over 5000 people on board the POE train. The strategy was developed and agreed upon. Among the things to be done were the following:

a) The Operations Director’s road shows with management. Normally, this would take place over a couple of days while the Operations Director engaged the management team and also responded to their questions.

b) The Operations Director would also have road shows that involved staff, where he would also address similar issues. During these sessions, POE would be popularised and clarified.

c) Leadership in Touch sessions would also serve similar purposes with a small group. Here, the Operations Director would have breakfast with a selected group of people and once again create a chance to engage on numerous issues, including POE.

d) A POE Magazine was also to be introduced to bring POE to life.

e) Numerous competitions were to be introduced around what POE entails and what it represents. The idea was to obtain a buy-in and sell the concept of POE to the business in general.

During the same period, the Research Director was also tasked with the function of finding the process methodology that would bring about Operational Excellence within the Company. His task was rather challenging, as his mandate was to find an alternative to the core system that was in place at the time. The Research Director accidentally came across Six Sigma. The key focus of Six Sigma addresses variation and what caused the variation.

According to the Research Director, in order for Six Sigma to succeed, it would require a certain state of process maturity and also predictable and stable processes. At the time, two conditions were not in place, which rendered Six Sigma as a tool not feasible for the Company's condition. The first condition was in respect of metrics and the usage of numbers to manage the production line. The second condition was the level of intelligence and the staff's knowledge of using the Six Sigma mathematical tools to solve everyday operational challenges. This then led to the introduction of Lean Six Sigma (LSS), which was more suitable to the conditions in the Company at the time.

The Research Director and his team introduced Lean Six Sigma via pilot projects. Once this was regarded as successful, more projects were introduced. As the team became more familiar with the LSS system, and their levels of competency increased, more people were trained and coached by the Research Director's team.

The key causes of resistance from staff members was due to failure rate, low numeracy levels and competing needs between operational needs and training needs.

4.5 The Pursuing Operational Excellence Culture

According to the Lean Six Sigma Director, POE is a culture or a way of life within the Company environment. This view was shared by the Research Director, who contended that POE is how each team runs its operation on a daily basis and makes use of the tools encapsulated within the POE culture. The Lean Six Sigma Director argued that the introduction of POE was meant to introduce a process culture where people in teams continued to improve their processes daily.

The idea behind POE, argued the Lean Six Sigma Director, was to get people involved in the company and the direction it took. The Lean Academy Director asserted that people became involved in the Company by having an opportunity to change the processes if they did not work and also if the processes did not produce the desired results. The Lean Academy Director believed that, in this kind of environment, the mind-set of employees had changed and their approach to everyday work was that of a change agent who constantly wanted to make the processes produce results with simplicity, urgency and excellence and, if the processes deviate from this expectation, the agent began a process of finding solutions to the deviation.

The Lean Six Sigma Director contended that, in a POE driven environment, people did not sit back and wait for management to come up with solutions to their problems, the staff took ownership and solved the problems themselves.

In discussions with the Operations Director; the Research Director; the Change Agent and the Lean Six Sigma Director, it was confirmed that POE, as defined by the Company, was a combination of Lean Manufacturing Principles which focused mainly on reducing waste, Six Sigma, which intended to reduce deviation from process output, and Clear Leadership Engagement, whose main focus was to bring the element of getting a buy-in from staff and also to ensure that they formed the main part of the journey.

The newly appointed director of Production Environment advised his management team that they had to bear in mind that they were driving a culture of “challenge and debate”, driven by process insight, facts and metrics. In the production environment, when they talked about cultural change, it was not simply words on paper, but means that everyone experienced the change. He furthermore asked the management team a simple question: “Are we paying forward everything that we learn? Do we pass on these messages and learning to our teams and encourage debate on these and other points?”

4.6 Phases of Transformation

4.6.1 The Lean Six Sigma Phase

The first phase for the Company and the Operations Director's drive was to introduce the process culture into the Company. This introduced the Lean Six Sigma into the operations environment. The approach was to train as many people as possible, whilst simultaneously introducing a process culture. This methodology was a way of ensuring that the process of a systematic approach to everyday problem-solving changed towards a metrics-driven process analysis, project management and asking the right questions.

The Lean Academy Director contended that the Company embarked on a mass training programme to promote the intellectual levels in the whole business, which would create conditions conducive to a thinking and questioning environment. The Lean Six Sigma training covered both theoretical and practical aspects, argued the Lean Academy Director, the Lean Six Sigma Coach and the Research Director. They indicated that the theoretical aspect mainly covered the methodology, while the practical part covered the application of the tools learned from class. Here, a project was selected from the working environment and the student used or applied the tools learned from the theoretical aspect to their work problem.

The Lean Six Sigma Director argued that Lean Six Sigma is a systematic problem-solving strategy, and she believed that, with this tool, people would be able to systematically solve their everyday work problems without consulting their leader. Through this methodology, staff members became independent thinkers at work and were able to contribute more to the workplace.

Through Lean Six Sigma (LSS), a number of people have been trained in Lean Six Sigma methodology. According to the Lean Six Sigma Director, the head of the Lean academy, more than 2500 people were trained. Just over 600 were Yellow Belt trained, but only 300 have been certified, lamented the Lean Academy Director. Each of the 300 certified individuals had a project that brought about financial benefits that could be tracked and monitored for six months before the individual was certified.

The Lean Six Sigma Director indicated that only a 50% success rate was achieved due to a lack of understanding on what it meant for both the business and the staff. The business saw it as an unnecessary process, while the staff saw the programmes as tortuous. This attitude led to less application of tools and skills acquired during training. The Research Director, the

Operations Director and the Change Executive agreed that it was a quite painful lesson. There seemed to be agreement on what the team had learned with this kind of approach.

The Company identified a flaw in the training methodology as more and more people were resistant to the training and also did not understand why they were being trained on the LSS methodology. During 2007, a new strategy was introduced to link understanding with training and also to make the training more practical. To this end, most staff members were White Belt trained. LSS White Belt training is an awareness programme that covers the whole concept of LSS in terms of process understanding, metrics, customer's needs analysis, measurement instruments and tools.

Once trained, people started to view their work differently and could make a difference at work. They now changed according to what they wanted to see in the workplace. Through this training and awareness, they were then able to identify whether a process was not working and what they could do by using the LSS systematic methodology. In this way, people began the process of thinking at work and applying their minds to their everyday challenges.

4.6.2 Lean Manufacturing Phase

The Operations Director defined Lean Manufacturing as a philosophy, or a way of doing things. According to the Operations Director, it introduced three things to the business environment that are critical for Operational Excellence.

First, it introduced a culture of producing with zero defects. This way of running an operation ensured that waste was eliminated from the process. All forms of waste were identified and eliminated.

Waste could not be eliminated unless the process was supported by employees with the right mind-set and tools in place to eliminate waste. This mind-set has little tolerance for waste. When a bottleneck was encountered, the idea was registered as an idea for improvement, which would be dealt with via Yellow Belt or Green Belt. In this way, staff members could take up the project when they went for their own training and came up with solutions to their own problems.

Continuous Improvement required that, once bottlenecks were identified, an improvement process had to begin to attend to the idea. The business intended to create a questioning

culture, where questions were asked and answered. Employees were able to ask questions without fear.

4.6.3 Clear Leadership Engagement Phase

The Operations Director and the team realised that the business was not making progress as anticipated, and went on a mission to find out why. Upon investigation, they discovered that for the POE concept to succeed, relevant leadership was needed. They also discovered that the environment was dominated by a telling leadership culture; a leadership culture that did not encourage engagement. Since the culture did not support what the Company had in mind, another phase had to be introduced to close the gap in leadership and also to introduce a management style which encouraged thinking in the workplace. A B-style leadership was introduced; a leadership that listened to the employees and also attended to their needs.

Clear Leadership Engagement (CLE) helped to create a climate to support the POE project. Through CLE, leadership created a proper climate to enable employees to make changes in a supportive environment. The Lean Academy Director argued that clear leaders would think along the lines of continuous improvement and they would not have a problem when they were challenged or questioned.

The Research Director also believed that the engagement model helped staff members to develop facilitating skills, as each one in a team received a chance to run the meeting and facilitate discussions. The Research Director also argued that the PITSTOP (People in Teams Striving to Optimal Performance) method was a team-based problem-solving methodology that deals with metrics and allows staff members to engage each other on views which they held in respect to the day-to-day challenges they faced.

4.6.4 Lessons Learned through the POE Journey

One of the key lessons that the team learned was that the sequence of POE would have been different if they knew at the beginning what they know now. The Lean Six Sigma Director and the Operations Director agreed that, if things were different, they would have started with the engagement model first, then followed with the Lean Manufacturing Philosophy, and ended with the Lean Six Sigma methodology.

Another key lesson learned was that, during Lean Six Sigma training, the tools were not used at the workplace, so the team introduced PITSTOPS. This method allowed for engagement at

a higher level between staff members. It also allowed for the escalation process for issues that could not be resolved at that level.

The discussion during the PITSTOPS encouraged staff to use the tools learned via a focused discussion on metrics and outcomes. Members challenged each other on targets and what was expected of them. They constantly discussed options on how to bring everyone on par with the target. Challenges were identified and discussed and, where possible, the team came up with a suggestion on how to resolve their day-to-day challenges.

The next lesson learned was the management of ideas coming as a result of continuous improvement. A number of ideas came from teams, but were not properly managed and not monitored. With the introduction of the National Improvement Management (NIM) team, this matter was addressed.

The NIM structure provided an infrastructure and foundation for POE. Through NIM, the culture of POE and continuous improvement, in particular, was supported. Staff members in their PISTOPS picked challenges and also identified ways and means to resolve the challenges. The NIM team did all the necessary investigations to check the feasibility of solutions and, where possible, proposed a different approach.

The Lean Academy Director contended that NIM gave the Company control of what ideas for improvement came forward and what was needed to be done. She also indicated that, through NIM, business could define the nature of projects identified and executed.

Once a solution was approved, the NIM team presented the idea at a forum where a decision was made regarding the next steps, upon which the new process was implemented everywhere it impacted, and the process documents were updated accordingly.

According to the Research Director, people working in his team have learned to coach others and have also shared their experiences with the rest of the group. These were skills they did not have prior to the introduction of POE.

The Research Director indicated that there would be a further review of the White and Yellow Belt training in the near future. The view was that more practical and operation-linked training would soon be introduced. This training method would change from a project-run training system, to an action-orientated working system. This was also an obvious indication of clear learning during the POE process. This training would be applicable daily,

argued the Research Director, and it was his view that this new training would support the PITSTOPS process that was already underway.

In an interview with the Operations Director, he argued that one could not underestimate cultural readiness during the implementation of any strategy for change in any business environment. According to him, cultural readiness told the leaders how business would receive the journey and whether there were any gaps that needed to be closed prior to the implementation. The Operations Director contended that the manner in which the change was packaged would make or break the journey. His view was that this was a long-term journey and required a lot of patience.

The current challenges that Toyota faced, and what the Operations Director's views were on what had happened, was also discussed. He was visibly angry and disappointed with the current challenges that the Company faced, which actually included the POE journey. He was disappointed, not necessarily by the failure of the system, but rather by the current generation X leaders who were more concerned about instant gratification, chasing volumes and maximising profit at the expense of quality, which is a foreign culture in the Japanese genetic makeup. He argued that this culture is contrary to the Japanese culture of patience and focusing on long-term success, rather than instant gratification.

The Operations Director argued that the change is about a cultural journey. It was about the culture and the social software of the business; it was the DNA of the Company. Overall, he called this a cultural transformation. The Change Team was important in this journey, and people got tired if they did not see results soon enough; therefore, the Change Team needed to do "sanity checks" every now and then to confirm the progress being made.

The Operations Director's second lesson related to his leadership team and how they interpreted, perceived, and engaged with the new concept of POE. It was the Operations Director's opinion that one should not underestimate the understanding of the leadership teams, including management in general, but especially the leaders who had to sell the concept and its benefits. He argued that the team needed to buy in, in order to sell. However, he also believed that it became more difficult when dealing with intellectuals who may not necessarily engage in debates or discussions if they were not sure of the concept, as most would not like to be embarrassed. Most of the time, he had to trust his intuition and move on with the implementation if there was no visible resistance.

His argument stemmed from the fact that he had to do road shows every year, where he explained the POE journey and what its implications were. During his road shows, most people expressed their appreciation to hear the message from the horse's mouth, but the questions remained as to why other leaders did not share the same message and why the message was more acceptable when it came from him. The views shared by the staff was that, most of the time, they did not understand the concept and therefore they were afraid to ask questions. As a result, they did not buy in, and hoped the project would fail or disappear. To their astonishment, the concept prevailed.

The Operations Director also argued that the kind of leadership that prevailed for quite some time in the Company had been where staff members were told what to do but were not engaged. As a result, they were not accustomed to being engaged on what direction the business was taking.

The Operations Director's third lesson was around the sequence of the implementation. He believed that, during planning, the team needed to think long and hard about the sequence and the impact of each phase. This view was consistent with what other members of his team had expressed. The Lean Academy Director, the Research Director and the Lean Six Sigma Coach all believed that, if they were given a chance to start the journey again, they would have approached it differently. This journey started with LSS, followed by the introduction of POE, before the marriage of the concept with others, and then later on Clear Leader Engagement (CLE). CLE linked everything together, which, on its own, was a learning during the journey.

If things were done differently, the Operations Director's team would have introduced Lean Manufacturing first, which would have constituted the philosophy of dealing with waste decisively and consistently. CLE would then have followed secondly, which would then have been followed by Lean Six Sigma. However, LE and LSS could be staggered or launched in parallel. It was important to get the framework right and continue to evaluate the progress regularly.

The fourth lesson was that an organisation could be changed from the bottom up. This change did not come from the CEO, but from the Executive. The idea was then sold to the bigger business and, as a result, influenced the bigger business. He contended, though, that this came at a personal risk, as one ventured into unknown territory and new dimensions. The results may easily have had disastrous outcomes. Failure could result in one losing one's job,

especially where there was no buy-in from the organisation. Also, considering that the POE journey had been started in the bigger and significant part of the organisation and, had it not been adopted by the bigger section of the business, sustainability would become a huge challenge.

According to the Operations Director, the fifth lesson was that one learned by doing. This meant staff had to receive a chance to experiment and take risks; hence part of the POE journey was to encourage staff members to question why things were done the way they were. Where a process did not produce the desired results, staff members were encouraged to find alternatives and document the new way of doing things. In this way, the process was continually being improved until it produced the desired results.

For the Operations Director, the sixth and last lesson was that an organisation had to be designed around the intended outcomes. Mechanisms had to be put in place to ensure that the planned change was successful. He believed that one of the key elements that made the POE journey sustainable was the use of PITSTOPS, which, by design, ensured that discussion took place every day. It also ensured that a specific way of discussing the operations took place on a daily basis. This ensured that engagement, problem-solving, target driving and continuous improvement happened every day as staff members tackled operational problems daily. With PITSTOPS, staff members had a level of control over what happened to the operation. Staff members determined, and could see, how well the operations were performing overall.

4.7 Benefits of Pursuing Operational Excellence

Through POE, the Company was able to reduce its compliment of staff by 3000 without retrenchment, and rather only through natural attrition. As each project was implemented via Yellow or Green Belt, the benefits were recorded and when a vacancy arose, it was not filled.

According to the Research Director, the POE project enabled the Company team to realise benefits over the years. In 2006, the project brought about R89 million in savings alone, R108 million in 2007, R158 million in 2008 and just over R110 million in 2009. The total savings over four years was a staggering R465 million, which excluded the centralisation of processing centres countrywide.

The Research Director reported that over 3500 people were trained on the Lean Six Sigma methodology, of which 719 were on Yellow Belt. Each of the 719 had a Yellow Belt project linked to their certification. Through this project of mass training, the intellectual level in the

Company was raised, and this allowed for sound discussions during PITSTOPS. A limited number of people were Green Belt and Black Belt trained to attend to complex projects.

Similar successes were recorded by Caterpillar when it found itself stalled: four years of flat revenues and intense competition that showed no signs of faltering.[194] In its effort to regain its industrial leadership position and jumpstart growth, the Company deployed a Lean Six Sigma approach as they wanted to revolutionise not only the way its employees worked, but also their mind-set with a goal: continuous, customer-driven innovation.[195] The launch began with a nine-month training for 4200 employees with varied backgrounds, from engineering to finance and, after training, these employees led their own projects and served as mentors to the rest of the organisation.[196] The initial transforming effort spawned over 1100 projects – some generated subtle, though financially beneficial, operational improvements, while others resulted in innovative new products and radically different ways of working.[197] One of the first process changes involved revamping R&D to include more direct interaction with the customer and extended from engineer to engineer; employees and clients began working collaboratively to pinpoint problems and develop solutions while steadily building closer relationships.[198]

One of the major successes of POE was the standardisation project whereby the Production Environment Centre was introduced in the country. This meant a reduction in processing sites from eight to four. With less processing sites, they could do more. This meant there was an increase in productivity and the head count was reduced without any restructuring or retrenchments.

During the introduction of the four processing centres, there was an improvement in customer service and, in its sector, the Company was voted the best in service. Profitability was high.

4.8 Key Challenges of Pursuing Operational Excellence

The Change Executive argued that one of the challenges facing the POE journey, together with the leadership, was new people coming in and having to catch up with the culture of POE. The Operations Director was of the firm view that all managers joining the Company

194 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma Approach to drive innovation, 6-8.

195 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma Approach to drive innovation, 6-8.

196 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma Approach to drive innovation, 6-8.

197.Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma Approach to drive innovation, 6-8.

198 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma Approach to drive innovation, 6-8.

had to undergo rigorous training on the production floor for at least one full month to understand the POE culture and how a production environment was managed in a POE environment. It was also the Change Executive's view that POE formed the DNA of the business and all leaders in the Company needed to understand what the concept meant and how it was applied on a daily basis.

The Change Executive argued that different levels of maturity within the team of Production Environment leaders remained a challenge as business grew, and this was compounded by leaders continuously coming and going. Hence, the nature of leadership and how they approached staff was of key importance in the Production Environment area. Both the Operations Director and the Change Executive contended that an engaged leader was the ultimate goal for Integrated Processing (IP).

Chapter Five

Sustainability Plan

5.1 Introduction

The combination of Lean Manufacturing, Six Sigma, Lean Six Sigma and Clear Leadership Engagement has been a point of interest for the researcher. This is an unusual combination that brings together the methodical problem-solving in Lean Six Sigma, the philosophical mind-set of Lean Manufacturing, and the leadership culture that supports change. It is this fascinating combination that this chapter tries to unravel. The chapter is dominated by real life examples where the combination has been applied and what the results have been.

5.2 Lean Manufacturing, Six Sigma and Clear Leadership Engagement Combination

Doolen and Worley define Lean Manufacturing as the systematic removal of waste by all members of the organisation from all areas of the value stream.[199] Lean production makes optimal use of the skills of the workforce by giving workers more than one task, by integrating direct and indirect work and by encouraging continuous improvement activities. As a result, Lean production is able to manufacture a larger variety of products at a lower cost and higher quality, with less of every input, compared to traditional mass production, i.e. less human effort, less space, less investment and less development time. However, removal of waste does not guarantee high quality products and may easily ignore the needs of the staff members who execute the mandate. Staff members may not necessarily be treated well, which may result in skilled staff leaving the organisation. Lean is a waste reduction methodology pioneered by Toyota Motor Corporation, and is often referred to as “the Toyota Production System”.[200] The Lean programme uses Kaizen Events (structured improvement

199 Doolen TL and Worley JM. 2006. The role of communication and management support in lean manufacturing implementation, 230.

200 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 26.

workshops) along with the 5S tools (Spick and span, Sifting, Sweeping, Sorting and Sustain) and several others to help reduce waste, improve efficiency and drive improvement.[201]

However, Man contends that Six Sigma is a disciplined, customer-focused process designed to help organisations to move towards the creation of near perfect products and services.[202] The goal of Six Sigma is to increase profits by eliminating variability that undermines customer loyalty. It is a methodology that provides business with the tools to improve the capability of their business process.[203] The Six Sigma methodology drives quality of products and requires a certain level of intelligence and understanding of the rigorous system and methodology that it employs. This system also does not guarantee that waste will be removed or that the business will deal aggressively with waste. However, it also does not indicate that it will deal with the hearts and minds of the employees as the key drivers of quality products. Simply put, the goal of Six Sigma is to increase profits by eliminating variability that undermines customer loyalty.[204] It is a methodology that provides the Company with tools to improve the capability of their business processes.[205] Using the DMAIC (Define, Measure, Analyse, Improve and Control) steps, this increase in performance and decrease in process variation leads to defect reduction and vast improvement in profits, employee morale and quality of product.[206]

Six Sigma focuses on process and aims to highlight process improvement opportunities through systematic measurement, but its implementation can have negative consequences if applied in the wrong project.[207] It is important to note that Six Sigma is a toolset, not a management system, and is best used in conjunction with other more comprehensive quality standards, such as the Baldrige Criteria for Performance Excellence or the European Quality Award.[208]

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201 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 25.

202 Man J. 2002. Six Sigma and Lifelong learning, 197.

203 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 25.

204 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 25-26.

205 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 25-26.

206 Vestal W. 2004. Making the Knowledge Management and Six Sigma connection, 25-26.

207 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: Concepts, tools and applications, 493-494

208 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: Concepts, tools and applications, 493-494

The world's top-performing organisations understand that employee engagement is a force that drives business outcomes.[209] Research shows that engaged employees are more productive employees; they are more profitable, more customer-focused, safer and more likely to withstand the temptation to leave the organisation.[210] The Gallup team argues that the best performing companies know that developing an employee engagement strategy and linking it to the achievement of corporate goals will help them to win in the marketplace.[211] Clear Leadership Engagement is a system of team engagements to ensure that the right people talk about the right things in the right way at the right time and place, thereby improving individual and business performance.[212]

LE is also viewed as a business operation's transformational initiative aimed at shaping leadership behaviour and competency into actions for sustainable business performance focused on involvement through communication for commitment, innovation and continuous improvement, which also involve a new way of creating understanding, thinking and doing business.[213] The LE is a strategy to create a platform for employees to engage about work, processes, initiatives and over-production in an environment that supports a thinking environment. This system also cannot produce the desired results on its own. You may have a platform to engage, but lack the tools of engagement or the methodology that Six Sigma provides. You may also lack the drive of eliminating waste that Lean Manufacturing brings into play.

Lean Six Sigma, a combination of Six Sigma principles and Lean Manufacturing philosophy, works because the eight characteristics, listed as follows, are built into the approach:214

1. Creates bottom-line results;
2. Active senior management leadership;
3. Uses a disciplined approach (Define, Measure, Analyse, Improve and Control);
4. Rapid project completion (three to six months);

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209 www.gallup.com, 2010. Employee Engagement: What's Your Engagement Ratio?

210 www.gallup.com, 2010. Employee Engagement: What's Your Engagement Ratio?

211 www.gallup.com, 2010. Employee Engagement: What's Your Engagement Ratio?

212 tSUE'NME Magazine; March 2009 edition

213 tSUE'NME Magazine; March 2009 edition

214 Snee RD. 2010. Lean Six Sigma – getting better all the time, 10-15.

5. Clear definition of success;
6. Infrastructure created to support the projects (Master Black Belts, Black Belts and Green Belts);
7. Focuses on customers and processes; and
8. a sound statistical approach.

The combination of the three tools is critical to the success of the business: Lean Manufacturing gives employees the power to eliminate any non-value-adding activity in the process, whilst ensuring that quality is not compromised by using the Six Sigma methodology. At the same time, LE provides the platform where engagement takes place in a safe and trustful environment. The three tools evidently support each other to produce an efficient and effective production line.

5.3 The link between Pursuing Operational Excellence and competitive advantage

Because of their superior ability to learn and share, Learning Organisations appear more able to anticipate and even create new customer needs, thus generating new sources of competitive advantage.[215] In the hyper dynamic business contexts, Organisational Learning is the process by which the organisation constantly questions existing products, processes and systems, identifies strategic positions, and applies various modes of learning in order to achieve sustained competitive advantage.[216] The ability of a workforce in an organisation to learn faster than those in other organisations constitutes the only sustainable competitive advantage at the disposal of a Learning Organisation. However, in response to current turbulent market value innovation, the creative quality process will be the only sustainable competitive advantage in future. Competitive advantage arises from the differential among firms, along any dimension of firm attributes and characteristics that allow one firm to create better customer value than others.[217]

Non-tolerance of waste by employees, which is encouraged via Lean Manufacturing tools, allows the organisation, constantly, to hunt down any possible waste in the system. This

215 Pemberton JD and Stonehouse GH. 2000. Organisational learning and knowledge assets, 193.

216 Ahmed KP and Wang LC. 2003. Organisational Learning: A critical review, 14.

217 Ma H. 1999. Creation and pre-emption for competitive advantage, 259.

method ensures that products are delivered with as little waste as possible. Removal of waste can only be achieved by staff members who are waste conscious and have low tolerance to waste. Waste removal requires staff to learn constantly and understand their process. As, and when, the process improves and new ways of doing things come into play, the staff learns the new method and also continue to improve on the new method to further identify waste.

As they improve on the process and eliminate waste, they have a heightened awareness of producing high quality products. Once more, variance is not tolerated in this environment. Any variance in the process raises an opportunity for learning and improving the process. New methods are analysed critically using the Six Sigma Methodology to test for consistency and also to determine whether the process capability has improved.

The removal of waste and ensuring quality is achieved within the context of an environment that allows questioning and tolerates failure. In this environment, failure is viewed as an opportunity to remove waste and improve the quality of products. LE creates an environment conducive to engagement. In these environments, employees hold each other accountable for success and failure. During the discussions when results are evaluated daily, employees share best practices and ensure that problem areas are addressed quickly, waste is not tolerated and this provides an environment that produces results on a daily basis. Where issues are outside the scope of control for that level, they are then escalated to the next level as a “parking bay matter”. These issues are reviewed daily and feedback is given to relevant structures. Leaders are held accountable for any delay in feedback or resolution of issues raised, when results are compromised due to non-attendance to matters escalated as a “parking bay”.

5.4 The signs of a company Pursuing Operational Excellence

The question is mainly historical and covers certain milestones during the POE journey. The Company has put specific mechanisms in place that will assist in its quest for Operational Excellence. The following would constitute stages in the process of the POE journey:

Leadership in Touch Session

The directors hold regular sessions to engage staff on various issues and challenges that the staff faces. Normally, during these sessions, the heart of the organisation is tested. The staff would normally communicate the things that are actually adding value in their day-to-day running of the production line. Feedback is obtained from the session and immediately shared

with the management team. This method allows the managers an opportunity to take corrective measures where required and also to maintain certain behaviours.

Clear Leadership Engagement Survey

A Clear Leadership Engagement survey is done in the entire business within the Production Environment. There are specific question to which all staff members respond. From the feedback given, the Company is able to pick up on areas of improvement, where more emphasis can be placed and resources deployed to address that area. Through this survey, the business is able to pick up areas where it is doing well and need to reaffirm its commitment to those areas. Again, the survey provides an opportunity for leadership to get a sense of what behavioural tendencies staff perceives as not supportive to the operations. The survey provides an overall organisational status of how well the heart's condition is. The survey is a scientific way of determining the level of engagement and the views of staff on certain topical issues that impact their day-to-day work. Appendix 7 shows the statistics for the past couple of surveys that were taken to gauge the engagement level.

Excellent Customer Experience Results across business

The implications of executing with simplicity, urgency and excellence has a direct impact on how processing is done throughout the value chain. The impact will be felt by the customer as, and when, they make a request for different services that the Company provides, as well as any other request that may be linked to the environment. The progress and impact of Pursuing Operational Excellence can be traced back from the time POE was implemented to the current results. Through CEBS, CSI, Blue Index, Orange Index and other service surveys, the business is able to track if there has been progress in the right direction since POE was implemented. There has been a huge focus on waste removal through the Lean Manufacturing concept and methodology. This was supported by a drive for reduction in variance in the process and also a drive to ensure that employees are given a chance to participate in decision-making during the process of making the production line more efficient and effective.

Results for the past five years indicate an increase in a positive direction for the Company. For the first time, the Company also won the best company in service through Orange competition.

Cost reduction due to projects

Reduction in the cost of processing is also one of the expected benefits of Pursuing Operational Excellence. Ideally, when waste is eliminated from the process and only value adding steps remain, this should bring about a reduction in cost, but eliminating waste without considering quality could prove suicidal; hence the importance of balancing waste removal with high quality standards and reduction in deviation. Waste can only be reduced if the environment has thinking people who engage the process constantly. Where there is waste, employees should be able to pick up on it quickly and realise that they have an opportunity to change the environment for the better. In order to bring about this kind of balance, a change in the intellectual ability of individuals in the working environment is required. Their level of intelligence becomes a core focus; hence the introduction of Lean Six Sigma training for all staff.

By means of this training, staff members have been exposed to other methods of problem-solving. Lean Six Sigma problem-solving methodology is rigorous and statistically inclined, with a number of steps through which each process's challenge is evaluated. Through White Belt training, employees are introduced to the LSS methodology, which encourages them to identify problems and analyse them in a particular manner. Once analysed, the challenges are then assigned to the trained Yellow Belt whose responsibility it is to tackle the viability of the proposed solutions by staff members who are White Belt trained. If a project is viable, it is always analysed based on the benefits that can be cost-related and have an impact on the customer; normally the impact covers both the cost and the customer.

To date, a total of 15 786 projects have been analysed and implemented, resulting in a cost saving of R15 million and improved customer experience. This is a clear indication of the importance of the POE journey and its impact on the overall business. Also, the number of employees trained indicates the increased levels of intelligence amongst the staff members, as well as a much more waste conscious workforce. This is a key ingredient of continuous improvement and innovation in the work environment.

Standardisation across business units within the Production Environment

Through POE, the business is driving consistent customer experience across business units within the Production Environment. Processes are standardised across the areas where the team is processing a similar product. The idea is that the customer must have the same experience, irrespective of the region or area in which their request is being processed. If

there are improvements in one region that affect how a transaction is processed, the change is first tested in that region to determine whether it indeed brings out the desired results. Once the experiment has been proven to work, the process is documented and shared across other regions that have the same available process. Each region is then expected to track the benefits of the project and report appropriately to the relevant project owner.

Linked to this practice is the updating of the work instructions across all sites. The central process documents are then updated with the appropriate process improvement initiatives so that new employees can be trained in the new way of operating, but also so that current employees can have access to the new process and have a reference point, should the need arise. Updating of work instructions and sharing of best practices is one of the key elements of a Learning Organisation. Each area is well aware of the imperative of maintaining standardised processes and, where there is a deviation in process, such deviations are analysed to ensure that similar processes are applied across all sites.

This rule assists the business to keep processes the same and also ensures that knowledge is managed closely. Sometimes, employees improve the process, but seldom take the time to document and analyse the impact. Documentation of processing and sharing of any improvement affords an organisation the opportunity to learn and grow together. Also linked to this rule, is the need for other sites to have a similar advantage or benefit from the change in process. The Company also has periodic process audits to ensure that processes are retained across all regions. The audits give the business an opportunity to pick up on deviation and, where deviation exists, take that as an opportunity to share best practices with other regions and also to ensure that the new process is documented appropriately.

PITSTOP Methodology

PITSTOP (People in Teams Striving Towards Optimal Performance) methodology drives three key combined concepts to produce an engaged employee. The integrated leadership team strives to have employees with a will (consistent change can be achieved through committed staff who intentionally wants and creates a better future), skill (through staff having acquired the relevant certification and knowledge) and drill (continual review and improvement on a daily basis through PITSTOP meetings and the use of visual metrics and analysis). The Production Environment will have the required engaged staff members who will be willing to take the Company to the next level.

The view shared by leaders is that the business should manage the discretionary effort, that is, when employees have choices, they will act in a manner that furthers the organisation's interests. An engaged employee is a person who is fully involved in, and enthusiastic about, his or her work.

5.5 Pursuing Operational Excellence Project Sustainability Plan

Climate creation

All staff is taken through a mind-set and cultural change workshop for three days. It is the view of the leadership that this workshop must precede organisational change for sustainable operational improvement and performance. According to the leaders, team behaviour, attitude and views contribute a great deal towards dealing with people and organisational obstacles and challenges.

An improved mind-set requires trust, tolerance and teamwork. This will lead to sound decisions and the ability to execute with simplicity, urgency and excellence. The improved mind-set is built on a foundation of holistic understanding of people, business, global politics, economics and other realities facing the environment, together with effective leadership qualities that build trust, mobilise talents and achieve goals. An organisation will also require effective systems, both organisationally and operationally.

Performance Improvement Cycle

In order to have a sustainable, lasting and successful POE culture, the management team has developed a prosperity model through which performance will be driven at all levels. The model is built around having clarity of purpose and direction; having a structure and organisational alignment that supports the business introduction of an effective leadership culture, defined as the B-style leadership; continuing to engage staff at all levels using different methods; and having competent business processes, systems and resources.

The model also emphasises the importance of continual performance measurement, rewards and recognising excellent performance and, where necessary, performance improvement and coaching.

Leadership styles

The view is that a leader can make the best possible decision based upon the knowledge, skills and ideas within the group. This leadership style emphasises consultation with the team members before decisions are made. The leader will follow five easy steps before making a

decision. These include the following: first, the leaders, on their own, will think the problem through, and then they will outline the problem and ask the team members for their suggestions and opinions. Leaders would stimulate participation and invite new ideas. Through this process, leaders will keep quiet and listen carefully with an open mind. Once the engagement is concluded, leaders would suggest possible options, or a decision. Leader will ensure the implementation and execution of the decision.

Crocodile method

The crocodile method is a tool used for solving production line challenges. This methodology follows eight key steps. The first is knowledge and clarity of goals. The team's daily goals need to be communicated to everyone concerned, and a level of understanding on how these goals are measured also need to be clarified. Whilst the goals are communicated, it is equally important during the process of setting goals that they remain specific, measurable (the right things), adaptable (as things change), realistic and within the time limit.

Secondly, it is important that a leader understands his or her people well; what they are capable of, what they can deliver under different conditions and how far the team members can be stretched in relation to their targets. Thirdly, it is the knowledge of the resources available to execute the process as outlined.

Once the challenges have been analysed in terms of people, goals and resources, the team is ready to identify and analyse the obstacles. This is normally done by using the "five why concept", where the employees ask why the problem occurs, until they arrive at the root cause of the problem. Once the root cause of the problem has been identified, possible solutions are then examined and reviewed. The most productive and profitable solution is then selected. At this stage, the solution is translated into active steps and responsibilities are then allocated to individuals.

The team, as a collective, then implements the action plan. The leader will then inspire the team towards implementation and constantly evaluate progress made with respect to the improvement.

Root cause analysis

The concept of root cause analysis is meant to empower staff at shop-floor level to deal with their day–to-day challenges by themselves. This creates an opportunity for employees to think their challenges through, and also to find solutions for their own work environment.

Key to this methodology is a clear description of the problem. This step is followed by writing down the main causes of the problem.

Each cause of the problem is then reviewed by asking a simple question: What is the reason for this, or why do we think this contributes to our main problem? Once this is addressed, the team groups and prioritises according to what is within the team's control and what is beyond its control. The team will then develop a plan and execute it. Where the challenge is beyond the control of the team, it is escalated to the next level.

Right people

In order to sustain the POE project, the leadership of the Production Environment has also examined the element of ensuring that the right people engage on production line issues. Three kinds of teams have been identified to drive towards engaging the right people. Natural teams are key elements in driving a functional team's effectiveness, team performance management and also its focus on both values and behaviour. Multi-functional teams help to manage business processes, multi-disciplinary task teams, functional integration and matrix structure participation in that the teams will lead and support. At the vertical crosscut and multi-level, the focus is on personal touch (context, strategy and direct contact), development of a culture that supports people's engagement, manages informal channels and development of talent to improve and drive efficiency and effectiveness.

Right way

The drive towards engaging in the right way is focused more on continuous learning and improvement. The key element is improving understanding of processes and how PITSTOP works. This is achieved through education and coaching, which in turn will assist team members to generate ideas. The learning topic is one of the tools that are used to educate and coach team members. Subject matter experts are often brought in to address key issues that appear to be a challenge to the staff or teams. In this way, teams learn the right things and are able to improve their production line, and it becomes easier to be innovative when understanding is secured. This approach has added variety and keeps meetings interesting. Staff members are also encouraged to suggest learning topics to assist in addressing specific challenges that the team faces.

By focusing on specific aspects that need improvement, or that have been identified by means of trend analysis, the energy of team members can be used to drive continuous improvement. The discussions taking place in the meeting are also governed by specific guidelines. The

guidelines specify that no topics are taboo and that the discussion will be rational, unemotional and carried out with dignity. When engaging a topic or each other, the intention should always be to build, and not to hurt, fellow team members. During discussions, the teams will ensure that they continue to uphold a holistic perspective that deepens and widens discussions.

Whenever discussions are underway, they need to be systematic and the leader must, at all times, try to maintain objectivity and provide a clear direction to the meeting. The meetings follow a specific agenda. One of the key first items for discussion is the review of previous performance and behaviours against the agreed standards. During this time, the team members recognise and appreciate each other where performance was good. The team also reviews the challenges raised in the previous meeting and provides clarity and feedback. Part of this discussion is to identify the key contributors to the targets of team meetings.

Once this is done, the team shifts its focus towards the target for the current period. Linked to setting targets, is also the identification of possible obstacles that will derail, or stand in the way of, meeting targets. Each obstacle is analysed in terms of level of control. The team then identifies if it is within its control, or on a higher level. The team then puts a plan of action in place to deal with the obstacles, and escalates to the next level where required.

This discussion is followed by a learning topic of the day. An individual, who has been identified upfront to provide time for preparation, normally presents this. All team members also know this topic upfront so that discussions are informative and provide an opportunity for learning and growth.

The meeting concludes by reviewing items that have been escalated to a higher level and updates the progress on the action item. Linked to this, is the review of the innovation bay to check the progress of ideas previously submitted.

A part of ensuring that discussions take place in the right way is by introducing the code of conduct. The purpose of this code is to create and instil good leadership and team qualities. The team commits to the right set of behaviours and continuously hold each other accountable whenever a team member does not uphold the code of conduct. Commitment to the right set of behaviours contributes to the achievement of the desired organisational culture that will result in a positive organisational climate.

Empowerment

One of the key elements of the POE plan's sustainability strategy is centred on the ability of the Company to empower employees. The leadership of IP is of the view that, if they set clear boundaries, get employees' involvement with a clear and constant communication strategy with employees who have the right tools to execute, while ensuring that employees have the necessary skills to work, it becomes easy to hold employees accountable and to measure performance at different levels.

Clear boundaries are defined as forming part of the strategy alignment map. This strategy involves a clearly communicated vision and well-defined values. It is also linked to a leadership philosophy that ensures that leaders are held accountable and lead by example. A code of conduct is also introduced as a tool to manage how each individual engages with others, and how people engage in meetings.

Setting clearly defined boundaries also means reporting lines and organisational discipline is important. This will assist staff members to be aware of their own responsibilities and where to draw the line. Policies and procedures make this area simple, as long as they are clearly defined and communicated to staff. Scorecards also set a clear direction as to what the performance requirements are for staff.

Involvement and communication methods involve constant team performance reviews, goal setting, problem-solving, decision-making, planning, code of conduct feedback, and timely sharing of relevant information.

Means is all about ensuring that individuals have the required tools for the job, including the equipment and a leadership climate that support a Learning Organisation for efficiency and effectiveness.

Ability refers to an individual's development plans, knowledge and understanding, skills development and transfers, driving learning topics and effectively managing diversity.

Holding staff accountable is about measuring performance, providing performance feedback, consequence management, performance planning and coaching, and a development plan, including a recognition and reward system. Performance is also measured at various levels of the organisation by using organisational results, self-assessment, an employee satisfaction survey, scorecards and a peer review mechanism.

Overall, chapter five has covered the logic behind linking Lean Manufacturing with Lean Six Sigma tools and the Leadership Engagement Model. The chapter has also covered the sustainability plan, which is in place to ensure that the company enjoys competitive advantage over its competitors.

Chapter Six

Summary, Discussion and Conclusion

6.1 Introduction

The objective of this thesis was to show whether a positive link exists between POE and Organisational Learning. Put differently, the intention of the research was to use conceptual methodology with the cases to provide the insight and empirical evidence of the existence of a link between Organisational Excellence and Organisational Learning. Key to this research was whether the knowledge society has learnt anything from the journey of POE in the Company and the concepts, as described in the thesis.

This chapter brings the research to a conclusion. The main purpose of this chapter is to use the information and data gathered in the previous chapters to show whether, indeed, a link exists between a Company POE, and Organisational Learning. The empirical evidence collected on the Company POE through Lean Six Sigma, Clear Leadership Engagement and a Lean Manufacturing philosophy is compared to the salient characteristics of Learning Organisations distilled from literature.

What is also important is whether there is a conceptual link between the topics espoused as assisting to drive Organisational Excellence and Organisational Learning. Are we able to show a conceptual link between the concepts discussed in the research? The chapter will also attempt to answer the research questions and recommend additional research on the topics outlined.

6.2 Overview of the discussion

Organisational Excellence, as defined by the Company, includes Lean Six Sigma methodology, Lean Manufacturing principles and practices, and the Clear Leadership Engagement model.

Lean Manufacturing drives towards adding value for the customer. Speed and doing things right the first time is key in a Lean environment. There is zero tolerance for waste, innovation is constantly encouraged, and team members play a bigger role in running the operations. Team members are encouraged to have more than one skill and be able to do more than one task. As part of driving staff involvement, the Lean environment would also have a reward and recognition process that ensures that motivation stays high.

On the other hand, Six Sigma is a systematic methodology that uses the DMAIC (Define Measure, Analyse, Improve and Control) project style problem-solving methodology. The DMAIC problem-solving method is process and statistically driven methodology with the purpose of eliminating defects in the products produced.

Lean Six Sigma combines the practices of Lean Manufacturing and Six Sigma methodology. The result is a methodology that drives out waste and defects.

The Company has defined Clear Leadership Engagement as encompassing a leadership team that is receptive to ideas and is also open to criticism. Team members are treated as equal owners of the Company. Mistakes and learning are tolerated in an effort to drive the growth of the business. Team members are welcome to raise questions, change processes and try new ideas constantly.

Over time, different authors have argued and debated about the meaning and character of a Learning Organisation. No clear agreement has been reached on what an organisation needs to do, or put in place, in order to achieve learning. Neither was the knowledge body able to come to a conclusion on how an organisation can measure progress towards learning, nor how the process can be sustained. Whilst there is no agreement or conclusion on the definition, meaning and character of Organisational Learning, the author was able to pick common themes in the views expressed and researched by various authors and scholars.

Any form of learning should contribute to cognitive ability, behavioural change and improved performance. Cognitive ability relates to the intellectual ability of individuals in the organisation, and how their thinking process has changed as a result of learning, whilst behavioural relates to a change in culture as a result of learning new skills. As both cognitive ability and behavioural changes happen, team member will start to impact on the operation in terms of cost reduction, quality products, excellent customer experience, and product development.

A Learning Organisation is able to create, acquire and transfer knowledge and, at the same time, manages to modify its behaviour, and reflect new knowledge and new perspectives.[218] Learning Organisations are skilled at a number of key salient characteristics to drive specific behaviour. As outlined in chapter three, this thesis focused on the following: systematic problem-solving, experimenting with new approaches through innovation and risk-taking, learning from their own experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organisation, not forgetting the importance of participative decision-making, dialogue and leaders who are involved and have a clear learning plan.[219] The question that remains is whether POE is linked to the dimensions covered. The discussion below attempts to outline that there, indeed, is a positive link between POE and Organisational Learning.

6.3 Systematic problem-solving

The systematic problem-solving activity makes use of philosophy alongside improving quality methods, and there is a permanent search for overcoming difficulties and finding solutions.[220] POE does introduce a systematic problem-solving methodology that is used constantly across the Production Environment. This system is called DMAIC (Define, Measure, Analyse, Improve and Control) and allows individuals within the Production Environment to have tools to solve everyday challenges. The skills to utilise the methodology are obtained via the Lean Six Sigma training that each staff member undergoes. DMAIC methodology is consistent with Curado's view on a permanent search for overcoming difficulties and finding solutions. The training required to implement Six Sigma involves everyone in the organisation. The basic training takes a single day and covers process mapping and an overview of designed experiments, hypothesis testing, metrics and process modelling.[221] The week of Green Belt training is more extensive, and includes statistical analysis, SPC and measurement systems analysis, while the Black Belt training requires about one month of training, including ANOVA, game theory and multivariate regression.[222]

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218 Curado C. 2006. Organisational learning and organisational design, 36.

219 Garvin DA. 1993. Building a Learning Organisation, 81-89.

220 Curado C. 2006. Organisational learning and organisational design, 36.

221 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497.

222 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497.

Workers trained in Six Sigma have been compared to internal SWAT teams, formed to tackle a specific problem. They then break up and reform once they have achieved the desired results. The methodology does not focus fundamentally on making higher quality widgets; it focuses on making the process more robust and less subject to errors.[223] To ensure that the team remains vigilant and continues to drive Six Sigma practices, top leadership in Dow established an expectation that all employees should have at least have one personal goal tied to Six Sigma.[224]

The Company under scrutiny ensured that each staff member, not at the management level, should be White Belt trained as part of their deliverable for the year and also attend a climate creation workshop. Both training events will enable consultants to understand the Six Sigma journey and to participate in the journey with understanding. At the same time, all managers were expected to be Yellow Belt certified by the end of the financial year as part of their targets for the year. Also linked to this, is the accreditation on the PITSTOP methodology, which forms part of the critical drivers of the Six Sigma methodology in the Company.

The Malcolm Baldrige National Quality Award (MBNQA) was established in 1987 to enhance the competitiveness of American companies by seeking out best practice methods as examples for others.[225] The MBNQA has seven categories that are assessed for excellence on the selection process, which include leadership, strategic planning, customer and market focus, information and analysis, a human resource focus, process management and business results.[226] This systematic problem-solving methodology rose to national prominence when Motorola won the Malcolm Baldrige National Quality Award in 1988 due to the implementation of the Six Sigma methodology.[227] Motorola's documented productivity improvement and financial success spurned many followers of well-known organisations, such as Allied Signal and General Electric, who, under Jack Welch, implemented Six Sigma in many of its processes and documented significant gains, successes and improvement in both customer experience and in financial results.[228]

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223 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497.

224 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 277.

225 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497

226 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497

227 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497

228 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497

There is also ISO9000 or QS9000, which is not a quality system in itself, but a set of quality standards that are defined as being necessary for manufacturers and service organisations to be effective competitors.[229] The standards are based on eight managerial principles that can be used by management to help their organisation towards improved performance and higher quality output. The eight principles are customer focus, leadership, employee involvement, process approach to activities, a resource system approach to management, continuous improvement, strategic supplier, and customer partnership.[230]

There is little difference between ISO9000 and the MBNQA system used in the United States. ISO 9000 has eight principles, while MBNQA has seven. They both cover the same requirements. Motorola implemented Lean Six Sigma and won the prestigious MBNQA in its year of introduction and could easily have won the ISO9000, had it been tested against it.

Progress is made by those who question current situations and continually dream up new ideas.[231] In a work context, this adds value through new products, improved processes, changed working methods and, ultimately, the development of new technologies.[232] This is directly linked to the Six Sigma DMAIC cycle, which is designed to systematically and relentlessly question situations, and makes such a process of invention and innovation more effective and more efficient.[233] The cycle can also be used to identify and develop new information through the rigorous questioning of current processes, procedures and methods; and be a review of current practices within them.[234]

Another key element of POE is normally referred to as the Lean Manufacturing, or Lean production principles. In the Lean production environment, workers know why the method applied is the best available, that they can help to improve the method, and that all workers will use their improvement. They also know that they can fill many positions in the Company, since work is performed according to standards rather than personal methods. Thus, standardisation is essential for continuous improvement.[235]

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229 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497.

230 Raisinghani MS, Ette H, Pierce R, Cannon G and Daripaly P. 2005. Six Sigma: concepts, tools, and applications, 493-497.

231 Man J. 2002. Six Sigma and Lifelong learning, 198-200.

232 Man J. 2002. Six Sigma and Lifelong learning, 198-200.

233 Man J. 2002. Six Sigma and Lifelong learning, 198-200.

234 Man J. 2002. Six Sigma and Lifelong learning, 198-200.

235 Cuatrecasas L, Gavilan N and Olivella J. 2008. Work organisation practices for lean production, 798-799.

Standardisation, discipline and control are key in the studied organisation as processing has been streamlined and standardised, ensuring that skills can be used across the organisation wherever they are required. In order to measure and ensure that customers receive the same service across the production line, it is important for the processes to be standardised and the manner in which obstacles are addressed remain the same to ensure a smooth flow of decisions; and tools of analysis are interpreted in the same way to bring about the same results.

6.4 Experimenting, innovation and risk-taking

Experimentation activity involves the systematic search for, and validation of, new knowledge. The use of scientific methodology is essential and generally motivated by finding opportunities and not by current difficulties.[236] Within the Company, employees are allowed to engage their problem by making use of the LSS problem-solving methodology. Part of this is to analyse the problem and to arrive at a possible solution to the current problem faced in the environment. The solution selected is tested within the environment before it is shared with other areas. Within this scope, employees are given an opportunity to take risks. They take risks in that they are trusted with their solution to determine whether their new approach would work. Key to this, is the daily tracking of benefits and providing reports and feedback on what the new method is contributing towards customer experience and cost saving. The teams continue to test and track the new solutions until such time that they are satisfied with the progress in terms of customer experience and cost saving.

Organisational Learning occurs when individuals within an organisation experience a problematic situation and inquire into it on behalf of the organisation.[237] They experience a mismatch between expected and actual results of action, and respond to that mismatch by means of a process of thought - in this instance the DMAIC systematic methodology - and further action that leads them to modify their images of the organisation or their understanding of the organisational phenomena, and to restructure their activities so as to bring outcomes and expectations into line, thereby changing the organisational theory-in-use.[238]

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236 Curado C. 2006. Organisational learning and organisational design, 36.

237 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9.

238 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9.

Employees are encouraged to address day-to-day production challenges and come forward with suggestions. This process has been supported by a reward-based approach through Kaizen Ideas. Each employee is recognised and rewarded for suggesting a specific number of ideas per period. Each idea is given to an NIM (National Improvement Manager) to do the feasibility study of the idea and also to check with the idea owner for further information. Through this process, employees are allowed to dream wild dreams and suggest the wildest of ideas. Each idea is viewed, based on feasibility and the value it would add to the business.

LSS, or SS, is a combination of Lean principles and SS methodology. These two time-tested programs for achieving Operational Excellence in major United States companies are helping leaders to discover innovation opportunities and promote company-wide culture with an inclination towards innovation.[239] An LSS program is not just about doing things better, it is a way of doing better things and, if used effectively, it can enhance innovation in products, services, markets and even a company's underlying business model, as well as improve operations.[240] The organisations that were studied acted in a more visionary manner; they deliberately expanded the scope of LSS, using it to surface significant innovation opportunities that affected much more than their operations and, in the process, they were able to improve business performance and establish an organisation that now have an inherent inclination towards innovation.[241]

Through the discipline of LSS, these CEOs and business unit leaders have substantially improved business performance and reoriented their organisation's mind-sets, creating the type of environment where innovation can flourish.[242] One of the key drivers of LSS is the removal of waste and the reduction of variation in the processes. These will bring about an improvement in the quality of the products produced and this can be done if processes are improved. The adoption of Total Quality Management (TQM) is a milestone towards a Learning Organisation.[243] TQM's main tenets are the pursuit of continuous improvement and practices, both as a philosophy and a set of techniques that enables organisations to focus on meeting and satisfying customer needs by improving processes, understanding the internal customer concept, involving each individual employee, implementing organisation-wide

239 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma approach to drive innovation, 6-8.

240 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma approach to drive innovation, 6-8.

241 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma approach to drive innovation, 6-8.

242 Blitz A, Byrne G and Lubowe D. 2007. Using a Lean Six Sigma approach to drive innovation, 6-8.

243 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

training and development, and concentrating on the improvement in cost, quality and customer satisfaction.[244]

It has been argued that TQM and Learning Organisations are mutually dependent.[245] Organisational Learning is an intended outcome of TQM, and there is a correlation between process improvement and Organisational Learning.[246] Continuous improvement is aimed at achieving incremental innovation; therefore, a Learning Organisation dedicates itself to incremental innovation through effective learning mechanisms.[247]

Continuous training and learning forms the major part of LSS, in that what happens on the floor is critical to solving problems and developing improvements. This means that line workers must have a high degree of influence and together form a great body of knowledge.[248] Personal and Organisational Learning are obtained by permanently questioning the appropriateness of methods through rigorous use of the scientific method, and solving problems by using scientific methods is an essential part of Lean production.[249]

However, in response to the current turbulent market, value innovation through the creative quality process will be the only sustainable competitive advantage in the future;[250] hence the continued relevance of LSS in the business.

6.5 Learning from others and past experience

Learning from past experiences happens when organisations reanalyse their failures and successes carefully; evaluate them systematically; and record the corresponding lessons, so that it allows for organisational members to access them in a free and simple way.[251] Learning from others reflects the learning that does emanate from self-reflection and analysis, but rather by looking around, outside the immediate working environment, and acquiring new perspectives.[252] Organisational Learning is about the ability of an organisation to learn from

244 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

245 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

246 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

247 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

248 Cuatrecasas L, Gavilan N and Olivella J. 2008. Work organisation practices for lean production, 800-802.

249 Cuatrecasas L, Gavilan N and Olivella J. 2008. Work organisation practices for lean production, 800-802.

250 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 9-11.

251 Curado C. 2006. Organisational learning and organisational design, 36.

252 Curado C. 2006. Organisational learning and organisational design, 36.

itself, its mistakes, its inefficiency and its employees.[253] As defined by Curado, learning from others is learning that, in this instance, does not come from self-reflection and analysis, but from other individuals who have encountered similar challenges. This is evident in the proactive sharing of challenges encountered by other teams as they implement new ideas and technologies in the environment. Sharing of such experiences give the new team an opportunity to prepare proactively for such eventualities.

Yeo observed that one of the ways in which Organisational Learning can be developed, is by promoting the sharing and learning of information and experience from one another in an open and flexible manner.[254] This allows for employees to share best practices and prevents others from making the same mistakes again. In the Company environment, metrics are reviewed and compared against other regions, and where there is a discrepancy in terms of results, regions are expected and encouraged to share their secrets and methods of reaching results when others are struggling.

Many industries have used SS programs as a way to cut costs, improve cycle time, reduce defects and increase customer satisfaction.[255] A number of organisations followed different strategies in their quest for business excellence and operational efficiency, while using SS. An analysis of how different organisations have used SS in their quest to drive a competitive organisation follows:[256]

1. General Electric, for instance, uses SS to improve performance and product yield by reducing the number of defects inherent in the processes and materials used to produce them. It relies heavily on a formal methodology of measuring, analysing, improving, and then controlling, the processes in order to remove obstacles critical to customer satisfaction criteria, such as improved-to-market times.

2. Allied Signal uses SS processes as a foundation for continuous improvement. In addition to the traditional statistical measurement of quality offered by SS, Allied Signal also applies this quality concept in a different way. They use it as a cry throughout their facilities to stress the importance of process improvement. SS helps them to define areas that their customers consider “critical to quality”. By

253 Appelbaum SH and Gallagher J. 2003. The competitive advantage of organisational learning, 46.

254 Yeo R. 2002. Linking organisational learning to organisational performance and success, 74-80.

255 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-281.

256 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-281.

concentrating quality efforts to these areas, Allied has been successful in reducing costs, shortening cycle time and increasing speed to market.

3. Raytheon Corporation is using SS as a means to reduce defects, and instil continuous improvement philosophies throughout the organisation. Raytheon's SS success is attributed to the elimination of non-value-added work, reducing defects, simplifying processes, reducing variation and looking for reusable solutions. This enables them to respond more quickly to customer's needs, which results in improved customer satisfaction, competitive advantage, profits and growth.

4. Du Pont's SS is an overall business process-for-change journey that focuses on improving everything they do. It is built on the technology of statistical analysis, follows the methodology of DMAIC, is managed by the line organisation, is top leadership driven, develops the people and focuses on the customer. The deployment of SS has touched all 18 strategic business units and regions. The senior leadership of each unit sets goals, then selects a champion who helps to develop projects. Black Belts are then selected for each project and sent for intensive training, during which the projects are initiated. The pilot unit chosen to test the SS program is selected based on its interest in the methodology. Those units with the biggest self-identified need drive the sequence of implementation in the other business units.

Open communication and information sharing can promote a common culture of innovative behaviour in the organisation, as can cross-functional training and personnel movement within the organisation.[257] This was when leadership visited different sites in India to understand how their businesses operated with the SS concept and what can be learnt from their experiences. A part of the journey through SS is the cross-functional teams that meet daily to discuss production line results and share best practices. This is also an opportunity to ask questions around discrepancies in the results. A question is why some sites would be performing well, while others are performing badly against the same line item.

Discussion around metrics constantly allows teams to share challenges and how they dealt with them. Within this context, teams share ideas on how they resolved certain operational challenges and gave others a chance not to implement the same process of analysing and doing a root cause, should they encounter a similar challenge.

257 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279.

Dow Chemical undertook a diligent study of best practices of SS. The study examined the implementations of best-in-class SS practitioners in order to identify key success factors and gaps. Dow picked up two key shortcomings that were relevant to their production line. These gaps were customer loyalty and leveraging. Loyalty and leveraging processes and skills are embedded in Dow's SS Black Belt curriculum and are promoted widely throughout the Company.[258]

Leveraging is defined as the effective multiple implementation of demonstrated best practices.[259] There are three levels of leveraging SS best practices that exist within Dow Chemicals. Firstly, leveraging takes place within individual businesses and functions, and the next level is across businesses and functions. Big company leveraging projects offer huge potential in terms of payoff, because big company projects span the entire global organisation.[260] Dow has established a database that captures a wide range of SS project information. Within this database, keyword searches and flags that readily identify projects within leverageable components are commonly used. The Company went even further to establish a leveraging champion within each of its businesses. Their main purpose is to "data mine" for leveraging opportunities and continually promote the idea of leveraging throughout the company.[261]

The Company that has been studied in the present research project has taken leveraging from a different angle, in that the team has established regional improvement managers across regions, supported by senior managers in each region to ensure that, where an opportunity to leverage exists, implementation is done and is managed closely. It has also established line item specific teams that look at analysing and monitoring different production lines to check for consistencies and inconsistencies. Where there was consistency, the team will seek opportunity to ensure that the processes in place are sustained, and where inconsistency was picked up, a team would be set up to investigate the inconsistency and ensure that the gaps are closed.

Staff members are constantly encouraged to come up with Kaizen Ideas, which are then given to analysts to return to the environment and work on the idea together with the consultants.

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258 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279.

259 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279.

260 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279.

261 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279.

The idea is then scoped and a new process drafted. Depending on the outcome, the new project is then piloted at the site that proposed the idea and monitored constantly for a period of three months for benefits. If the idea works well and meets the requirements of the production line, it is taken to the national improvement forum that constitutes all the stakeholders countrywide. The team would then agree to have the new process implemented on each site and the benefits monitored and reported periodically. The final process will be included in the blueprint for further training and reference.

As the business continues to leverage on best practices, different business units are combined to streamline the process and make the customer experience seamless. What drove the integration of the different units was the importance of having a centralised processing centre where the customer information is held, which is the same across the product lines. If a customer updates his or her marital status with one service, it should then be updated automatically with other services as well.

Throughout the 1990s, Dow Chemicals instated a global business model and a single information technology platform. With Dow's integrated business structure, single information systems platform and global technology centres, the Company is uniquely qualified to leverage best practices from SS.[262] The Company studied has put in place an integrated system for managing all information flows for both the Company and its customers. There is a single view of the customer and all processes are about the customer, and for the customer.

6.6 Transferring of knowledge

Transferring knowledge makes learning something more than a local phenomenon and allows for knowledge to be leveraged rapidly and efficiently throughout the organisation, which will produce maximum impact.[263] Once the process has been confirmed to work in one region, standardisation take places and the new process is documented and recorded in a process manual. The work manual is updated appropriately as a reference point for the use of new and old staff members. Other regions then start to implement the new process and also track the benefits.

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262 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 274.

263 Curado C. 2006. Organisational learning and organisational design, 36.

Raytheon's CEO, William Swanson, introduced SS into the Company in 1999, when the organisation realised that knowledge management would provide a much-needed lift to R6Sigma processes.[264] To help drive the importance and need for knowledge sharing and reuse across the organisation, the leadership team established an SS Champion at the enterprise level and sponsored an SS Champion's network to deploy a replicable process across the Company.[265] Successful knowledge sharing and reuse initiatives are embedded in the workflow of employees to appear seamless, and communities or networks of Black Belts, Master Black Belts and Champions foster more open communication and reuse as they help to diminish the perception that SS professionals are elitist.[266]

The "Lean" in the Lean Six Sigma implies a decentralisation of responsibilities to production line workers and a decrease on the Company's hierarchical levels. The efficient operation of a Lean Organisation requires the diffusion of information to all levels and the aim is to deliver timely and useful information down to the production line.[267] This is a key factor in LSS organisations; once a process has been changed and has been proven to work, it is then communicated to all production line employees for execution. Then, the next step is to document the process and make it available to all employees for reference purposes.

A critical factor in achieving organisational competitiveness is the ability to transfer knowledge effectively`.[268] The organisational culture that shapes how organisation members feel, think and behave, could further enhance the continuous learning and transferring in the organisation.[269] The effectiveness of knowledge transfer can be measured by a performance management model, such as the Balanced Scorecard, communication and knowledge combination and recombination.[270] Based on the Balanced Scorecard framework, the effectiveness of knowledge transfer can be measured using the following key performance indicators in the following categories:[271]

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264 Vestal W. 2004. Making Knowledge management and six sigma connection, 25.

265 Vestal W. 2004. Making Knowledge management and six sigma connection, 25.

266 Vestal W. 2004. Making Knowledge management and six sigma connection, 25.

267 Perez PM and Sanchez MA. 2001. Lean indicator and manufacturing strategies, 1440.

268 . Fang S, Hung YR, Fang S Lok P, Rhodes J. 2007. An integrative model, 246.

269 . Fang S, Hung YR, Fang S Lok P, Rhodes J 2007. An integrative model, 247.

270 . Fang S, Hung YR, Fang S Lok P, Rhodes J. 2007. An integrative model, 248.

271 . Fang S, Hung YR, Fang S Lok P, Rhodes J, 2007. An integrative model, 248.

1. Innovation and learning (such as new products, improved technology, increased patents, improved human capital);
2. Processes (such as new systems, reduced cycle time, reengineering processes);
3. Customer satisfaction (such as increased customer numbers, increased repeat orders, reduced customer complaints); and
4. finances (such as improved profit, reduced cost and increased sales).

A total of 661 companies were involved in research and development (R&D) with knowledge as a core business for these firms.[272] Since the focus of this study was on R&D firms, the effectiveness of knowledge transfer measures was based on a firm's competitive advantage and variables, such as cost advantage, market advantage, product development advantage and technological advantage, which were used as overall indicators of the effectiveness of knowledge transfer.[273] The results indicated that absorption capacity, learning intention and integration capability in Organisational Learning had the greatest positive relationship with the process innovation in knowledge transfer.[274]

A key element of an LSS organisation is driven by the organisation's members at the frontline, where production is driven. Members analyse production line results daily, based on agreed metrics, and together identify shortcomings and successes of the process. When successes occur, the team celebrates together and shares best practices with another team with the same functions. In instances where the results are not as expected, cross-functional team meetings are used to check how other teams are performing in relation to the same scorecard line item, then best practices are shared again. Once a best practice has been identified as successful, the team moves speedily to have the new process documented and encoded in the new way of operating. The new process is then stored in the repository of the process for further reference, and used for both training and reference.

According to the literature, successful application of SS involves planning, effort and flexibility. To this end, Dow Chemicals drives SS by data capturing and knowledge management. In order to capture and leverage knowledge, a flexible and user-friendly database must be established. Dow has invested significantly in the construction and

272 . Fang S, Hung YR, Fang S Lok P, Rhodes J, 2007. An integrative model, 249.

273 . Fang S, Hung YR, Fang S Lok P, Rhodes J. 2007. An integrative model, 245.

274 . Fang S, Hung YR, Fang S Lok P, Rhodes J. 2007. An integrative model, 245.

maintenance of its database system for SS. This investment is paying substantial dividends in terms of knowledge capturing for leveraging and tracking of projects metrics for on-going improvement.[275]

6.7 Participative decision-making and dialogue

Participative decision-making and dialogue constitute the sustained collective inquiry into processes, assumptions and certainties that make up everyday experience and the level of influence that employees have in the process of decision-making.[276] The factors considered include communication, diversity, teamwork, collaboration, delegation, a flexible organisational structure, and knowledge of the organisation.[277] Participative management is an attitude by management that clearly and honestly supports employee input and influence on the decision-making process.[278] This management style tends to provide the employee with several positives, including an opportunity to contribute his or her ideas, an understanding of all the facts of the problem under discussion, a clearer definition of the objective, a sense of responsibility for the success of the decision and a feeling of satisfaction with the course of action agreed upon.[279]

Culture serves as a sense-making mechanism that guides and shapes employees' values, behaviours and attitudes, and it is through values that behaviour flows and actions are guided.[280] Organisational culture imposes coherent order and meaning and enables the institutionalisation of an appropriate sense-making structure to facilitate interpretation of unfamiliar events. It also enables an organisation to utilise its knowledge and experience best for establishing and achieving desired goals and learning about wisdom as the process of discerning judgements and action based on knowledge.[281]

Within an environment that executes with POE, employees are encouraged to stop a process that is not working. Performance is measured and analysed hourly, any discrepancy is

275 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 277.

276 Alegere J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 228.

277 Alegere J, Chiva R and Lapiedra R. 2007. Measuring organisational learning capability among the workforce, 228.

278 Darcy T and Kleiner BH. 2007. Leadership for change in a turbulent environment, 12-16.

279 Darcy T and Kleiner BH. 2007. Leadership for change in a turbulent environment, 12-16.

280 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 11.

281 Ahmed KP and Wang LC. 2003. Organisational learning: a critical review, 11.

monitored hourly and, should a process not produce according to expectation, the process is stopped and reviewed. Where it is possible to act on the spot, employees are welcome to make such decisions, and where further investigation is required, the matter is referred to a specialist who has a clear idea of what is expected from the process. This practice is also evident in the application of the PITSTOP methodology, where employees meet to review the previous day's performance. During this meeting, results are analysed and shortcomings identified. This is also an environment where successes are celebrated and process failures are identified and addressed.

The recipe for effective leadership encompasses: clarity of vision (derived from the ability to reduce a complex reality to critical essentials), credible communication and interpersonal skills (to sell the vision and inspire people to action), sincerity, generosity andself-mastery (to inspire trust and withstand the loneliness of leadership), and high levels of motivation and physical energy (to achieve the extraordinary).[282] The sum total of senior executive behaviour and beliefs ultimately becomes the organisation's philosophy on how it conducts business.[283] This view clearly indicates that the success of POE lies in, and entirely depends on, what the leadership does and presents to the general staff.

Clear Leadership Engagement introduces a specific culture of staff engagement, which ensures that leadership upholds and exhibits certain behaviours, which are mirrored in the values that are constantly driven through leadership sessions and road shows. As part of a performance contract, each manager and leader is expected to drive certain behaviours that support engagement in the workplace. Key result areas and behavioural components each contribute 50% of the final performance appraisal score of each person in the business. This ensures a culture that knows and drives results that are obtained within specific values and behaviours.

Process and change management practices, such as POE together with the change environment, contribute to better business processes and help to secure improved quality of work life, both of which are requisite for customer success and the ultimate achievement of measurable and sustainable competitive performance gains.[284] Therefore, any significant

282 Teare R. 1997. Enabling organizational learning, 318.

283 Teare R. 1997. Enabling organizational learning, 318.

284 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-280.

change in a business process requires a strategic initiative, where top managers act as leaders who define and communicate a vision of change, an organisational environment willingness to learn, culture readiness, balanced network relationships, technology leveragability and knowledge sharing, prescribed process management and change management practices.[285]

Top management support for change agents may be considered an important prerequisite for the change or transformation of business processes. To lead the implementation of SS at Dow, Kathleen Bader was elected to the post of executive vice-president for quality and business excellence. Under her leadership, the "Staircase of Change Leadership" was employed to develop implementation designed to drive change in a revolutionary yet sustainable manner.[286] Each successive step in this staircase builds upon the previous step, thus forming a solid foundation for change leadership.[287]

The steps in this staircase are outlined below, linked to the case in point:[288]

Vision: Dow's stated vision for SS is: "Dow will be recognised and lauded as one of the premier companies of the 21st century, driven by an insatiable desire to achieve a Six Sigma level of performance and excellence in all we do". The case in question also developed a business purpose to drive business excellence and Operational Excellence. "We will be a best in class operations partner, driving competitive advantage for business by providing the best customer experience through committed and engaged people intentionally doing things better; executing with Simplicity, Urgency and Excellence – practicing Lean Manufacturing principles." In both instances, the vision or divisional purposes were driven throughout the organisation to ensure the understanding and support of the direction that the leadership has taken.

Values: Dow widely communicated its corporate values throughout the organisation. These values will govern how individuals conduct themselves as they do business with others. One of the Company's top studies also had a drive that incorporated the values. The drive was done through the leadership promise, which committed leaders to exhibit specific behaviours in support of the POE journey. Key to the drive of values was the use of the same values to

285 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-280.

286 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-280.

287 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-280.

288 Motwani F, Kumar A and Anthony F. 2004. Examining the implementation of six sigma, 279-280.

check each meeting held on what each team had done the previous day to drive the values. Each person is held accountable for driving the values everyday.

Attitude: In its highest form, SS represents a mind-set change that focuses on results, accountability and data-driven decision-making. The Company studies reflect a clear drive of an SS attitude-driven organisation. Results are discussed daily, with a focus on using metrics as decision tools. Data is analysed daily to view trends, where peaks and valleys are identified to assist in capacity planning, training and leave schedules. This attitude also assists in ensuring that the staff knows that they are accountable and responsible for their department's results, and this forces the staff to find ways and means to address challenges as they arise.

Language: The implementation of SS utilises its own language. With this approach, staff engagement is based on SS language and this means that everyone understands and knows what terminology to use. The staff and leadership use Metrics, SPC, FEAM, and other SS terminology indiscriminately and consistently.

Behaviours: A list of behaviours was communicated throughout the Company in a variety of message forms, including 34 road shows that took place at Dow sites around the world. These behaviours included adopting intolerance for variation, measuring inputs - not just outputs - demanding measurement and accountability, requiring sustainable gains, delivering on customer satisfaction to build loyalty, and leveraging for competitive advantage. The road shows sent a clear signal for expected change from SS at Dow. The executive team in the Company that was studied made road shows a practice, with road shows scheduled every quarter to share the concept of SS and what the expectations were. The team would have managers in one road show, and staff in a different one. During the road show, the executive would also test the understanding and application of the concept in day-to-day operations and the staff would also share their experiences with the project.

In dialogue, a group explores complex issues from many points of view, and individuals suspend their assumptions, but they communicate their assumptions freely.[289] The result is a

289 Ortenblad A. 2001. On difference between organisational learning and learning organisation, 130.

free exploration that brings to the surface the full depth of people's experience and thought, but yet moves beyond their individual views[290].

6.8 Leadership involvement and a clear learning strategy

In the Company being studied, a key focus is to drive Operational Excellence with the ultimate mission of achieving excellent customer experience. The organisation has implemented a three-dimensional strategy that involves a Lean Manufacturing philosophy, LSS methodology, and leadership engagement. The success of the strategy relied heavily on leadership, change of mind-set and acceptance that some of the things already in place were not working and, most importantly, were not producing the desired results. Part of this strategy was also to change employees' intellectual capacity and take ownership of the process back to them.

The key strategy was an aggressive programme to see all employees White Belt trained, all junior leaders Yellow Belt trained, and all managers Yellow Belt certified. This would help in the utilisation of LSS methodology. Lean Manufacturing principles were also introduced in order to ensure that the mind-set of the staff changes towards eliminating waste in their production line, and LSS encouraged a zero tolerance for deviation. With management on board driving the strategy, employees' engagement was introduced as the next relevant phase for the project. How management behaves in front of, and with, staff was also introduced. In touch sessions, leadership became a norm and an opportunity for staff to express their happiness or dissatisfaction with the leadership. This process also forms part of the leadership's scorecard. Therefore, leaders had no option but to behave and treat employees with respect, honour and dignity.

6.9 Conclusion

In the final analysis, it is quite clear that the Production Environment within the Company is a learning environment and also creates opportunities for learning. The environment constantly asks itself whether it is still relevant, and also constantly reviews its processes. There is a constant drive to improve processes through removing waste and non-value-adding activities. On its own, this process requires a willingness to want to unlearn old habits and

290 Ortenblad A. 2001. On difference between organisational learning and learning organisation, 130.

consider other possibilities. Non-tolerance for waste creates a mind-set for innovation, creativity and hunger for new ways of operating.

Elimination of deviation in what the process produces requires a mindset that has the intelligence to analyse and constantly review the output process. Without analysis and a closer examination of output, employees will not be able to identify product deviation as a result of a flawed process. As deviations are identified and improvements take place, the organisation grows and learns together. This approach of continuous improvement is fertile ground for learning and creates a hunger for clearer analysis within employee circles.

Employee engagement brings about the surety that it is acceptable to make mistakes and that leadership can be held accountable for not providing leadership and not giving clear direction. An engaged employee is one that will see the need to remove waste and process variation. In this environment, employees take ownership of the Company and drive continuous improvement. Production Environment is clearly a learning environment.

Through the salient characteristics of a Learning Organisation, the trend of learning is evident. Systematic problem-solving requires a lift in the level of intelligence within the workforce to constantly want to solve their own problems. This is driven and achieved through training in LSS methodology and proper support structures. The national improvement forums provided the needed infrastructure to support the environment in their quest to solve their own problems and drive innovation. With new knowledge and skills, employees would like to test new ideas in the workplace and implement their skills. This process is supported by an environment that tolerates and encourages experimentation, innovation and risk-taking. Employees are allowed to stop a production line if it does not produce the desired results. In this way, on behalf of the organisation, they enquire about the current way of operating and wonder if it is necessary to continue with the current system. Here, the key is the ability to analyse problems systematically, using the tried and tested DMAIC process, which allows staff members to evaluate different possible answers to the problem. Once the suitable solution is found, implementation is quick and is monitored thoroughly over a period of time.

Similar environments with similar processes will then benefit the team that has done all the analysis, testing, experimenting and monitoring. Knowledge is transferred and shared without any consideration of competition or losing a competitive advantage. In this environment, the focus is on the customer’s benefit and achievement of success for the business. The process

of decision-making is decentralised to the people who do the work and upon whom the processes impact. Not only does this give employees on the shop-floor authority, but it also gives them the responsibility of ensuring the success of the Company, which is also driven by them.

Management drives the process of engagement and dialogue, with the intention to ensure that staff issues are addressed as quickly as possible. Fearing managers become something of the past. Process review, checking for relevance, and driving change lie squarely with the staff. No change takes place without proper consultation with staff. In this environment, leadership is penalised for not using their training budget. Leadership is also measured on how well their staff is multi-skilled in other products and processes. Overall, this allows employees to be acquainted with most, if not all, processes. The intention being to have employees available for also other environments, should a need arise.

Learning in a PEO environment is indeed evident. The environment strives for continuous change and ensures that employees are part of the change and learning. Not only are employees involved in, and driving, the learning in the environment; there is a clear partnership between leaders and employees. The latter are no longer regarded as an expense, but an asset that requires investing. Employees are treated as equal owners of the business and have a voice in the direction that the Company takes. The business is now interested in employees that question the status quo and come up with new ways of doing things. Leadership is no longer the only brain in the business; every employee is as important as the bosses.

The question that cannot be answered clearly is: “What degree of learning has been achieved, and over what period?” Is it possible to say that 75% learning was achieved over two years? Evidently, learning is a continuous and on-going process. It is a journey of phases and stages that are determined by the ever-changing environment and the Company’s level of preparedness to face the challenges of the environment in line with the constant change.

In the end, an organisation that learns faster than the rate of change in the environment has a better chance of outplaying its competitors; thereby it will enjoy a competitive advantage over its peers. Ideally, an organisation should seek to create standards in the market, and this may require an organisation that is willing and ready to drive the process of change in the business world. Then, this will be an organisation that is truly learning and growing.

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Appendix: Interview Questions

Question 1

What prompted the need for a change from the manner in which the company was conducting business?

Question 2

Given that there are numerous ways in which a company can approach change on how it conducts business; what then informed a shift towards Pursuing Operational Excellence instead of other known methods?

Question 3

What exactly is Pursuing Operational Excellence (Simplicity, Urgency and Excellence)?

Question 4

Leadership is always or is expected to play a critical role during this kind of journey. What, in your view, is the expected role of leadership during and after the journey?

Question 5

What does Pursuing Operational Excellence mean for the general staff?

Question 6

A change in the manner in which the company conducts business requires buy-in from all stakeholders, especially the staff. How does the company intend to change the mind-set of staff towards Pursuing Operational Excellence?

Question 7

At some point, the company would be interested to know whether there has been a shift towards Pursuing Operational Excellence. How will the company go about doing checks and balances to a shift in how the company conducts its business?

Question 8

Any change in the way that a company conducts its business will surely have an impact on processes. How will this materialise?

Question 9

At the end, the intention of changing the way a company conducts business is to improve on the customer experience. How will this be achieved by adopting the Lean Manufacturing approach?

Question 10

How does the company anticipate or expect the Lean Manufacturing Principle to contribute towards Return on Investment?

Question 11

How will the change towards Lean Manufacturing affect the overall Operating Model of the business?

Question 12

The current business environment is constantly changing, requiring business to be versatile and adaptable to change. How does adopting a Lean manufacturing principle contribute to the company's ability to adapt?

Question 13

The company (Company) is currently doing business in emerging markets globally. How does employing Lean Manufacturing tactics assist in ensuring that Company has a competitive edge in these markets?

Question 14

Many companies implement programmes, but fail to sustain them. How sustainable is the Lean Manufacturing programme?

Question 15

What is your role in this journey of Pursuing Operational Excellence?