

Preface

Velocity.. Using Lean Thinking and Digital Data to Innovate a Fast Future

Business is about people, process and precision. Technology and process improvements are advancing at an increasing rate. As a result, new pressures are placed on management and leadership if the enterprise is to remain competitive and grow. Global supply chains with networks of suppliers feeding strategically placed assembly plants near the market they serve are commonplace, especially in big business. A key question is how do small businesses, both in manufacturing and the service industries, take advantage of the new and more efficient cooperative ways of satisfying customers, with higher expectations, faster than before. This book offers the solution to this familiar challenge to management... faster innovation and product and service delivery at a higher degree of precision.... six sigma processes using lean thinking and digital data from the source.

My PhD taught me to be mentally agile. The autoclave I needed to hydrogenate metals and alloys was going to cost US\$45,000 in 1966. I built one for \$A788. My electron microscope sample preparation cell cost me less than A\$100. The temperature control device for tensile testing was made from galvanised iron and cost me nothing. When employed as a research scientist in industry and acting as team leader and chief research and development for colorbond and zincalume and numerous other products I developed a number of tools to assist my work. The mathematical algorithms I developed for accelerating production for a \$300M turnover company in 1999 to 2002 enabled \$40M extra cash-flow and a return of the company to reasonable level of competitiveness and profitability. The 26 rules and the 22 creative ideas given here have been applied with significant success.

With the experience of over 700 reports and papers and numerous innovations and awards by over 400 clients in 8 countries, and the saving of my own eyesight by applying the 22 creative ideas described here, I feel confident enough to write this book. I hope all businesses can benefit as my clients have done.

The first three fundamental characteristics of good business practice are quality, cost and delivery. Add to this innovation and speed with a

special focus on continuous improvement. Continuous research and development of both process and product is fundamental. It is clear that to achieve best practice, we should have total cooperation in all of the supply chain to achieve maximum benefit for all participants.

Cooperating to compete is a strong competitive advantage.

Digital connections to suppliers and customers will assist in making companies more agile. Some innovative companies have clearly demonstrated how the new rules can work very effectively.

With the new digital cooperative lean approach, value-added by decreasing waste in planning, process and expenses continuously increases by rapid innovation of process and product. Digital connections allow companies to move and use information anywhere along the supply chain. This allows any enterprise in the chain to more accurately forecast, or ultimately, make to order only.

Such ideas will not work to advantage if the processes are not operating at a high degree of precision, a level which is now regarded as processes at such a level of reduced variation that the defect rate outside the range of acceptability for the customer is only 3 parts per million. Variation in process is a major enemy of speed.

To achieve maximum benefit, the five functions of business; people, operations, marketing and sales, innovation and finance are integrated. This requires the judicious use of people, technology and information, and the continuous training and up-grading of people skills and knowledge. Concentration on the technical aspects of these factors alone will not yield the desired results. The reason is that the most important part of all business is people; whether they are customers, employees, employers or investors. Introducing new technology and techniques is much easier than changing culture and behaviour, but they must go together.

In the early stages of a business transformation, use of simple management tools can lead to significant productivity gains in bottleneck areas of the system and these can be used as a guide to assist in culture change and further innovations.

This is clearly practiced at the plants of Japanese clients I have worked with over the years; companies like Panasonic, Matsushita, Canon, Honda, Toyota and Kawai. Special mention is made in this book of the work of Honda and their BP program. Honda has a very special place in my heart and mind because of the supremely high standard of their

engine integrity and the fast innovation they apply to linking process and product innovation. They had none of the earlier financial support that Toyota had, and yet have excelled.

When we come to the actual process of changing a bad enterprise into a good one, it is important to realise that you can only go so far in improving culture if all you change is the physical environment. If the culture is poor, then physical improvements may result in substantial improvement that can be quickly eroded by a poor management team.

This book's core message is developed around 30 years of consulting to management. It takes the latest principles relating to what is commonly called lean manufacturing and total quality management with the latest management principles, focusing on compressing supply chains, and on identifying the new focus for improved competitive advantage, the *velocity* of the processes and systems.

It is important to understand that the methods described are proven, scientific and logical, but their successful implementation will not work without the support and leadership of a good management team. The culture and vision of this team and the company is set by the chief executive officer, senior management and the board.

The basic thesis is that western-style management has recognised the superior performance of many Japanese companies, such as Toyota, Honda, Panasonic and Canon, and has attempted to duplicate their formula, with in many cases, a high degree of failure, particularly for American auto manufacturers. Why? In almost all cases in the literature, the reason is associated with the people function, leadership and culture, not the technology or technical techniques.

Successful modern management involves a sharp customer focus, and the rapid use of high quality information via digital computer systems that are conveyed through a network of teams in a compressed hierarchical structure. The organisational structure must allow creativity, communication, improvement and innovation of all processes and functions. Companies must plan for the long-term and plans should be continually updated. People must be rewarded for creativity, communication skills and continuous improvement and innovation. The focus is on precision, speed, and quality in the entire supply chain.

Cross-functionality innovation and fast financial management with a short time period must be core elements of production and serving customers. The enterprise now must be an integrated structure of

people driving innovation to satisfy and exceed customers needs and wants. Measurements of processes and systems must be at the source of the activity, and the financial outcomes must be available quickly. Digital data can satisfy this need. Financial data should be available quickly, but looked upon as real time output.

It is vital that modern managers understand reporting as well as communication, budgeting and the full implications of profit and loss accounts, balance sheets and cash-flow. They must also understand the concept of continuous research and development, training, education, and never-ending improvement. The board sets the strategy, direction and philosophy that will drive the mindset of managers in the future where innovation, a sharp customer focus, flexibility and speed are urgently needed for all people, processes and systems.

New tools and techniques, such as the 26 tools for process improvement and for innovation of process, the 22 creative ideas are presented to assist management in championing the new approach.

It is the intention of this book to enunciate a new interpretation of the management processes and systems so that we can produce a more caring and successful human side to work. This book aims to release the intellect and power of the people.