This is the third edition of Product Lifecycle Management: Paradigm for 21st Century Product Realisation.

Product Lifecycle Management (PLM) is the business activity of managing, in the most effective way, a company’s products all the way across their lifecycles; from the very first idea for a product all the way through until it is retired and disposed of.

PLM is about “managing products across their lifecycles”, and it applies to any company with a product. It is used in all sizes of companies, ranging from large multinational corporations to small and medium enterprises. It is applied across a wide range of industrial sectors such as discrete manufacturing, process manufacturing, distribution and service industries, as well as in research, education, military and other governmental organisations.

In the middle of the twentieth century, between 1945 and 1970, things changed little in the world of products. Companies, and their executives, managers and employees worked out how to succeed in that environment. They had an accepted way of thinking, a paradigm, about the way products were managed. For example, companies were organised by department, there was a multi-level hierarchy of middle managers, information was on paper, secretaries produced technical reports on typewriters, and engineers used slide rules for calculations. The Iron Curtain divided the capitalist West from the communist East. In the US and Western Europe, engineers were predominantly men, white and white-shirted.

The 1970s saw the beginning of a period of a change. It is worth remembering that Intel was founded in 1968, Microsoft in 1975 and Apple in 1976.

Between 1970 and 2015, for various reasons, the product landscape changed rapidly and significantly. Many new products appeared as a result of the Electronics Revolution, the Software Revolution, the Biotechnology Revolution and the Nanotechnology Revolution. The Internet and the World Wide Web emerged. Many new products were mechatronic, containing mechanical, electrical, electronic and software components. The development time and the lifetime of many products were slashed. As well as changes in products, there were changes in the environment in which products were sold and used. There were geopolitical changes such
Facing so many changes, companies had to change to remain competitive. But change how? What is the new paradigm for managing products in the changed environment? Or, put another way, how should a company, its executives, managers and employees be organised and work in this new environment? And, how should a company transition from the old paradigm to the new paradigm? Or, put another way, what set of actions will a company have to execute to achieve the change? What will be in the PLM Initiative? This book answers these questions.

The new PLM paradigm emerged at the beginning of the twenty-first century, and has been evolving since then. It was described in the first edition of this book, which was published in 2004. The second edition of the book was published in 2011. Since then, the paradigm has continued to evolve. There have been more changes in technologies, products and the PLM environment. PLM has become more and more important. It is increasingly accepted that the environment of PLM is complex, and that new ways are needed to handle this complexity. And, due to technological advances, new opportunities for PLM have appeared in areas such as: Big Data; Smart Products; the Internet of Things; Knowledge Management; and SMAC (Social, Mobile, Analytics, Cloud).

This third edition of the book addresses these changing views, continuing advances and the ever-increasing application of PLM. As for the previous editions, it draws on the extensive PLM consulting activities and experience of the author. The underlying logic for the selection and structure of the content comes from two of the author’s observations. First, that there are five main subject areas, the Five Pillars of PLM, in PLM and PLM Initiatives. Second, that everyone participating in a company’s PLM activities should have at least a basic understanding of all five of these areas. The five areas are: business processes; product data; information systems; organisational change management (OCM) and project management. In the author’s experience, most of the participants in a typical PLM Initiative will only have knowledge and experience in one or two of these areas. This imbalance in understanding of the five areas results in a lot of guesses, assumptions, misunderstandings and confusion that often leads to serious consequences for the company’s PLM activities.

There are eight chapters in this book. The first two chapters provide introductions to PLM and to the PLM environment. The following five chapters provide introductions to the five Pillars of PLM. The final chapter gives an introduction to the PLM Initiative. Each of the five Pillars, for example, OCM, is a huge area in itself. There are already many books addressing each of these subjects. The intention of these five chapters is not to repeat everything known about the subject. Instead, it is to provide, for the specific environment of PLM, an introduction that will enable people to start to work effectively in PLM activities. The book can be thought of as “PLM 101”. It will be a good onboarding tool for anyone in a company working on PLM activities. It will also be useful for undergraduate and postgraduate university students starting to learn about PLM.
The author has worked with more than two hundred companies of many sizes, and in many industries, during the emergence and growth of PLM. Sharing the resulting experience and knowledge meets the innate desire to improve the World. PLM is, of course, important for companies. By adopting and improving PLM, companies increase product revenues, reduce product-related costs, maximise the value of the product portfolio, and maximise the value of current and future products for both customers and shareholders. But, in a wider sense, PLM is also important for Mankind. The planet’s 7 billion inhabitants all rely on products of various types, and the great majority would benefit from faster, easier access to better products. PLM is a win–win for us all.
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