

## **15 Principles of Good Product Development**

Product Lifecycle Management (PLM) is now used worldwide to manage the innovation, development and support of global products. This key new business activity manages a product anywhere in the world, at any time in its life: from the first idea through development and manufacturing to recycling and disposal.

Based on interviews with executives and managers in companies such as ABB, Alcatel-Lucent, Dow Corning and Siemens, author John Stark has drawn conclusions about the best practice and ground rules for a successful product development activity.

### ***About the Author***

John Stark is President of John Stark Associates, a global management and technology consultancy with headquarters in Geneva, Switzerland.

The following fifteen principles provide a sound basis for good Engineering and product development:

- quality is a must - TQM approach
- a bias for cycle time reduction
- a bias for innovation
- coherent vision, strategy, plan and metrics
- a product-family oriented Business Unit
- listening to the Voice of the Customer
- a clearly defined and well-organized development process
- cross-functional product development teams
- supplier involvement early in the development process
- a development methodology
- highly skilled, well-trained people
- Computer Aided Design systems
- digital product models controlled by EDM and PDM systems
- simulation and rapid prototyping
- best practice techniques

### **Quality is a must - TQM approach**

The concepts of TQM should apply both at the level of the whole company and at the level of the Engineering and product development organizations. Total Quality describes the culture, attitude and organization of a company or organization that aims to provide, and continue to provide, its customers with products and services that satisfy their needs. The culture requires quality in all aspects of operations, with things being done right the first time, and defects and waste eradicated.

### **A bias for cycle time reduction**

Cycle time has become a key competitive parameter. Reduced lead times open up new market opportunities and improve profits. They reduce market risk by reducing the time between product specification and product delivery. The sooner customers use a product, the sooner their feedback can be incorporated in a new, improved version.

### **A bias for innovation**

Innovation is the prime corporate strategy for the first decade of the twenty-first century.

### **Coherent vision, strategy, plan and metrics**

The end result of the chain from business mission and objectives through vision, strategy, plan and implementation is that the organization behaves the way that it has to if the company is to meet its objectives. The metrics that quantify the objectives help it focus on achieving and improving performance.

### **Product-family oriented Business Units**

Product-family oriented Business Units are important because they provide a way to simplify operations. They avoid the confusion and overlapping processes and practices that arise when one organization tries to produce different types of product aimed at different customers and markets at the same time.

### **Listening to the Voice of the Customer**

This is a key part of Total Quality Management. The organization must be able to develop products and services that customers will buy.

### **A clearly defined and well-organized development process**

The cycle time of any development operation depends closely on the development process. Any attempt to improve cycle times will involve investigation and improvement of the development process. A particular organization will be looking to find the optimum process for its product family - waste-free, low-cost and fast.

### **Cross-functional product development teams**

The use of cross-functional product development teams has a major effect on both cycle time and quality. With people from different functions working together, development gets done faster because activities can be done in parallel rather than in series. Quality improves because people from different functions work together to understand and solve development problems. The process is quicker and quality is better - so the net result is that it is also cheaper.

### **Supplier involvement early in the development process**

Early involvement of suppliers in the development process allows the organization to make the best use of supplier skills and knowledge.

### **A development methodology**

Without a well-defined development methodology, it's unlikely that the members of the development organization are going to be working in harmony. The rules for working together during the development of a product have to be defined and communicated. A clearly-defined approach to development that is appropriate for the product family, and is understood by all team members, will provide the best results.

### **Highly skilled, well-trained people**

At the heart of the organization are people, not machines. The organization needs to have skilled people who can work together, sharing knowledge and experience - saving time and money, and eliminating errors of communication and ignorance. They need to be trained to work with the techniques, practices and systems that the organization has chosen to use in the development process.

### **Computer Aided Design systems**

While CAD systems still lack some design and styling skills they are much more accurate and much faster than people when it comes to carrying out the majority of design tasks.

### **Digital product models under EDM and PDM control**

With paper-based information and manual information management systems, information easily gets lost or takes a long time to find, information gets corrupted during communication, the wrong version may be used, and the wrong configuration may be identified. PDM and EDM systems can manage information much better than manual information management systems. They can provide exactly the right information at exactly the right time.

### **Simulation and rapid prototyping**

Computer-based simulation and rapid prototyping provide fast and low-cost proof of design concepts.

### **Best practice techniques**

The term 'Best practice techniques' refers to many relatively modern ways of working. Some of these have been in existence for many years but still appear as modern compared to the very traditional techniques used by many Engineering organizations. They include techniques such as Benchmarking, Design for Assembly (DFA), Failure Modes Effects and Criticality Analysis (FMECA), Activity Based Costing (ABC) and Taguchi techniques.

EDST the largest PLM solutions provider in the country can help you address the typical challenges faced by the industry during the product development stage.

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