Topic 8: Implementation Strategies

Introduction to the Topic

Allocating more resources to the design stage often requires a major change in the practices and mindset of management. Shifting activities from the traditional ‘trouble-shooting’ mode to a ‘preventative’ one requires a cultural shift to take place across the whole organization. It means changing systems so that key product and process criteria can be identified at the concept design stages through the integration of the various disciplines (e.g. Simultaneous Engineering).

Learning Outcomes

By the completion of this Topic, you will be able to:

- discuss the preferred approaches for implementation of SE procedures
- identify the importance of enforcing a structured approach to PD
- discuss the factors that will contribute to the success of SE practices
- identify the steps and sequence of steps needed to implement change.

Session 8.1: Implementing Change

Generating a ‘pro-active’ organization through the application of a structured approach to PD requires a redistribution of resources from the onset of a program - at the earliest stages of the design cycle.

It means that attitudes must change to suppress divisional barriers while at the same time endorsing and sponsoring a participatory mindset (rather than the more traditional and confrontational style) - where production personnel can freely contribute to the designs and where designers can interface with customers/suppliers etc., to optimize the design of the product.

Implementing these strategies is as much about resolving people issues as process issues or the introduction of ‘state-of-the-art’ digital equipment and software programmes.
From this point of view, it is important that this approach be initiated with full management support at the onset of the program and that champions of change are carefully selected.

In light of these comments the following guidelines should be considered:

- develop consistent company goals
- foster the need for Continuous Improvement
- encourage teamwork through revised performance measures and incentives
- establish long term plans, objectives, profits, goals etc.
- provide training in people issues as well as technical issues
- start with enthusiastic and positive personnel
- persevere with your own ‘home grown’ procedures.

Figure 8.1 Steps used to implement change, copyright RMIT University, 2007 (Lou Travella)
Session 8.2: The Integrated Product Development Processes

As we have discussed throughout this program, there are many aspects associated with the successful implementation of modern manufacturing methods. In all cases the fundamental aim remains the same – to satisfy the customer with reduced costs, reduce time to market and unprecedented levels of quality.

The timely integration of the various manufacturing disciplines at the early design stages through the process of Simultaneous Engineering is a vital ingredient. Yet the application of Simultaneous Engineering procedures to a program can vary in both content and application. Moreover the timely application of a technique is as important as the correct application of a technique. In light of this, most organizations have developed integrated PD strategies that provide structure and guidance to the PD process for the benefit of the organization, contractors and suppliers.

Advanced Product Quality Planning (APQP) is a generic PD strategy developed for the automotive industry. Not unlike those used in other industries, it highlights the appropriate techniques and the correct timing and sequence of application. Here emphasis is placed on:

- teamwork
- early customer and supplier involvement
- simultaneous interaction of disciplines
- Process Control Planning
- disciplined problem solving
- Continuous Improvement.
In the APQP (shown) or similar approaches, milestones are set for the program (usually based on the experience gleaned from previous similar projects) to keep the project within allocated timing constraints, while gateways are established to prevent any of the prescribed disciplines from being omitted from the programme. In some organizations, funds for further product development are not released until certain processes are completed within designated stages. For example, one white goods manufacturer will not appropriate funding for further development work until the Design FMEA has been successfully completed and signed-off.

Good project management practices become an essential requirement throughout for the seamless integration of these techniques.

Existing organizations with established product development procedures have found it difficult to immerse their operations into a full-blown SE approach. Rather, a more successful approach has been to target one technique at a time to be applied to a selected project. Obviously this requires approval and endorsement from management at a senior level from the onset, followed by the selection of a ‘champion’ allocated with the responsibility for successfully implementing the technique and ensuring that the whole organization is kept informed of the progress.
Figure 8.3 outlines a series of steps that have been successfully used to successfully introduce new methodologies into organizations.

The main theme of this approach is to generate one or two successful internal case studies and to use these as examples for further promotion and expert development within the organization for further application on other internal projects.

One key element that should not be underestimated is the careful selection of a ‘champion’ allocated with the responsibility for the successful implementation of each new methodology in the organization. The speed and success of the implementation will be largely determined by this champion.

![Diagram](image)

*Figure 8.3, copyright RMIT University, 2007, (Lou Travella) adapted from American Supplier Institute*

In recent years the enormous contribution that the design process contributes to the success of the product has been finally realized, and considerable effort has been exerted to the correct and timely execution
of the design process so that products are designed correctly from the start. As well as incorporating the latest innovations in digital technologies, or the latest simulations on software etc, organizations now recognize the importance of appropriating ample resources to the design cycle, to have cross-functional representation from the onset, and to ensure that products are designed for ease of manufacture throughout.

In contrast to the Continuous Improvement cycle of the past, where considerable effort was allocated to problem solving or the reduction of waste on the production line, today the more ‘enlightened’ approach to product development reflects more balance between ‘on-line’ and ‘off-line’ practices, where the focus is aimed more at prevention than on detection and problem solving.

Figure 8.4 ‘Enlightened’ continuous improvement, copyright RMIT University, 2007 (Lou Travella)
Activity 8 A

Implementation Strategies

Reading:
Please refer to the bibliography in the Course Outline and read the following texts on the topic of implementing Simultaneous Engineering practices.


Websites:
Visit and review the following web sites for Concurrent Engineering strategies:

- Berkeley Expert Systems Technology
- Society of Concurrent Product Development

Discussion:
- Participate in groupwork during lectures and online discussions.
Summary and Outcome Checklist

This Topic introduced you to implementation strategies.

Tick the box for each statement with which you agree:

- I can discuss the preferred approaches for implementation of SE procedures.
- I can identify the importance of enforcing a structured approach to PD.
- I can discuss the factors that will contribute to the success of SE practices.
- I can identify the steps and sequence of steps needed to implement change.

Assessment

Assessment for this Topic will be included in Assignment 1.