ELSEVIER

Int. J. Production Economics 52 (1997) 179–183

international journal of
production
economics

# Reengineering the new product introduction process

George W. Arnold*, Mark C. Floyd

*Lucent Technologies, 101 Crawfords Corner Rd., Holmdel, NJ 07733, USA*

**Abstract**

This paper presents a case study of reengineering the new product introduction (NPI) process in a high-technology business. It provides a methodology that may be used by others engaged in similar efforts. Using benchmarking and process reengineering, the business unit substantially improved time-to-market intervals and responsiveness to customer needs. Average time-to-market intervals were cut in half in less than two years. A set of best practices for new product introduction is compiled from this experience and others.

*Keywords*: Reengineering; New product introduction; Benchmarking

## 1. Introduction

Rapid advances in technology are driving ever-faster product cycles and improving price/performance expectations on the part of customers. Competition among manufacturers is "raising the bar" of performance needed to succeed in the market. As a result, many companies have been faced with the need to reengineer their processes for new product introduction to increase speed, reduce costs, and improve responsiveness to customer needs.

Business process reengineering efforts are difficult to undertake successfully. Some authors report that 70% of such efforts fail to meet their objectives. This is not surprising, since there are no scientific theories to guide such efforts; the object of change is frequently human behavior rather than physical systems. In this paper we discuss our experiences with a successful reengineering project, in the context of a framework which may be helpful to other practitioners engaged in similar efforts.

## 2. Case study – Background

The Operations Systems Business Unit (OSBU) is one of several businesses within Lucent Technologies Network Systems.[1] The OSBU provides global computer applications and data networking products that transform the operation of telecommunications networks into automated, self-healing

*Corresponding author: Tel.: 908-949-1029; fax: 908-949-9146. e-mail: garnold@lucent.com.

[1]At the time this work was done, the OS business was a part of the AT & T Corporation's Network Systems Group. In 1996, AT & T restructured into three independent companies and the OSBU became the Applications Software business within Lucent Technologies Network Systems.


*PII* S0925-5273(97)00052-2

and revenue generating assets. This goal of its 2200 employees is to be the world's fastest, highest quality provider of high-value, easy-to-use, networked operations systems. In 1989 the OSBU embarked on a reengineering effort to improve its effectiveness at introducing new products.

## 3. Methodology

The methodology used to reengineer the OSBU's process is a variation of the "Plan-Do-Check-Act" cycle (Deming, 1986) used in Total Quality Management. It consisted of the following steps:

1. Benchmark (Camp, 1989) the organization's current performance against best-in-class competitors and establish quantitative goals for improvement.
2. Identify the best practices that lead to faster product realization (Stalk and Hout, 1990)
3. Implement changes to improve the organization and its processes.
4. Measure results and repeat the cycle of improvement.

These basic steps have been used by many companies to reengineer processes. Next we discuss how this methodology was applied to the OSBU and what results were achieved.

## 4. Application

The OSBU began its reengineering effort with a cost and interval benchmarking study, which characterized current performance and established a compelling need for improvement. The results of the benchmarking determined that the best competitors:

- Were faster than the OSBU
- Had lower costs and higher profit margins
- Followed consistent, integrated processes, with tighter initial planning
- Implemented efficient processes, with phased outputs and rigid milestones
- Empowered multi-functional teams with ambitious projects and aggressive schedules
- Explicitly addressed platform needs

After analyzing the benchmark data, the OSBU developed a strategic objective based on the achievements of the best performers in each of the following phases of product development: planning and architecture, development, and delivery. While no individual competitor reached this level, it represented a fact-based, ambitious objective for the OSBU: a 55% reduction in average product intervals (see Fig. 1).

Following the benchmark study, a cross-functional team that included representatives from all

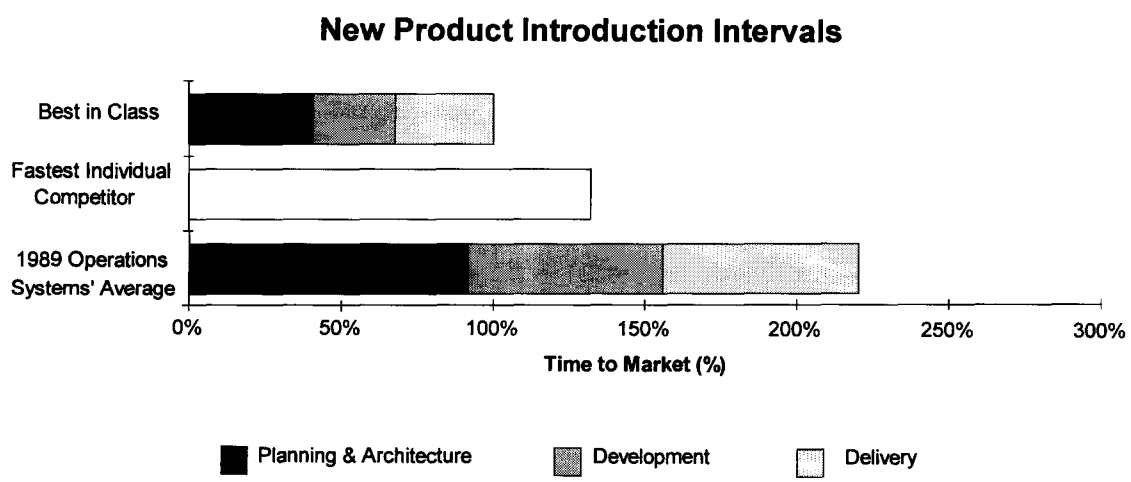


Fig. 1.