

MEASURING PRODUCT DEVELOPMENT PROCESSES

by Bradford L. Goldense, CMfgE, CPIM, CCP

Measurement of the product development process is still in its infancy. As we learned from manufacturing improvement activities in the 1980s, it may take 10-15 years for a consistent value-added measurement approach to be sorted out. For example, industry measured inventory, scrap material, and manufacturing process variation in the early 1980s using units of "percent." Industry now uses "normal distributions and standard deviations."

Rapid product development methodologies and technologies moved from "academic and lead user" to "commercially available" in the early 1990's. The journey to optimize the design process and measure it accordingly has just begun. Right now, a good deal of the measurement energies are being focused on measuring the processes we use today in order to determine how to improve them. "Gaining control and understanding" is a good way to think of current efforts, "process monitoring" and not yet "proactive process control."

A good initial focus for a metrics program is to accelerate the current process by systematically measuring and keeping records for project, product, and other product development activities; and making the results visible.

To get started with metrics, it is useful to disassemble the overall product development process, actually a grouping of a number of interrelated business and technical processes, into its respective components. Product development in any given company consists of ten to fifteen identifiable processes, two of them will be discussed here. They are both typically owned by the senior management group in any given company and not by the people participating on product development teams.

- Product Selection Process
- Capacity Management Process
 - Aggregate Loading
 - Resource Balancing

The Product Selection Process is key. A company cannot develop great products if the concept is flawed or unrealistic. Good stuff in begets good stuff out. Business Week and other sources have consistently published studies indicating that current USA performance is 45% bad stuff in. There is no greater opportunity to accelerate product development in most companies than fixing this problem affecting 45% of product development capacity. Refining the word "bad" would include identification of canceled projects, uncommercializable technologies that could not get past applied R&D, products not breaking even, products not returning target ROI, opportunity costs

of not spending time on other more lucrative concepts, and opportunity costs of doing "specials." Once this level of detail is established the improvement opportunity becomes clear. Few companies can claim this opportunity amounts to less than 20% of product development capacity. Perfection is not the goal either, companies must take risk to break through. These "desirable failures" must be retained.

The Capacity Management Process is also key. There are two measurement areas here. The first is the aggregate loading of the product development resource. Most companies will find that if they total-up the current design project WIP and approved backlog that it amounts to 200-300% of capacity. If industry managed the manufacturing function to that capacity there would be a disaster. Manufacturing settled on 85% to allow for unplanned activities and all customer orders not being equal. Further, if one then examines how many projects have time charged against them and hence are active, one finds that most are. This systematic overloading approach causes great distraction in the development community and results in the introduction of unnecessary bugs in any given design.

The second Capacity Management area is balancing cross-functional resources. At minimum, it takes Marketing, Design Engineering, Manufacturing Engineering, Test Engineering, and Purchasing professionals to bring new products to market. In many companies, there are 50 Design Engineers for every Marketing professional dedicated to new product development. Projects bottleneck at the start during definition and specification. At the same time, most all Manufacturing and Test Engineers are dedicated to supporting the floor and do not collocate with "early development engineering." They have full-time jobs supporting manufacturing. Companies often only have one Manufacturing Engineer supporting 10-15 Design Engineers. A good deal of "Over The Wall" can be fixed by balancing resources. Just like a manufacturing production facility, inadequate capacity in key design/work centers will cause bottlenecks and slow the "design factory" down.

For More Information Please Contact:

*Goldense Group, Inc.
1346 South Street
Needham, MA 02492 USA*

*WPh 781-444-5400
WFx 781-444-5475*

URL www.goldensgroupinc.com

© 1995-2002 Goldense Group, Inc. All Rights Reserved.

