

NEW PRODUCT DEVELOPMENT BETTER, FASTER AND EASIER!

By

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As a result of rapid technological advances and the driving force of competition, a company's expertise in new product development (or, more precisely, the speed at which products are brought to the marketplace) often distinguishes a barely surviving company from a briskly thriving company. As Dave Hasker, Director of Project Management and Intellectual Properties for Pilkington Barnes Hind (PBH), a California-based contact lens and solutions company and a division of the \$5 billion global leader in glass and related manufacturing, Pilkington Plc., succinctly states, "If you can reduce the time between the idea and getting it to market, you will achieve your strategic goals more quickly. It's important for the strategic alignment of the organization to look at where to go in the future vs. where you are today — and how you will get there via New Product Development."

Surprisingly, many companies do not have a formalized new product development process. Projects are often chosen randomly with minimal thought as to manufacturing feasibility or customer need. There may be problems with developing, prototyping, testing or manufacturing. Unfortunately, many companies have no goals and no procedures for accountability - so new product development bumbles along, haphazardly at best.

Examples of wasted time and low productivity range from companies who designed products without the technology to produce them to one product that looped around between management, research, development and manufacturing seven times in nine years.

Perhaps one of the most common reasons for this is the immensity of the problem - how do you change "the big picture"? If you are Motorola, one of the world's premier corporations, you found out the hard way; trying to keep pace with the competition while concerned with product obsolescence, inventory levels, new product development and manufacturing costs. After much customer-intensive research, Motorola discovered that the largest number of complaints about Motorola's service had to do with time-related issues.

Focusing on cost and profit considerations led to initial efforts to correct time-related problems in the manufacturing process. Although Motorola was successful within the sphere of manufacturing, it was soon apparent that only a small segment of customer complaints were being addressed. This research led to Motorola's theory of total Cycle Time

Reduction (CTR) which is achieved through a procedure called Cross Functional Process Mapping (CFPM). After testing this process out with their own company, and achieving significant results, Motorola knew that other companies would also benefit by learning this methodology.

The results obtained through CFPM and CTR are significant enough to make any company stand up and take notice! In the strictly engineering and manufacturing area, cycle time reduction results have routinely been 60-70%. With administrative or service processes, the typical time reduction has been as much as an incredible 90-95%. This difference is attributed to the fact that industrial engineers typically focus on the reduction of manufacturing cycle time. Management pressures manufacturing to produce hard results more than they require it from the administrative/service areas.

Motorola University's Applications Consulting Team (ACT) was formed to facilitate and teach this process within Motorola and to other companies in need of a tool to respond to time related complaints. In fact, every Motorola employee is now required to have at least 5 days of training a year, with more to be added in the future. Many jobs require even more intensive training.

Motorolans, and their customers and suppliers, have a choice of over 300 courses on a variety of subjects designed and distributed around the world by Motorola University. Courses range from management skills to benchmarking to cycle time reduction and organizational mapping. Companies needing in-house, in-depth training call on Motorola University or the Applications Consulting Team.

The basis for cycle time reduction is reducing the cycle time (the time it takes from start to finish) for one business process - in this case, the time from new product concept to product launch. Motorola has found that the best way to do this is to eliminate unnecessary and non-value added work. The final judgment on what is valuable is asked not of the staff, but of the customer. By reducing cycle time, it is possible to make impressive improvements in cost, efficiency and quality. Whenever possible, Motorola advocates reducing cycle time without using any significant amount of capital.

"New product development is a complicated process, few companies do it well. Cross Functional Process Mapping is such an incredibly powerful tool for delivery of new products, increasing gross margins and market share, reducing market risk and increasing profits, that you can't avoid using it if you want to be one of the market leaders," said Rick Capozza, former Executive Vice President of R&D for Worldwide Operations at Pilkington Barnes Hind.

Cross Functional Process Mapping involves creating teams whose members are selected from every department involved in the new product development cycle – from marketing to manufacturing to research and development, and every other department involved in the process. The next step involves mapping each step within the process from start to finish. The cross functional teams are the key to this process. Groups may seem to be overly large at first glance - sometimes up to 40 people. However, it is important to have every department represented so that everyone can get all their issues out on the table. “Most people think that they know the whole picture of what goes on in the company. After CFPM, you realize that there is a lot more to it than you thought. Everyone has the opportunity to see who is accountable for each task. This process allowed everyone involved in the process to agree on how it should work,” said Hasker.

“Communication between departments improved drastically. And, believe it or not, the project teams had so much visibility that anyone not on one was disappointed. Teams had a sense of purpose and began competing to achieve the most dramatic results,” added Capozza.

Motorola’s Applications Consulting team provides two facilitators who guide the company through the Cross Functional Process Mapping. Each mapping takes approximately three days. The “As is” and “Should be” mapping sessions are held about a month apart to allow all of the information from the “as is” mapping session to be digested. This gives the team members the opportunity to go back to their individual departments and find out if there are any other issues that were not covered in the initial mapping. This time also allows others in the organization to understand the complexity of the new product development process.

Another useful tool provided by Motorola is the Team Leader’s Guide, an overview of how to implement the “Should be” process. Filled with maps, tips, forms and examples of each step, it is an invaluable resource to anyone leading the implementation process. While the guide is extremely helpful, the real benefits of the process can be measured in both time and money saved by the company upon achieving the “Should be” goals.

The first map is the “As is” map which details the way the process is currently done and identifies all the issues that exist in the current way that new product development is accomplished. “I was initially surprised that we spent so much time creating the “As is” map. At first, I thought that we should only focus on our goals, and I was impatient to get started on the improvements. After we did the mapping, I realized that the “As is” map aligns the whole group. It allows you to look at the overall picture of where you’ve been. Once you see where you have room for improvement you can create your goals,” said Ruth Fricker, Project Group

Leader of Re-engineering at Advanced Cardiovascular Systems, a California-based manufacturer of catheters and support equipment for coronary angioplasty and a subsidiary of the Guidant Corporation, an \$862 million leader in the medical devices industry.

“By focusing on those projects that are clearly a company priority, we have reduced the number of concurrent new projects in development from over 100 to 20. We’ve also made changes in the sequence of our clinical, validation, and FDA filing tests. All things considered, we’ve reduced cycle time 39% in one business unit in only a year,” stated Fricker.

Using the cross functional format, each step of the process is mapped out, noting how long each step currently takes. Many companies are amazed by the loops and roadblocks involved in the current process. This “as is” session also “gives team members a far better understanding of the overall process and each person’s role within the process. This leads to respect and often breaks down barriers that exist departmentally,” said Bryan Travers, General Manager of CSR Wood Panels, part of CSR Limited, an \$800 million Australian-based timber business involved in taking forest to wood products to furniture.

“Three years ago we decided, with the help of our Motorola facilitators, that CSR Wood Panels had three priorities. We wanted to look at New Product Development in a new light and in doing so, increase customer satisfaction, improve gross new product development, and support our staff. More specifically, our 5-year objective was to realize 30% of our revenue from products that had not existed in 1994,” said Travers. “Previously our new product development was ad hoc with no central coordinating department. We are still looking at our long-term results, but in our short-term new product development, we have achieved a 75-80% reduction in cycle time.”

Any steps that do not add value in the customer’s eyes or are repetitions of other steps are deleted, if at all possible. This alone can realize an enormous time savings. Repetitious steps range from multiple signature loops to unnecessary duplication of testing. “We created our “As is” map and found that everyone thought they knew what the current process was, but each person had a different idea. Senior management, marketing, manufacturing and research and development didn’t communicate what they wanted to each other; and therefore, often weren’t happy with the results. We concluded that specifications had to be agreed on up front — before the project was started. It was painful at first, but we have now achieved about a 70% reduction in our new product development cycle time,” said Capozza of PBH.

Team members are divided into four categories. The first is a project champion who provides resources and removes barriers. Next is the team leader who organizes and conducts

the meetings and who ensures that information exchange occurs. The other roles are Action Item Owners and Team Members who both complete assigned tasks.

After completing the “As is” map, companies move on to the “Should be” map which details each step in the new process. A list of action items is created during this mapping session. Action items define what needs to be changed in order to move from the “As is” state to the “Should be”. These items are assigned to a Team Leader (one of the current team members) who will have responsibility for forming sub-teams which will then take the necessary steps to complete the action items. When all of the action items are completed, the company will have achieved the “Should be” vision of the company. A list of “stoppers” is also prepared. “Stoppers” are the items that the team thinks might prevent them from implementing the full “should be” process. All of the “stoppers” become the senior management’s action items.

To gain wider support of the new processes, the smaller sub-teams should mainly consist of employees not on the original team. A prioritization of the action items is also conducted to ensure that they are completed in the most efficient manner.

Impartial facilitators are a must. If the facilitators are not part of the company, it is easier for them to ask difficult questions and to point out things that might have seemed unchangeable to those who are immersed in the corporate culture. It is also important because “the facilitators aren’t bringing a personal ax to grind on any particular issue. This makes team members more comfortable and allows the “doers” in the company to become totally involved and empowered,” said Tom Newton, CSR Wood Panels’ Marketing Systems Manager.

One of the Motorola facilitators returns for frequent progress meetings that help keep the teams motivated and “help avoid internal conflict, clear the decks of issues, and keep everyone from redebating old points and getting bogged on the details,” mentioned Travers. These follow-up visits are absolutely vital for keeping motivation and progress high.

Once the company has gone through several mappings with the ACT facilitators they may choose to have Motorola train staff members to act as facilitators. This usually works well with large companies who will be using the process in many areas; so that the facilitators can work with a group other than his or her own department. Whether the company uses Motorola facilitators or internal ones, it is important that team members are given

the time and resources to work on the necessary action items to make the “should be” map a reality.

The Motorola facilitators are also always available for phone consultations. “Our consultants were there if we needed them, but didn’t hold our hands,” said PBH’s Hasker. “We kept people motivated and on track by keeping to a schedule of regular meetings and keeping accountability in front of everyone. We also provided name recognition for those doing a good job in our reports to the President of the company.”

Corporate culture also determines what type of motivational tools will be most effective within your company. Some employees prefer senior recognition, while others want more tangible rewards. At Advanced Cardiovascular Systems they tried both kinds of recognition - handwritten thank-you’s from the Vice President, a bar-b-que at the VP’s house and commemorative pen and pencil sets for everyone on the team. “We tried everything to keep team members motivated, but it turned out that the biggest incentive was to have the Vice President’s genuine interest,” said Fricker. No matter what method you use, it is important that you use recognition and rewards to share the success.

Cycle-time reduction requires a corporate culture change. Capozza also noted that, “the results were pretty dramatic; people began to think and behave differently. Once the group came together, we had incredible buy-in, making the process much more enduring. People could see their impact on the process that they created. Everyone began to be tuned into solving the problems, rather than arguing over turf issues.” Not only does the team work out solutions to current problems, they often use the problem solving skills they have gained on other projects - some even using these skills to obtain higher level jobs within the company.

Because of the need for changing paradigms, it is extremely important for this project to be completely supported by all levels of management, particularly the senior management. “People have to know that this is not just another “flavor of the month” and that each team member is going to have responsibility and accountability to upper management,” said Hasker. Capozza added that “without senior management’s total commitment, CTR has a 90% chance of failure because people will flounder without senior direction.”

Cycle Time Reduction produces dramatic results. A reduction of 50% or more is typical, depending on execution and the level of management support. “Motorola’s approach is outstanding, but implementation is the issue that we, as a business, have to deal with on a day-to-day basis,” stated Travers.

“Any company can achieve dramatic results by using Cross Functional Process Mapping to reduce Cycle Time. It can really change the mindset of the company and ultimately result in the company embracing this process in other areas,” said Capozza. “Imbedding the process into your business is a lot harder than creating your Process Maps. You can’t just document a great process, you have to follow through and be committed to making a change,” added Newton.

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