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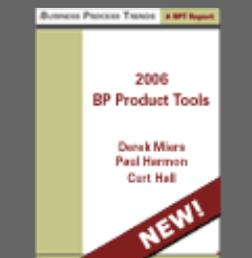


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Innovation and Process Change

Suddenly, *Innovation* is a very hot term. It recently replaced *Agile and Excellence* as the buzz word of choice in the business press. A dozen books have been published on it in the past six months. The June 11, 2007 issue of *BusinessWeek* included a special section devoted to *Innovation* and featured a story on its cover that suggested that Six Sigma had undermined *Innovation* at 3M. BPTrends has run several articles on *Innovation*, and we are currently running two BPTrends Columns that focus on aspects of *Innovation*. Given all this concern, I thought it might be worthwhile to step back and ask just what *Innovation* is and to see if I could understand just how it might be related to process change.

Merriam Webster's Collegiate Dictionary suggests that *Innovation* involves: (1) introducing something new, which can be (2) an idea, a method, or a device. The OED suggests the word is derived from Latin, where it referred to the introduction of novelty and that it was first used in English, in something like its current meaning, in 1297. Clearly, we are not talking about a new concept here. Equally clearly, businesses have always tried to be innovative. An entrepreneur creates something new when he/she starts a new business, and a manager is innovative when he introduces a new process. Marketing is innovative when they introduce a unique ad campaign, and New Product Development innovates when they use new technology to create a new product or service.

The font of modern management theory, Peter Drucker, published a book titled, *Innovation and Entrepreneurship* in 1993, and dozens of business authors have written about the topic since then. Drucker argued that entrepreneurship required *Innovation*. Today, most writers suggest that, in a rapidly changing world, all companies need to innovate to survive

If we focus more narrowly on *Innovation* in the context of process change, we can divide the recent literature, very roughly, into three basic categories. One school stresses creativity and focuses on brainstorming and a variety of related techniques that can help teams of people think of alternative ways of accomplishing a task. This school might be summed up as the creative thinking school.

A second school derives from the work of Genrich Altshuller, a Russian theorist who has created a systematic or "engineering" approach - called TRIZ - which can be used to examine problems and generate new possibilities. TRIZ is a Russian acronym that means something like the theory of inventive problem solving, and it was originally developed in conjunction with work on patent analysis. Howard Smith has posted a set of films of Altshuller, explaining his methodology, on YouTube at http://www.youtube.com/results?search_query=altshuller&search=Search. Recently, Howard Smith has written a wonderful series of Columns for BPTrends in which he shows how TRIZ can be used in conjunction with process redesign.

The third major use of the term *Innovation* in conjunction with process change is being driven by Michael Hammer, who has written on the importance of *Innovation*. A good example is Hammer's April 2004 *Harvard Business Review* article: "Deep Change: How Operational Innovation Can Transform Your Company." Hammer contrasts *Innovation* with



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improvement and suggests that there are times when you simply want to improve existing processes and then there are other times when you want to innovate and completely change the way you do business. In other words, Hammer is using *Innovation* as a synonym for reengineering.

We've heard people argue that *Innovation* distinguishes between process improvement and process redesign. Hammer seems to suggest that *Innovation* distinguishes between reengineering and either redesign or improvement. We don't think this is a very reliable guide. Let's face it - almost everyone is engaged in introducing new ideas, new methods, and new devices. Some are "newer" than others, no doubt, but everyone is looking for new ways to get things done. Clearly, if we are going to make sense out of *Innovation* we are going to need a continuum. The best source of such a continuum that I've found is provided by Charles A. O'Reilly III and Michael L. Tushman in another HBR article, published in April of 2004, entitled "The Ambidextrous Organization." O'Reilly and Tushman review numerous examples of *Innovation* and end up proposing the following continuum:

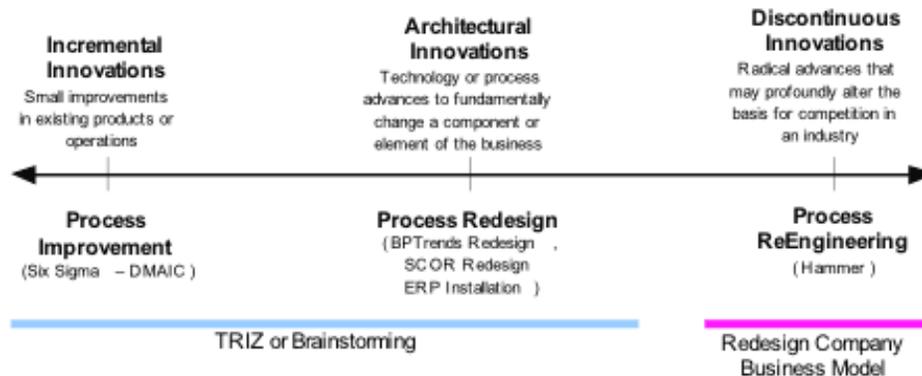
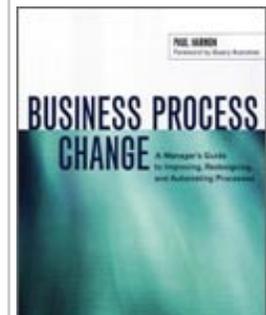


Figure 1. The O'Reilly-Tushman Innovation Continuum.

The area above the arrow shows the three categories that O'Reilly and Tushman use to map the various examples of *Innovation* they studied. Below the arrow I've added the three general approaches to process change, and below that I've suggested where the three most popular *Innovation* techniques might apply.

Obviously Figure 1 is a continuum and there are all kinds of instances that lie on the line between Incremental Innovations and Discontinuous Innovations, but at least this figure suggests why all kinds of people will be using the term *Innovation* to mean different things. During the next two to three years, while the term continues as a buzz word, we'll continue to publish a variety of articles on BPTrends that will describe activities at different points along the continuum. We'll try to discriminate between innovations that are incremental, those that are architectural, and those that are discontinuous, but we suggest that readers will want to keep the distinction in mind and apply it for themselves whenever they read a new article or book on *Innovation*.

A good case study in the various uses of *Innovation* was presented in the *BusinessWeek* June 11, 2007 issue. The magazine included a special section - Inside Innovation - and the lead article was the cover story of the issue: "3M's Innovation Crisis: How Six Sigma Almost Smothered Its Idea Culture." The article actually cites O'Reilly and Tushman's work, but does not manage to apply their subtlety to their discussion of the 3M case. The article points out that 3M hired James McNerney as CEO in 2000. Their stock was down - it had stayed nearly flat during the go-go late Nineties -- and everyone seemed to agree that they were overstaffed. McNerney introduced Six Sigma after laying off 11% of the workforce (8000 people). Thousands of 3M staffers were trained as Black Belts and many more received Green Belt training. The company embraced both DMAIC and



Design for Six Sigma and began to improve its processes with a vengeance.

McNerney slashed capital expenditures by 22% from \$980M to \$763M in his first year and by 2003 capital expenditures were down to \$677M. Operating margins went from 17% in 2001 to 23% in 2005. As a percentage of sales, capital expenditures dropped from 6.1% in 2001 to 3.7% in 2003. Profits under McNerney grew by 22% a year.

After four and a half years McNerney left 3M to become the new CEO of Boeing. His successor at 3M, George Buckley, is dialing back the Six Sigma effort. The major complaint among the 3M people, cited in the *BusinessWeek* article, is that *Innovation* is down. 3M has always been a company that promoted *Innovation*. It's where Thinsulate and Post-Its were invented. The company had historically prided itself on the fact that, at any one time, at least one-third of its product sales came from products released in the past five years. By the time McNerney left, the percentage of sales from the last five years was down to 25%. Those who are now complaining suggest that Six Sigma is somehow incompatible with *Innovation*.

One thing to keep in mind, as you consider this, is that McNerney held research and development funding constant - at about \$1 billion a year - from 2001 to 2005. If he had been willing to increase R&D each year, he might well have kept sales from new products at 33%, with or without Six Sigma. The *BusinessWeek* author didn't consider this possibility. To make matters even more confusing, in the May 14, 2007 *BusinessWeek* list of the Top 25 Most Innovative Companies, 3M was included as the 7th ranking company.

When you consider how McNerney turned 3M around, it's hard to argue that he didn't introduce some new ideas at 3M. Glancing at Figure 1 again, it is easy to imagine that he introduced *Innovation* all along the continuum. What those complaining are suggesting is that McNerney altered (or under funded) processes at 3M that generated new technologies and new products. Maybe he did, but that hardly justifies an article that goes a long way toward vilifying Six Sigma. Anyone who has had some experience with Six Sigma folks knows that some of them can come across as cultists who think that everything should be done the Six Sigma way. Anyone who has had more than a little experience with Six Sigma folks knows that most of them are reasonable, conscientious people who would be quick to agree that there are places where Six Sigma works well and other areas where it doesn't work so well. Assuming no one wants to argue that 3M should have avoided McNerney and let its stock price stay where it was during the Nineties, then what we have, in fact, is an amazing Six Sigma success story, and perhaps some insight into one area in which Six Sigma doesn't do so well.

This is exactly the issue that O'Reilly and Tushman considered in their *HBR* article in April of 2004. Their answer: smart organizations divide their organizational units into two groups. One group of units focuses on existing business and the other focuses on emerging business. Put a different way, one seeks incremental innovations in all areas and one seeks architectural or discontinuous innovations in more specific areas. And one adjusts one's approach as things change. I can't imagine a bright Six Sigma person who would disagree with this, or any CEO for that matter.

Coming at this from a slightly different angle, there was a chart that Hammer and others popularized in the late Nineties that showed how companies go through periods of improvement, punctuated by periods of more rapid change. If we imagine a large company, it is easy to imagine that different departments or business units would be changing at different rates. Some would be mostly focused on improvement while others might

be focused more on redesign. A few might be undertaking major reengineering efforts. This is what we suggest in Figure 2. This, in essence, is what O'Reilly and Tushman suggest that companies should foster. Similarly, this is what most business process management theorists recommend. No company can be constantly locked in the throes of reengineering or discontinuous *Innovation*. Sometimes radical change is necessary and at other times you need a more restricted redesign effort. Most of the time a company will simply be engaged in ongoing process improvement.

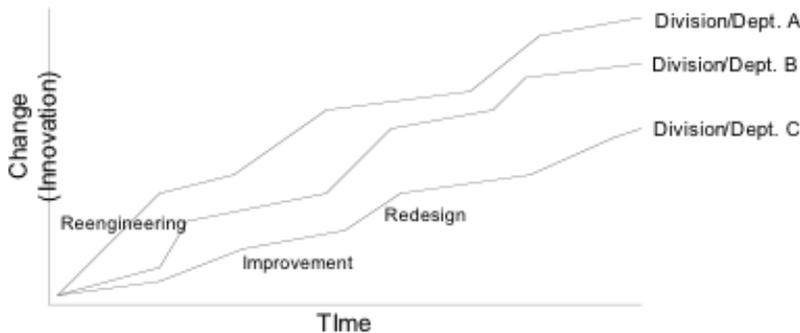


Figure 2. Some divisions or departments are changing more rapidly than others.

Once you realize that *Innovation* is usually just a synonym for process or product change and accept that there is a whole continuum of possibilities, then the trick becomes a matter of getting the mix right.

Everyone is going to hear a lot more about *Innovation* in the years ahead. Getting a good idea of what's involved, and focusing on what's important, and what can be used at your company today, is important. Similarly, every reader should understand that there will be a lot of nonsense peddled in the name of *Innovation* and should try to avoid getting carried away by either narrow definitions or by the spurious correlations that always seem to accompany any hot new business jargon.

Till next time,

Paul Harmon

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