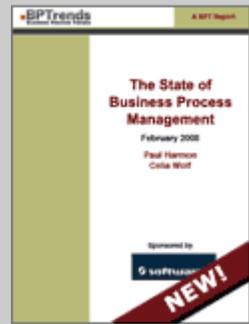


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## Lean versus Six Sigma

It's become a commonplace to speak of "Lean Six Sigma" as if Lean and Six Sigma somehow belong together. After a recent Advisor, a couple of readers wrote to challenge the idea that Lean and Six Sigma should be combined. I understand their point and decided it was worth trying to sort it out.

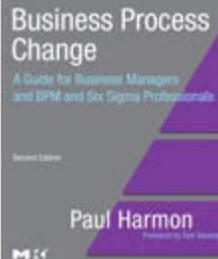
### The Three Business Process Traditions

The place to begin is with an overview of the world of business process change technologies and methodologies. In essence, there are three traditions: (1) the management tradition, (2) the quality control tradition, and (3) the IT tradition. Too often, individuals who come from one tradition ignore or depreciate the other approaches, feeling that their approach is sufficient.

**The Management Tradition.** This tradition began, as far as I can tell, with Geary Rummler in the Sixties. Rummler taught courses on what he termed Performance Improvement, founded and subsequently sold a company, Rummler-Brache, and co-authored, with Alan Brache, one of the real classics of our field - *Improving Performance: How to Manage the White Space on the Organization Chart*. Geary's work predates both the quality movement's emphasis on process improvement and the extensive use of software to automate procedures. He always emphasized the need to improve corporate performance, argued that process redesign was the way to do that, and went on to argue that improving managerial and employee job performance were key to improved processes.

The second important guru in this tradition is Michael Porter who introduced the idea of the value chain and linking strategy and business activities in his classic, *Competitive Advantage: Creating and Sustaining Superior Performance*. This tradition has always put an emphasis on strategy, on corporate performance, and on business results. The Supply Chain Council's SCOR framework is very much in this tradition as is the Balanced Scorecard. In essence, this is the tradition that has led to today's focus on Business Process Management. Roger Burlton is also very much in this tradition and his book, *Business Process Management*, published in 2001, is, as far as I know, the first book to use the term in its modern sense.

**The Quality Control Tradition.** This tradition has roots in the Thirties and Forties in the statistical quality control concepts of Walter Shewhart, but became well-known in the Eighties when US auto companies began to lose significant market share to the Japanese and people began to ask what the Japanese were doing better. The popular answer was that the Japanese had embraced an emphasis on Quality Control that they learned, ironically, from Edwards Deming, a quality guru sent to Japan by the US government after World War II. (Deming's classic book is *Out of the Crisis*.) In fact, of course, the story is more complex. It includes Joseph Juran, whose classic book is *The Quality Handbook*, and Japanese guru's like Taiichi Ohno. Ohno first described the *Toyota Production System*, and, thereby, became the father of Lean. Ohno's work was popularized in the US by James Womack, Daniel Jones and Daniel Roos in their book *The Machine That Changed the World: The Story of Lean Production*. In the Seventies, the quality control movement was usually called Total Quality Management, but in the mid-Eighties it mutated into Six Sigma, with its emphasis on continuous process



improvement. This tradition has always put a major emphasis on measurement, statistical methods, and incremental improvement.

**The IT Tradition.** The third tradition involves the use of computers and software applications to automate work processes. This movement began in the Seventies with an emphasis on automating back office operations, like book keeping and record keeping, and has progressed to the automation of a wide variety of jobs, either by doing the work with computers, or by providing desktop computers to assist humans in performing their work. This tradition received a huge boost in 1995 when the Internet and the Web began to radically alter the way customers interacted with companies and today it enables extensive outsourcing and the worldwide integration of business activities.

Those working in this tradition have recently combined workflow and EAI tools to create software suites capable of automating the execution of business processes. These BPMS tools offer the hope that the IT and the management tradition can be merged by building software systems that allow business managers to design and control their own business processes in something approaching real time. This tradition places its emphasis on using software systems to speed the flow of information and to automate whatever can be automated.

### **Cross Pollination**

One could argue about where *Business Process Reengineering* should be placed. Some would place it in the management tradition because it motivated lots of senior executives to rethink their business strategies. Others would place it in the IT tradition because it emphasized using IT to redefine work processes and automate them. It probably sits on a line between the IT and the business traditions. There have, of course, been other cross pollinating events. I have remarked before how Motorola didn't begin to combine Quality and Process in their Six Sigma initiative until after Rummler had given an extensive series of process redesign courses at Motorola in the early Eighties. Similarly, when the US Department of Defense wanted to improve the quality of its software procurement process it turned to the Software Engineering Institute. SEI created the Capability Maturity Model (CMM) that companies could use to evaluate the process maturity of IT organizations. CMM is very much in the tradition of Quality Control, but focuses on management practices and works to improve IT processes. There are traditions, but there are also examples of events that crossed between the traditions.

### **Lean and Six Sigma**

With that overview, let's return to our main topic: Lean vs. Six Sigma. Both Lean and Six Sigma have their roots in the Quality Control tradition. Both came out of manufacturing environments. Six Sigma arose at Motorola where a number of individuals figured out how to combine statistical quality control concepts from Japan and Juran, with the process concepts Rummler had taught Motorola in the early Eighties. Hundreds of books have been written on Six Sigma and it has spread, often as a result of one CEO recommending it to another, to a significant number of large companies in the US. There is no single version of Six Sigma. The major reference organization is the American Society for Quality (ASQ) but there are no officially accepted standards for what constitutes Six Sigma or a Black Belt. Most of the books recognize three Six Sigma domains - (1) process improvement (DMAIC), (2) process redesign (DFSS), and (3) process management, which has traditionally meant overseeing the Six Sigma efforts at the company and accounting for the "savings" achieved by the company.

To someone like me, trained initially in the management tradition, Six Sigma has always seemed just one of the pieces of the process puzzle. It often

seemed too focused on process outputs, small scale process improvements, and problems that were amenable to the statistical tools they use. The emphasis on measurement is on the outputs of the process. The assumption is that the overall process is, more or less, as it should be, and that the goal of the project is to save money by increasing the quality and the consistency of the output. Coming from the management tradition of Rummler and Porter, I have preferred to focus on how value chains, or at least large scale processes that crossed departmental boundaries, were linked to corporate strategies and bottom line results. I have been more interested in large scale redesign and have been particularly interested in how major business innovations recreate processes, how managers interact with employees on a day-by-day basis, and with incorporating software applications and redesigning jobs to take advantage of what IT systems offer - all things that most Six Sigma groups tend to ignore.

Six Sigma was very popular in the Nineties, but its popularity began to reach a plateau in the US at the beginning of this decade. Within companies, many Six Sigma practitioners were saying that they had completed all the obvious things that were amenable to Six Sigma techniques and they needed new techniques if they were to continue to achieve their goals. Put another way, the well-known Six Sigma vendors that are, in essence, training organizations, needed to expand their offerings.

"Lean" was created at Toyota in the post-war years and became widely known as the Toyota Production System in the Nineties after the publication of Womack, Jones and Roos book. To be fair, when you read Ohno, you realize that the Toyota Production System is a lot more than Lean; it is nothing less than a culture that is embraced by every manager and employee at Toyota, and culture is very hard to package or export. Consequently, most books available outside of Japan focus on specific techniques used at Toyota and lose the top-down organization-wide commitment that makes the Toyota system so successful. In its currently popular form, as Lean, those who write about it tend to emphasize two things: Value Stream Mapping and Waste Elimination. Value Stream mapping focuses on re-designing manufacturing processes by shifting from push to pull, incorporating Just-In-Time delivery and minimizing inventory. In essence, Value Stream mapping focuses on many of the enterprise level concepts that anyone in the business tradition would emphasize, save that Lean tends to focus on the core, manufacturing chain activities and does not usually consider sales and marketing or the management or support processes needed to have a complete value chain. Waste elimination tends to focus on identifying and removing sources of waste - broadly defined. Some efforts focus on simplifying the steps in a process and others focus on rearranging the work area to assure that individuals can hand off to one another in an efficient manner. Depending on whom you read, there are 7 or 8 sources of waste. Given its origin in quality control, Lean places a major emphasis on statistical measures.

At the beginning of this decade, when the existing Six Sigma vendors began to look around for ways to expand their offerings, they arrived at Lean - which, in it's US guise, is a set of techniques. The two approaches are different. Six Sigma emphasizes specific processes, outputs and consistency, while Lean emphasizes enterprise planning and changes to make the workflow more efficient. Their common bond is an emphasis on statistical techniques and, a flip reviewer might add, Japanese jargon. Otherwise, they are very different. This is reflected in the fact that most of the Six Sigma vendors are offering Black Belts in Lean, just as they earlier offered a Black Belt in Six Sigma. In hindsight, apparently no one assumes that a Six Sigma Black Belt has a broad overview of all the techniques needed to improve processes.

## **Beyond Lean and Six Sigma**

There is nothing wrong with either Six Sigma or Lean. Both provide valuable sets of techniques. Neither, however, is a comprehensive approach to either process or performance improvement. That said, it is important to add that the best Lean and Six Sigma practitioners are well beyond both Lean and Six Sigma as they are currently defined. The best Lean Six Sigma practitioners are practicing what, for lack of a better term, I would call Business Process Management. They are using tools that go beyond the traditional Lean or Six Sigma techniques. They are working with IT people to see how to integrate automation into process redesign. They are considering how to align strategy, balanced scorecard, and process management to govern processes in new ways. They are exploring the use of frameworks, like the Supply Chain Council's SCOR and the Value Chain Group's VRM, to quickly define enterprise process architectures and benchmarks.

Expanding the Six Sigma techniques was necessary, and incorporating Lean into the Six Sigma toolkit is a reasonable step. Once that step is taken, however, why not go all the way? Why not create a Business Process Management Black Belt - and define that role as broadly as possible? Include all the practices and techniques from the management tradition, include the best practices from Business Analysts and Software Architects working in the IT tradition, and roll them together into a truly comprehensive view of what can be done to improve the way your company performs.

The common core of any process effort is the notion that work gets done by processes, that you ultimately only get what you measure, and that you only get it if someone is responsible for achieving it. And a corollary is that you need senior management commitment and you need to organize to do this enterprise-wide to assure you can coordinate and prioritize all your process efforts. The best practitioners from each of the traditions would, I believe, agree with these principles. Beyond that, each practitioner needs as many different tools and techniques as he or she can get.

So, yes, Lean is rather different from Six Sigma. And, at the same time, they share a lot in common. And, most important, neither by itself really describes the overview that today's practitioners need if they are to really transform their companies into process-centric organizations. We need to focus on creating a comprehensive vision of BPM. We need to begin training BPM Black Belts.

Till next time,

Paul Harmon