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Lean and Six Sigma 1 – Why can't we be friends?

Lean and Six Sigma are both powerful tools for business improvement. Companies struggling to choose between them would be wiser to take a more holistic view

By Phillip Gilmour-Jones and Jonathan Tilley

Executives frequently ask us, "which is best the improvement approach, lean or Six Sigma?" We believe that this question is flawed for two reasons. First, it ignores the common history and background of the two popular and powerful improvement approaches. Second, by asking the question, executives may be confusing the detail of the tools used in business improvement with the need for a fundamentally new approach to all aspects of a company's operations.

The need to move beyond the toolset is the subject of the second article in this series, but first let's look at the tools and approaches themselves.

Different camps

Lean was born of the Toyota Production System (TPS), and is often associated with front line improvement tools and concepts for manufacturing. Its central ideas include Just-in-Time and Jidoka, or automation: the concept of taking the efficiency of machines and equipping them with the human intelligence to prevent, predict or detect errors. Tools such as 5S, Kanban, standard work and visual control, are favored by practitioners driven by the desire to remove waste and the principle of the continual search for the "better way" to add value for customers. Kaizen events (a way to implement big improvements quickly by focusing on a specific part of a process) are quite often chosen as the vehicle to implement these concepts and tools.

Six Sigma is statistically based, with defined execution process and robust analytical tools for identifying and reducing variation in a process. Engineers and scientifically-grounded people who identify with the mathematical precision and logic of its approach often favor it. This approach was pioneered at Motorola and then crafted into the management infrastructure at General Electric where this technology became an engine for widespread improvement and upped the capability "ante" for management. The three key elements of Six Sigma are its statistical tools, the DMAIC process and the certification (using a system of colored belts derived from martial arts traditions) of individuals.

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There is no doubt that lean and Six Sigma are currently the two giants of the business improvement world, both have world-class pedigrees. Both are now applied in almost every walk of life. Both have track records that range from excellent to patchy, but organizations from governments to convenience stores are all pursuing significant improvement in performance in the quest to deliver better value. Lean and Six Sigma, however, are often portrayed as uneasy business partners at best, and occasionally as outright competitors in the arena of "most likely to maximize bottom line success". It doesn't have to be that way.

A common history

In fact, both the TPS and Six Sigma approaches owe their origins to a common body of work. Statistical Process Control (SPC), developed by American engineer and statistician Walter A Shewart, is one of the foundations of lean. It is also the basis for much of the Six Sigma methodology. The other lean foundation, Total Quality Control, was developed by W Edwards Deming and applied by him in both the United States and Japan.

These two founding themes were embraced by Taichi Ohno, widely acknowledged as the father of the Toyota Production System. Shigeo Shingo – who is well-known for taking concepts of zero defect production, Single Minute Exchange of Die (SMED) and TPS to a broader audience – expanded them. Excited by the simplicity and elegance of process control and the need to manage production efficiently, and driven by the need in postwar Japan to fully realize the "less is more" principle, Toyota developed TPS as a way to achieve previously unheard of levels of productivity, quality, and flexibility with minimal investment.

A common philosophy

Both lean and Six Sigma are built on the driving principle that a business is improved by relentlessly solving problems that affect the customer. Solving these problems becomes, in a mature lean or Six Sigma organization, the goal for all areas of the business. Its processes exist to meet that goal and its people are deployed and committed for the same purpose.

The two approaches even have a very similar fundamental approach to this problem-solving challenge. In lean, this process is the Plan, Do, Check, Act (PDCA) cycle. In Six Sigma it is DMAIC – Design, Measure, Analyze, Improve, Control.

The right tools for the job

Lean and Six Sigma come with their own tool boxes. These tools, evolved over thousands of problem-solving activities, are there to help practitioners identify the root causes of problems and build and test robust solutions to them.

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Business problems occur at every level in an organization, from individual machines to entire supply chains. They vary tremendously in complexity too, from those whose solutions can be seen at a glance and implemented in a minute, to others that require careful analysis of hundreds of different variables.

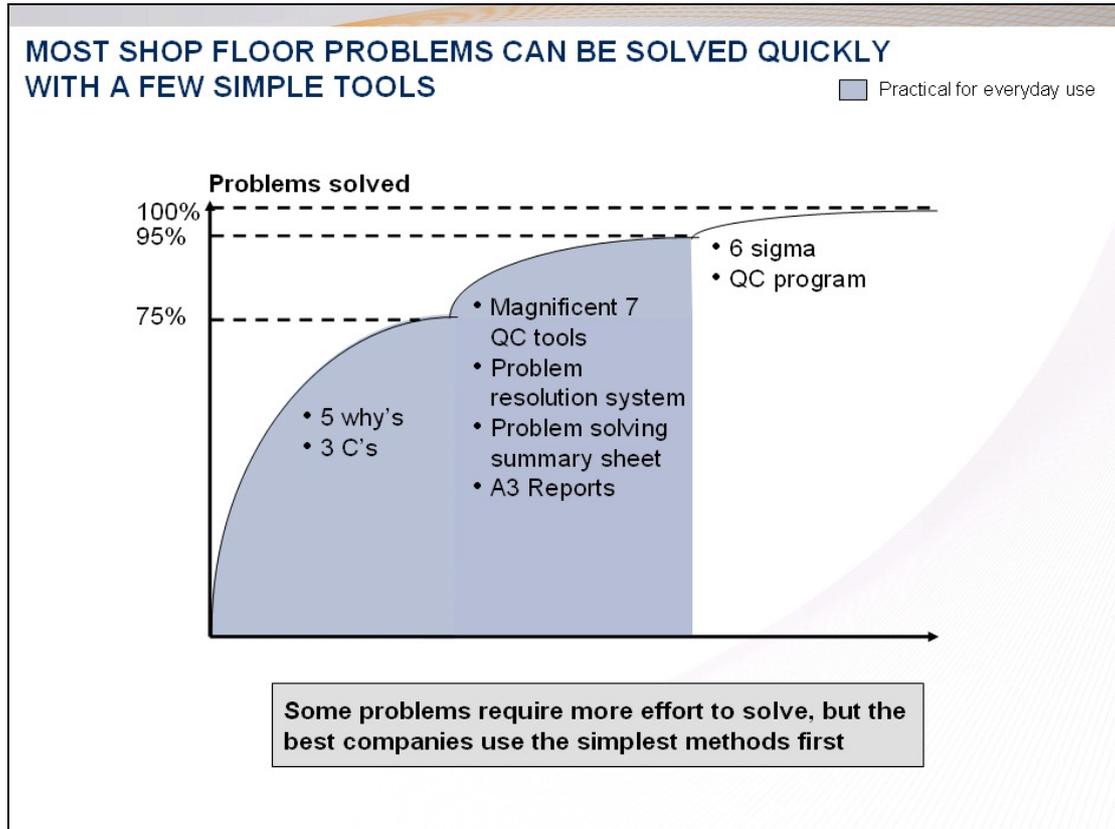
Perhaps unsurprisingly, different types of problem are best solved with different tools. Simple but very effective techniques like the "5 whys" method for identifying the root cause of a particular issue can solve a surprising number of problems (Exhibit 1). Others will require a full-blown Design of Experiments and multi-variant analysis.

The skill of successful companies is in choosing the simplest, cheapest tool for a particular job. We saw recently, for example, a company implementing a Six Sigma project to reduce variability during relatively simple production line tool changes. Many sources of variability were immediately apparent to line side observers: workers wasting time searching for the right equipment, tools stored in inconvenient places, the right people not in place when they were needed. Instead of taking quick steps to fix these problems, the company wasted months gathering data to ensure that their observations were robust and statistically valid.

Such wasted efforts are not the fault of the Six Sigma approach. In fact Six Sigma explicitly encourages users to look for simple solutions first. Rather they are the fault of organizations for equipping their people with an incomplete tool set. This company would have been better to change the simple things first, then, if variability needed further reduction later on, it would have been right to break out its more sophisticated tools. A bias for action should not be confused with not being thorough or solving an issue at a superficial level or not getting to the true root cause.

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Exhibit 1



Unlocking the tool box

Both lean and Six Sigma give companies powerful tools to help transform their operations for the benefit of the customer, but understanding these tools is not enough to deliver real benefits. For any improvement process to deliver real impact, its tools must be in the hands of the right people across the organization, and those people must gain the habit of applying them, repeatedly and relentlessly in almost everything they do. Reaching this point is one of the most challenging aspects of business improvement, and it is the subject of the next article in this series ■

About the authors: Jonathan Tilley is a senior practice expert in our Southern California Office. Jonathan serves clients on a range of operations topics that center on performance transformation. Jonathan worked for more than 20 years in industry and has more than 10 years experience as a consultant. Phillip Gilmour-Jones was an expert in our Southern California office. Phillip passed away recently and these articles were the result of conversations between Phillip and Jonathan. Phillip also worked at Toyota Motor Manufacturing UK with Jonathan.

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