



A man in a white tank top, shorts, and a red sash is running on a track. In the background, there are large white letters 'SSS' against a cloudy sky. The man is running from left to right, and his red sash is flowing behind him.

JUST THE FACTS

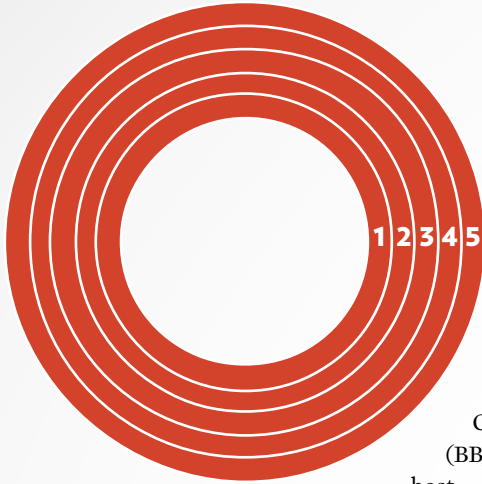
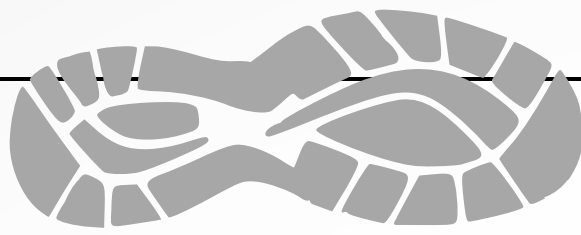
In some business scenarios, full-scale lean Six Sigma training isn't always necessary to dissect and solve problems. Smaller projects often can be shortened and handled using a select number of quality tools.

In some instances, that means overtraining teams can be avoided. This agile approach to lean Six Sigma can save on training costs.

More complicated, cross-functional problems within an organization may require more advanced training for teams, but many problems can be tackled more quickly by those with less training.

Incorporating agile methods in lean Six Sigma to get results—fast
by Jay Arthur

Large white letters 'RRE' are displayed on a dark background. The letters are stylized and appear to be part of a larger word or phrase.



ver the past 20 years, many organizations have taken the traditional path of Six Sigma implementation—train Green Belts (GB) and Black Belts (BB), start teams and hope for the best.

Unfortunately, after two or three years of marginal return on investment, many leadership teams shut down their quality departments. Recently, organizations have been rediscovering how to minimize the cost of lean Six Sigma and get results. I call this agile lean Six Sigma.

At recent ASQ Lean and Six Sigma Conferences, ASQ World Conferences on Quality and Improvement, and the Lean Six Sigma World Conferences,¹ organizations as diverse as Christus Health,² Novartis,³ Crayola and Underwriters Laboratories (UL) have presented their approaches to getting results. All outline the same key steps:

1. Choose a problem that has preexisting data.
2. Allocate a one to two-day Yellow Belt (YB) training for teams focused on solving that problem.
3. Develop and implement an improvement project with countermeasures for implementation.

This is the nuts and bolts of agile lean Six Sigma: focus on results.

One- or two-day training

Having attempted the traditional approach to Six Sigma, Christus Health wasn't gaining any traction. Leadership asked whether the quality staff could develop a one-day course to train teams and deliver results. Like good soldiers, the quality staff took a whack at it and discovered it worked. Key takeaways included:

- No team could be trained unless it had a problem to solve and preexisting data about the problem. No training took place just to boost individuals' résumés.
- One-day training focused on using data and a few key tools to solve the problem.
- Implementation of countermeasures followed. Much to the staff's surprise, results started flowing from the teams focused on real problems and results.
- These projects helped identify individuals with an aptitude for quality improvement. These team

members were selected for additional GB or BB training.

This agile approach to lean Six Sigma proved especially useful in healthcare, which could benefit from rapid improvement. While healthcare organizations have tried performance improvement, as Six Sigma often is known in healthcare, it often has failed to deliver results. Doctors, nurses and other healthcare workers cannot be pulled off the line for weeks of training. They need a way to learn a few key tools, apply them and implement them to achieve results.

Similar to Christus Health, Novartis used a two-day training session to accelerate the availability of sample drugs to their sales reps. Crayola used a two-day training focused on results. Because UL has 14,000 employees spread all over the world, it used a blended method: one day of online training followed by one day of on-site team meetings to solve specific problems.

Agile lean Six Sigma

“Six Sigma is too complex and time-consuming to fit into a regular workday. We need tools that don't require the entire organization to undergo weeks-long training programs.”

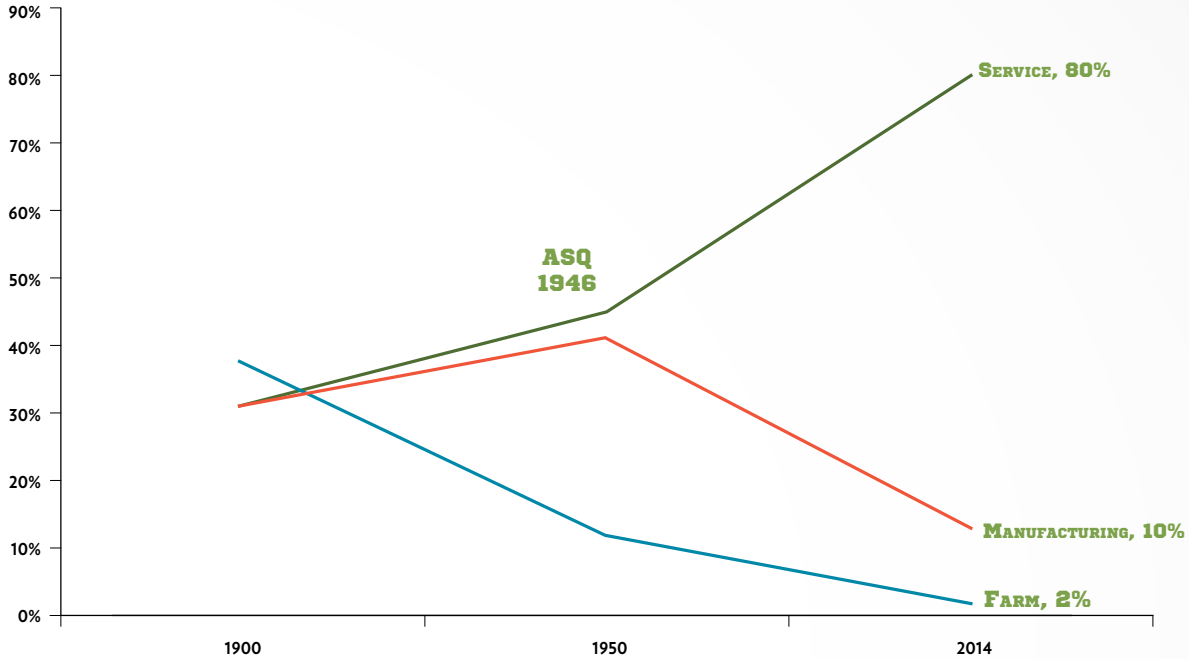
—Thomas Wedell-Wedellsborg⁴

The 20th century quality improvement approach tried to prepare people to work in manufacturing, where you needed measurement systems analysis, design of experiments and other advanced tools to optimize production. In the 21st century, most people work in service industries (Figure 1) in which these tools are not useful and often confusing.

Traditional lean Six Sigma required two to four weeks of training over several months, and four to 16 months to complete a project (see Online Figure 1, which can be found on this article's webpage at qualityprogress.com). While this is great for training and consulting companies to fill billable hours, it slowed the adoption of lean Six Sigma and put it on the list of endangered corporate programs.

FIGURE 1

U.S. employment 1900-2014



Source: www.bls.gov

A bit of hacking

“The spirit of hacking can be adapted and applied to general business management, not just technical innovation.”

—Scott Brinker⁵

The solution to this problem of sometimes overtraining is to hack lean Six Sigma to deliver results in hours or days, not months and years. So, how do we hack lean Six Sigma? Stop teaching people things they don’t need to know to solve problems they don’t have to impress people they don’t like.

Hacking lean: In service industries, 95% of delays are unnecessary and preventable. I call this the 3-57 rule (Online Figure 2). People are only working on the service for three minutes out of every hour. The other 57 minutes are unnecessary delays.

Value-stream mapping and spaghetti diagramming will help pinpoint how to eliminate these delays. Virtually all of

FIGURE 2

Raw PivotTable data

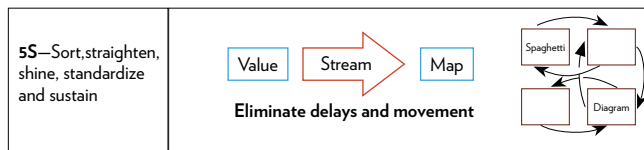


FIGURE 3

‘Magnificent Seven Power Tools’

1. Value stream mapping and spaghetti diagramming—to map and analyze process flow.
2. Excel PivotTables—to summarize raw data about defects, mistakes, errors, and money.
3. Control charts—to identify the most frequent types of defects, mistakes, errors, money, and time.
4. Pareto chart—to identify the most frequent types of defects, mistakes, and errors.
5. Histogram—to evaluate deviation in process performance, especially time.
6. Fishbone—to identify the root causes of the problem.
7. Countermeasures and action plan matrixes—to prioritize corrective actions.

4-hour lean hack—simplify and streamline



4-hour Six Sigma hack—optimize

	4-hour Six Sigma hack
Analyze	
Improve	
Control	
Honor	<p>Recognize, reward, refocus, and repeat</p>

the delays are in the arrows between steps. You don't have to make people faster or more efficient. You just have to make the product or service faster by eliminating delays.

Often, this can be done in an hour or two, and it doesn't require a week-long *kaizen* event. All you need are Post-it notes and people who work in the area that's under scrutiny. I've done this with nurses, and they always find solutions. For example, one group found ways to cut travel time by 50% or more in a nursing unit. The exercise rarely takes more than two hours.

Hacking Six Sigma: You're probably familiar with Pareto's 80-20 rule, which states that 20% of what you do causes 80% of your waste, rework, and lost profits. Pareto's rule is actually a power law, which means that 4% of what you do produces more than half the waste, rework, and lost profit. I call this the 4-50 rule (see Figure 2, p. 31).

The same is true of knowledge. You don't need to know everything to solve most of these problems. A few tools—I call them the magnificent seven (see Figure 3)—will solve more than 90% of the problems facing businesses today.⁶

So, you don't need to fix everything or know every tool in the toolbox. These two key concepts are crucial to understanding agile.

If 4% of what you're doing is producing more than half the waste and rework, that means one out of every 25 steps is causing 50% of the waste rework and lost profit. It might be as few as one out of 100 steps. So, you just need to find the \$1 million misstep.

Using PivotTables

The magnificent seven includes value-stream mapping and spaghetti diagrams, control charts, Pareto charts or histograms, fishbone diagrams, countermeasures matrixes, and action plans. There's one more tool that's often missing from Six Sigma.

Consultants often talk about low-hanging fruit, but what they don't tell you is that most of it has been picked already. There is, however, what I call invisible low-hanging fruit: Raw data about these problems reside in Excel files and corporate information systems.

To find the invisible low-hanging fruit, you need Excel PivotTables to summarize this raw data and chart the results.

Every multimillion-dollar improvement project I've ever worked on started with a PivotTable of raw data. It used to take me hours—and sometimes days—to fully analyze the data to create improvement projects. I can now complete analysis in a matter of seconds.

PivotTable case study

Most hospitals have too many problems with rejected, appealed, and denied claims costing millions. Lean Six Sigma can help reduce billing problems among other operational problems—and the process is simple.

Denied claims drive up the cost of healthcare and can push many hospitals toward bankruptcy. For one hospital system in the Southwest, monthly denials were more than \$1 million. Using raw data shown in Table 1, PivotTables were used to summarize the data and turn it into control charts and Pareto charts. For instance, the team:

- Summarized the data by date and defect (Figure 4), which yielded a control chart of defects by day (Figure 5, p. 34).
- Summarized denied charges by type of denial, which yielded a Pareto chart of the costliest defect (Figure 6, p. 35).
- Drilled down into the timely filing data (double-click on any cell in a PivotTable and it will reveal the raw data used to create it). From there, we created another PivotTable to discover that one insurance company caused 67% of denials (Online Figure 3).

This enabled the team to pinpoint the problem: One insurance company was causing 67% of the denied claims due to timely filing. In a matter of hours, the team changed manual processes to prevent the problem, saving \$5 million a year.

Looking at the data regarding rejected claims, the team found a way to eliminate \$24 million in rejected claims. While rejected claims are ultimately paid, rejection causes delays that can result in denials.⁷

Hacking lean Six Sigma training

How do you train people in a day and deliver results? Restrict the training to the seven tools and use software to automate data analysis.

Don't teach people formulas or how to calculate limits and draw control

GET TRAINED

ASQ offers training extensive training on lean, Six Sigma and many other quality-related practices and tools. Courses are designed and developed by the best subject matter experts and taught by the best instructors. Explore ASQ's extensive selection of courses and find the right level of training for you and your staff by visiting asq.org/training.

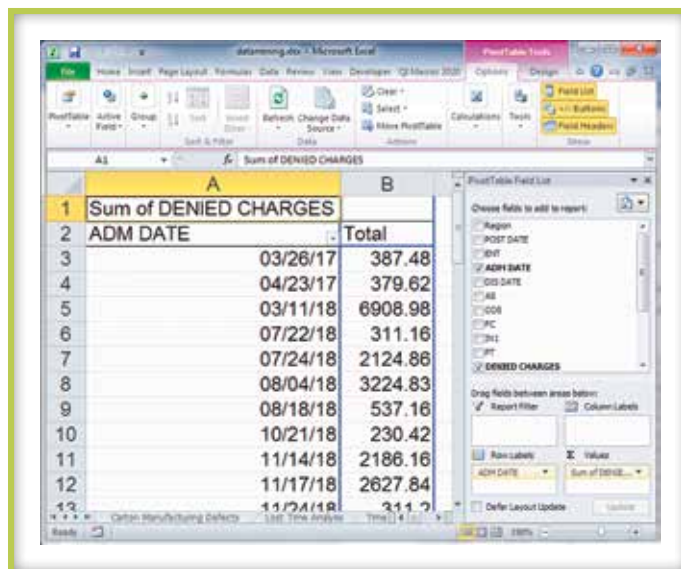
TABLE 1

Raw PivotTable data

	A	B	C	D	E	F	G	H	I	J	K
1	Region	POST DATE	ENT	ADM DATE	DIS DATE	AS	COS	FC	IN1	PT	DENIED CHARGES
2	North	06/24/20	Hosp1	02/10/20	2/13/20	OL		X	AEH	O	543.07
3	South	12/21/19	Hosp2	07/10/19	7/13/19	OL		X	BCP	E	215.4
4	South	02/22/20	Hosp2	12/03/19	12/6/19			X	CGH	O	157.92
5	South	05/20/20	Hosp3	10/17/19	10/20/19	OL		X	MAH	O	90.73
6	North	07/12/20	Hosp1	05/04/20	5/7/20	AP		X	HEH	O	4103.78
7	North	11/02/19	Hosp4	08/04/18	8/7/18	OL		F	PTB	E	3224.83
8	North	11/17/19	Hosp5	04/12/19	4/15/19	OL		F	PTB	O	3291.76
9	North	11/24/19	Hosp1	05/10/19	5/13/19	OL		F	PTB	O	13845.9
10	North	11/24/19	Hosp4	09/13/19	9/16/19			F	PTB	O	1151
11	North	12/08/19	Hosp6	09/21/19	9/24/19			F	PTB	O	797

FIGURE 4

PivotTable of denied charges



charts by hand. Don't teach them how to manually draw Pareto charts or histograms. Give them software that does this automatically. Without Six Sigma software, it will be impossible to achieve rapid results using agile methods or train people in a single day. Obviously, the software must be easy to learn, or training will take longer than a day.

When teams focus on learning tools to solve a pressing problem, they learn much more quickly than when trying to learn from randomly designed exercises using imaginary organizations and data. Too many healthcare workers have been trained using manufacturing data. It doesn't stick. Using their own data makes the training stick.

Many presentations at conferences point to one-and-done problems with lean Six Sigma training. People go to class for two to four weeks, do one project and stop. That's a terrible waste of resources. Your organization will spend a lot of money to complete just one project. What if you get two or three projects done in one day? With one-day

YB training, the investment is much less and the results more forthcoming.

Surprisingly enough, some of these participants will continue to develop more projects. Consider them for more advanced training. They've earned it.

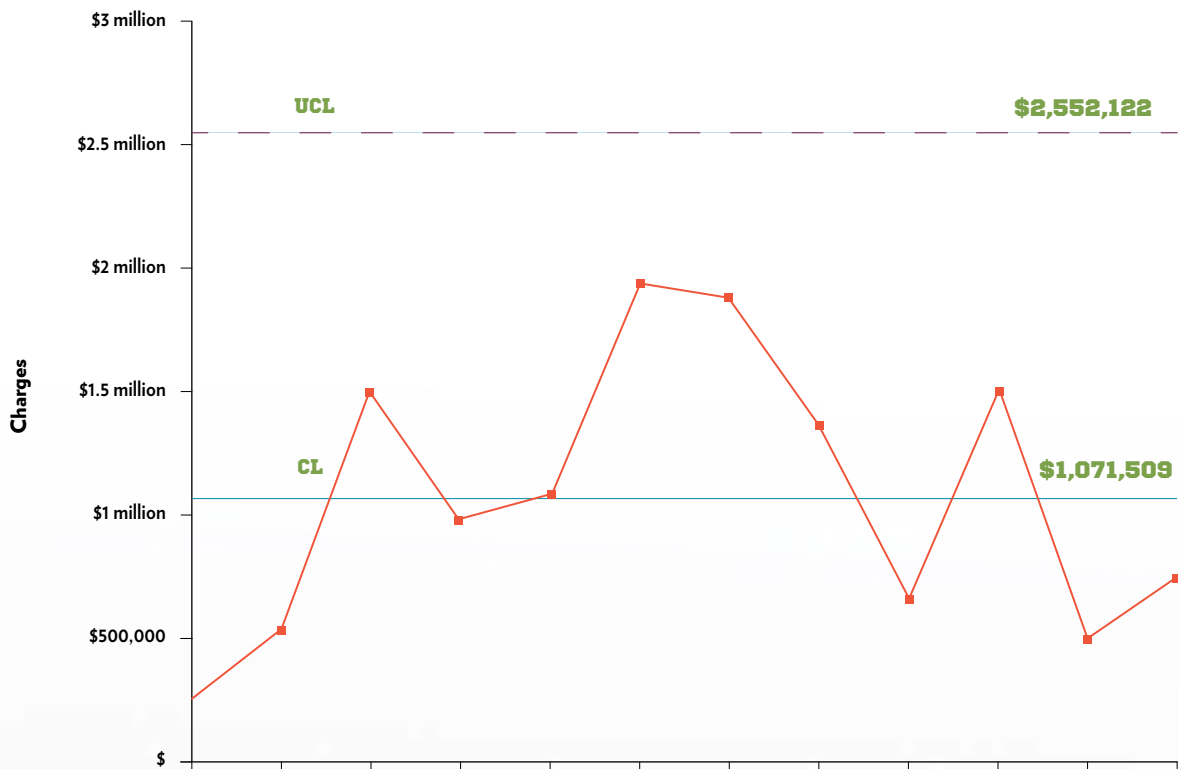
Ready to delight

So, that's agile lean Six Sigma:

- Only train teams with real problems to solve and preexisting data. They will learn faster and avoid the one-and-done problem of most lean Six Sigma trainings.
- Train teams on the seven key tools needed for problem solving. Anything else is overproduction. It causes confusion.
- Focus on analyzing the data and developing countermeasures.
- Implement and measure results.
- Use control charts to monitor and sustain the improvement.

FIGURE 5

Charges coded as denials

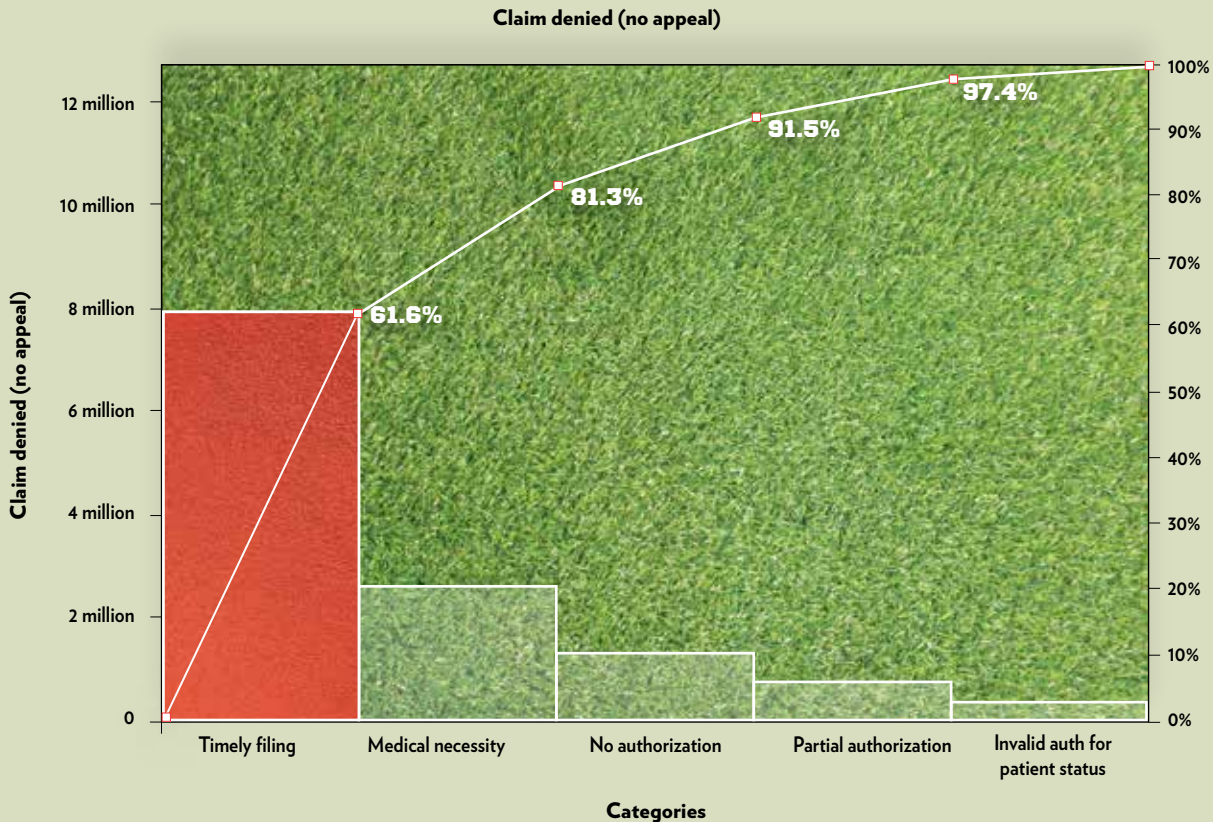


CL = central line
UCL = upper control limit

Editor's note: Chart recreated but originally generated using QI Macros software

FIGURE 6

Denial—no appeal charges by memo code



Editor's note: Chart recreated but originally generated using QI Macros software

- Repeat as needed.
 - Identify people for more advanced training to tackle more complicated cross-functional problems.
- This agile approach will delight leadership and customers. It also prevents the extinction of the quality department and lean Six Sigma.⁸ **QP**

EDITOR'S NOTE

References listed in this article can be found on the article's webpage at qualityprogress.com.



WATCH AND LEARN

Watch ASQTV video interviews of Azizeh Elias Constantinescu and Newton Moore of Underwriters Laboratories as they discuss the importance and benefits of applying the agile approach to training design and development in adult learning. Visit videos.asq.org/applying-agile-methodology to watch these interviews.



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