Six Sigma and the Mobile Workforce

FOUR TIPS TO HELP
ORGANIZATIONS
BRING SIX SIGMA
TO THE FIELD.

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Six Sigma has been adopted by some of the world's leading companies as a mechanism to improve bottom-line results and delight customers. But though the companies have made spectacular gains in some areas—millions of dollars in increased revenue or decreased costs—their success has not been uniform.

In particular, deploying Six Sigma in areas of high workforce mobility or dispersion, such as field sales and service, has proven challenging. This failure is ironic because mobile workforces are often comprised of people who spend most of their time dealing with customers face to face, in the customer's workplace, and one of Six Sigma's claims to fame is its focus on delivering what customers really care about (key outcomes or critical Y's).

Among organizations that have tried using Six Sigma in field sales and service, many have reached for IT solutions, such as sales force automation (SFA) systems. Technology does have a key role to play, but technology-only solutions are limited because they do not address the other factors that conspire against the use of Six Sigma in mobile workforces, such as:

- **Perception:** There is an erroneous perception that Six Sigma will interfere with the productivity and creativity of frontline staff or take away time they should be spending with customers.

- **Little exists to build from:** Many transactional services areas are plagued with a lack of available data and defined processes. There is huge variability in work methods and little process knowledge on which to build.

- **Cultural norms:** Sales staff and other field personnel often lead a relatively autonomous work life, held accountable only for their final results. To them, Six Sigma appears antithetical to what they think they need to succeed. Six Sigma's foundation of focusing on methodology, its collaborative culture of sharing best practices and its use of standardization and control all sound like complete opposites of the individuality and freedom highly prized among autonomous staff.

- **Logistics:** Communication, training and project work is all more difficult when staff are not regularly together in a centralized office.

The following four tips will help organizations understand their underlying business needs and the cultural factors working against Six Sigma in order to use it successfully with their mobile workforces.

One: Identify Relevant, Critical Y's

This first tip isn't unique to mobile workforces. In fact, Six Sigma practitioners are increasingly aware that people are more likely to want to use Six Sigma methods and tools if they can see the benefit to them and their business goals.

"Make sure projects are tied to your business Y's," advises Art Larson, the general manager of U.S. services operations at General Electric (GE) Medical Systems.[1] "For a sales or service force, that means defining business goals around price erosion, profitability, cost, productivity and cash. Then you can start deploying projects."

So the first step is to clearly link specific outcomes (critical Y's) to the processes that affect the targeted business goal. Will first-call effectiveness contribute to a revenue goal? Will customer satisfaction with field repairs enable you to improve customer retention?

Tim Bates, the director of business process development at 3M, says his groups make these linkages explicit (see Figure 1).[2] "What we do is build a linkage diagram, which is a tree diagram with the corporate Y's, the outcomes we're trying to drive, on the left, and our projects and tools on the right. Then we can look at the gaps and build gap closure strategies around process improvements and the eventual linkage to tools."

This kind of thinking is used at each 3M business. "That way, we can define the critical Y's for each business," Bates adds.

Figure 1. **Example Linkage Diagram**
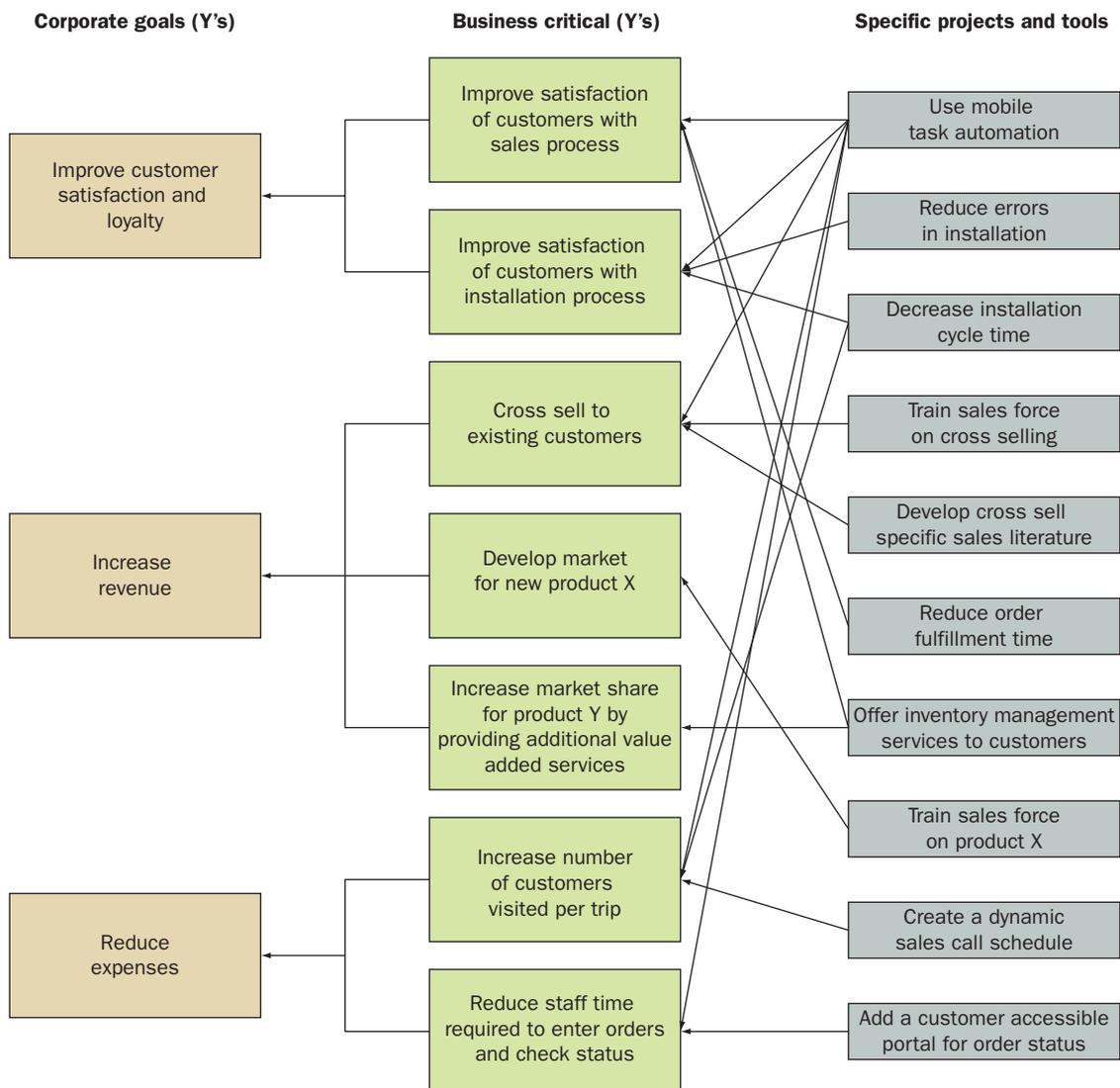
RAPID LEARNING CYCLES CAN BE ESPECIALLY BENEFICIAL IN DESIGN FOR SIX SIGMA PROJECTS IN WHICH EARLY FIELD PERFORMANCE IS COMMONLY USED TO REFINE THE NEXT GENERATION OF THE DESIGN.

Two: Support the Field Staff

There is no doubt many field staff will initially resent Six Sigma as an intrusion on their work life. Therefore, Larson and Bates advocate adopting a realistic, practical approach to Six Sigma implementation.

It starts with the types of projects you pick. "There are really only two outcomes of interest to a field agent: making more money or spending less time doing what they are supposed to do," explains Larson. "So we did projects on things like margin, productivity, time management and revenue growth. Those were the types of critical Y's that meant something to sales staff." He recalls that the first year he spent as a Master Black Belt with the sales force led to $6 million in savings associated with sales effectiveness techniques such as writing good quotes on the first pass.

The issue also affects how much time you expect mobile workforces to spend directly on improvement activities. "You need to be realistic about the amount of time you want your sales force to be devoted to doing Six Sigma vs. having Black Belts (BBs) do the data collection, analysis and implementation with sales participation," says Larson. "Here at GE, we initially went through a huge Six Sigma push to establish the culture. It was necessary that people run projects so they could build the DNA."

Now, Larson continues, the approach is a bit different. "We have BBs who are applied in the different functional areas. They do the majority of the work focused on big business priorities," he says. These BBs go into the field, interview sales reps and service managers and do the behind the scenes work to improve the targeted process.

This approach would work with any mobile workforce, but you still have to provide everyone with a basic familiarity with the tools and approaches. At GE, for example, the sales reps initially attended two three-day training sessions. Now, there are self study sessions for new employees, with competency tests to ensure the DNA is learned.

Another aspect of the "be practical" advice is to focus on the simple tools. "Make sure the tools and methodology match the people and project capacity," says Larson. He says his work groups have gotten a lot of mileage out of simple tools such as SIPOC, where they identify and map out the basic relationships between suppliers, inputs, process steps, outputs and customers.

Three: Automate Data Gathering and Process Logistics

The need for some type of technology support for Six Sigma projects with mobile workforces is obvious. Communication is critical to Six Sigma team success, but it's difficult to achieve when people are dispersed in time and space.

Unfortunately, many of the mobile business tasks performed by field workers are not well-suited to PC based software applications, and even the smallest laptops are too cumbersome in many situations. As a result, most laptops go unused when staff members are at a customer's worksite. Worse still, many companies have made huge investments in automation infrastructure, SFA, customer relationship management and inventory management software applications, most of which are not available to field personnel outside the office.

That's why companies are increasingly turning to specialized handheld devices such as personal digital assistants. These devices are equipped with mobile task automation (MTA) software applications designed to permit access to corporate computing infrastructure to simplify, speed up and error proof the everyday business tasks mobile workers perform (see "Mobile Task Automation at Bayer," p. 16).

The range of tasks MTA encompasses is readily adaptable to Six Sigma project needs. For example, a key failure point around field implementation of Six Sigma is data entry. "Sales or field service staff don't really pay attention to data, they want to store it in their heads," says Bates. "After all, we hired them for their ability to build relationships with customers and not to be data entry folks."

Mobile Task Automation at Bayer

Tomomi Shozen, the manager of application for R&D, explains how Bayer Ltd. in Japan is using mobile task automation to enable process improvements in a dispersed workforce.

Bayer Yakuhin's medical representatives (MR) spend most of their time in the field dealing face to face with customers (individual physicians and hospitals). They used to input their reports after the sales visit was over—either at the office or at home. Now they are all equipped with hand-held devices that allow them interactive access to their sales applications. They can:

- Input sales reports.
- Post or review marketing survey reports.
- Access customer information.
- Review updates or modifications to drug use instructions.
- Access sales information relevant to the customer.
- Review a new product introduction.

As a result of this easy access, Bayer has seen:

- Increased customer satisfaction.
- Improved productivity by MRs.
- Shortened sales cycles.
- Increased visibility into the sales process.
- More timely and accurate data entry into the system.
- Improved planning capability by marketing, shipping and handling.

That objection is fairly easy to overcome with MTA. For one thing, many field staff are already required to manually track data such as sales offers, repairs or warranty terms. MTA automates those tasks, making the field staff's job simpler and quicker. They no longer have to scribble notes by hand and then enter them into a laptop; they just have to take one set of notes, thereby reducing the possibility of transcription errors and the amount of time spent on data collection.

The speed and ease of data collection reduces the delays between performance of a task (a process input or X) and the specific outcomes, such as revenue generation, a Six Sigma team is tracking. So cause and effect become more closely tied in time, which speeds up the learning cycle and improves the quality and quantity of data available to the team. Rapid learning cycles can be especially beneficial in design for Six Sigma (DFSS) projects in which early field performance is commonly used to refine the next generation of the design.

Once entered, the data can then be quickly retrieved for business management and project improvement purposes. For example, executives can more easily update any of their dashboard metrics, schedulers can get instant updates on product or service demand, and managers can get real-time updates on customer needs.

When GE Medical Systems began implementing Six Sigma in the sales areas, it found it wasn't always easy to go back and retrieve the necessary data. "Teams often had to spend a month or two collecting the data they needed," says Larson. MTA can not only capture the needed data, but also provide historical records.

Data collection is not the only thing enhanced by MTA. It also facilitates the following Six Sigma goals:

- **Improved communication:** One of the first lessons Six Sigma practitioners learn is the importance of frequent communication among co-workers to support everything from brainstorming ideas to identifying problems and solutions to sharing best practices. Even with the modern conveniences of e-mail and cell phones, communication within a dispersed team is still challenging, and anything that can be done offline to increase sharing of data, decisions and lessons can make improvement activities more productive.

- **Improved customer service:** MTA can improve

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the delight in the field staff's interactions with customers. It can give staff instantaneous access to everything from product availability and delivery dates to pricing or discount options to repair procedures for problems diagnosed in the field. This enhances the value you can deliver to customers, giving them greater confidence in your company.

- **Improved process management and systemic changes:** The "mores" of MTA enabled data collection—more data available, more reliable, more timely—enhance the measure and analyze phases of the define, measure, analyze, improve, control improvement process and support the work of process owners. More reliable data means more reliable forecasts of usage and improved ability to detect one-time or trend generating special causes.

  This type of data collection also helps process owners or managers spot systemic problems that appear across processes. For example, a process owner reviewing all field agent reports may detect problems appearing in more than one location. Now, a fix made in one location can be incorporated into MTA based systems so all agents will benefit immediately. This type of systemic leveraging of learning and improvement is what generates the biggest payoffs from Six Sigma investments.

- **Solution implementation/process adherence:** "We had one project on improving the sales margin that looked at the discounts the full-line reps gave across all the products," says Larson. "We defined any discount greater than 20% as a defect, and then we tried to understand the factors that caused them to have to offer the quote less than or greater than the approved discount."

  They discovered a lack of process knowledge and adherence was one of the big factors. "We found a lot of behavior differences in the field— some reps were too easy … some didn't know

what the limits were, and others didn't follow the discount approval process correctly."

Of course, establishing a core process is the real solution in a case like this, but MTA can still serve as a key *poka-yoke* or error proofing mechanism, providing sales reps with reminders about discount levels or alerting them to deals that don't follow guidelines. MTA can also provide reminders to repair staff about updated maintenance or repair procedures based on newly implemented improvements.

- **True DFSS for field processes:** MTA opens up the opportunity to design or redesign field processes from the ground up, more fully leveraging home office capabilities to better serve customers with greater efficiency and minimum cost. This can lead to processes with fewer opportunities for errors and omissions, more consistent on-time performance and more customer delighters. For example, many companies in the package delivery business have designed processes around field automation that allow for real-time delivery tracking and forecasting.

Four: Pay Attention to Change Management

"Initially you will get significant resistance from the field," says Bates. "That's why when we go through this, we put a lot of emphasis on change management, focusing on the people as opposed to the technological side of the change."

There are a number of different models of change management. (See "Kotter's Change Management Strategy," p. 18, for one example.) Some elements that are particularly important when dealing with field staff include:

- Addressing the what's-in-it-for-me factor for the people who are expected to adopt the change. In this case, it is what Six Sigma can mean to them personally.

Kotter's Change Management Strategy

John Kotter defines one eight-step change management strategy in *Leading Change* (Harvard Business School Press, 1996):

1. Establish a sense of urgency through linkage to business Y's.
2. Form a powerful guiding coalition by clarifying process ownership and improvement team roles.
3. Create a vision. Strive for uniform excellence in real time from all staff.
4. Communicate the vision. Come up with creative ways to reach your remote staff. Get the message to them no matter where they are.
5. Empower others to act on the vision. Look closely at policies, incentives and rewards, and align them with what you are trying to accomplish.
6. Plan for and create short-term wins. Tell the field staff about gains as they happen.
7. Consolidate improvement, and maintain the momentum. Build on successes, continue to publicize progress, and show the effect on the Y's.
8. Institutionalize the new approach. Use technology and other process supports to make it easier to do it the new way than to revert.

- Presenting a clear business case for using Six Sigma—the data that show why and how much improvement is needed.

- Involvement by and communication with those expected to change. This encompasses everything from open discussions at periodic staff meetings to training all affected personnel in new methods. This also means effectively advertising the benefits achieved from Six Sigma approaches.

- Changing organization structures, such as policies, procedures, incentives and rewards, so it is easier for people to comply with the change than to fall back into the old ways of doing business. For example, rewarding field repair technicians only on the number of repairs completed—and not on the customer satisfaction with those repairs—can unintentionally undermine a Six Sigma initiative.

As Bates says, "You wouldn't see these things listed if you looked at the X's of the process, but these are overall higher level X's that are crucial to the success of the improved process."

A Case Study in Cultural Change

Ed Popovich, the president of Sterling Enterprises International (a member of Renaissance Management Consulting LLC), was asked to pick a favorite Six Sigma project.[3] The first one that came to mind was a project he facilitated at Motorola Paging Products Group that involved changing the compensation for the group's national sales force.

"Paging was considered to be a cash cow by Motorola," says Popovich, "as it had over 85% of the market." Interestingly, he comments, in the early 1980s the paging market was expected to die by 1990 as other devices such as cell phones eliminated the need for pagers. As it turns out, the paging market was strong in 1990, but it was evolving to becoming embedded in other applications, such as cell phones, PDAs and two-way pagers.

"Nonetheless, compensation for the sales force was

based primarily on orders," says Popovich. That meant any other work the sales reps did that was recognized as value added by the customer was not recognized by Motorola. Also, cash flow to the company was not addressed because there could be a disconnect between orders, deliveries and payment for deliveries.

"When I asked executives to allow me to take on the national compensation plan as a project," he says, "I was given the green light after much debate. Some executives believed I could not change the plan and have the support of the sales force."

To address the compensation plan, Popovich asked for a team composed of a corporate vice president of sales, a regional sales manager, a district manager and a field representative. An HR compensation manager also participated. The team followed the Six Sigma process by mapping the current process, identifying all customers and needs and determining the key inputs from suppliers (usually internal sources).

The team realized much of what the customers considered value added from the sales force was not recognized. And though compensation was usually individually based, members of the sales force often teamed up in the field. For example, a person who was good with presentations but not as good with technical after-sales support would seek the help of a technical person. After-sales support and customer satisfaction with sales accessibility, responsiveness and follow-up were not recognized and thus not compensated.

Therefore, the Six Sigma team decided to develop a new compensation plan based on delivery of products rather than on orders. It also added customer satisfaction components along with team based components.

The benefits included more recognition of real-world sales activities and increased level loading of factory orders, making it easier to predict shipments and order fulfillment. The latter was important in improving the teamwork between the field sales representatives and manufacturing as orders began to level out throughout the months and quarters.

The proposal was presented to the national sales force by three field sales personnel. "That was important," says Popovich, "because it means change was not done to the national sales force but done with them." For the first year of implementation, he adds, Motorola used a hybrid sales compensation plan to ensure the sales personnel would not receive less than the compensation they would have received under the previous plan. As it turns out, the new plan was better

for most, and it was well accepted after the first year.

Popovich cites some of the lessons his team learned:

- Ensure projects are conducted by the people who will live with the results.

- Projects that impact the whole team can be handled by representatives from the whole team, as long as the project team is respected and fairly represents real-world experience.

- It is easier to make changes when the what's-in-it-for-me factor is addressed and the benefit to the whole organization is understood.

"Flexibility is key," says Popovich. "Communication is very important, and data integrity can be aided by having those who work in the process collect their own data, enabling them to quickly recognize what is really going on."

There is a great need for Six Sigma in field operations. Managers of such operations can achieve success if they put special emphasis on making Six Sigma relevant to the targeted workforce, focus on supporting staff work rather than expecting them to abandon their customer responsibilities in favor of Six Sigma tasks, use technologies to simplify the mundane tasks of data collection and communication, and become savvy change agents.

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