Infrastructure and Deployment Planning

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Introduction

A major component of the initial planning is developing an infrastructure—including the organizational structures, processes, measures, and tools—to support Lean Six Sigma. One of the biggest risks that new Lean Six Sigma initiatives face is to become "collateralized," not part of the ongoing methods of doing business but rather a "program" or something that we do with spare time or resources. A strong infrastructure moves Lean Six Sigma from collateral to "business as usual." The failures of previous programs to stick and deliver sustained benefits are a strong paradigm that must be broken.

Plan Components and Typical Timelines

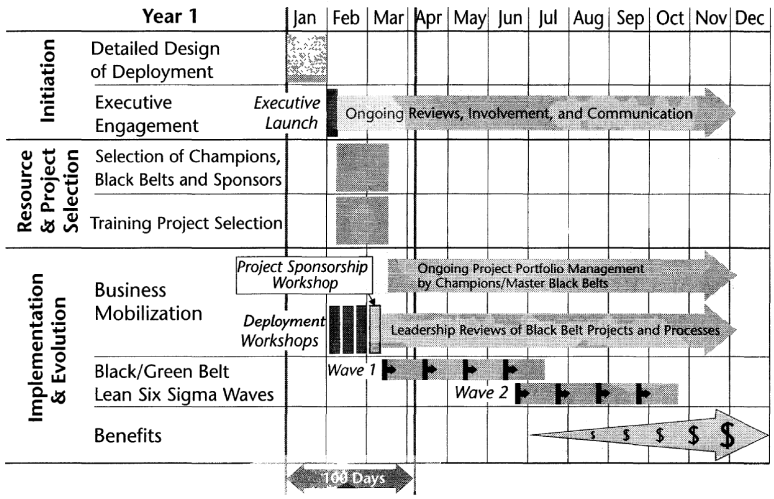

Figure 6-1. Example deployment timeline

Plan Components and Typical Timelines

Before we get into the details of creating a deployment plan, let's look again at the overall process and timeline.

As you can see,

- ✓ The first step is to finish the detailed design of the infrastructure and the deployment.
- ✓ The executive launch is the key event that begins the engagement of the rest of the organizational leaders.
- ✓ As a result of the executive launch, business leaders and P&L managers select the champions and black belts.
- ✓ The champions connect the business unit strategies and needs with the program through a project selection process.
- ✓ Newly designated champions and black belts receive extensive training. This is usually conducted over a four- to six-month period, during which they attend classes one week per month and begin working on projects in between.
- ✓ Throughout the training and initial project implementation, leaders participate in training kickoffs, project "gate" reviews, and ongoing communication.
- ✓ The rollout should be structured to drive benefits as you go. If it's done right, you will have an accretive program within your first year of effort!

Plan Components and Typical Timelines

"A good solution applied with vigor now is better than a perfect solution applied ten minutes later."

General George S. Patton (1885-1945)

The Detailed Deployment Plan

The major components of the detailed deployment plan are:

1. **Process**: Designing the critical Lean Six Sigma sustaining processes to be part of the normal business mode of operations.
2. **Organization**: Fleshing out the organizational structure by determining the roles, responsibilities, and reporting structures. Developing the criteria and selecting the champions and black belts. Identifying what training will be given to which groups of people.
3. **Measures**: Determining the measures of success.
4. **Rewards**: Establishing mechanisms for collection of information and methods for providing rewards and recognition.
5. **Tools**: Determining requirements for supporting software tools.

Process Focus

Functional Organizations	Process Organizations
Quality is for QC Department	Leader drives for 6 sigma results
Focus on department optimization	Focus on process for customers
Defines problem and solution	Leaders set objectives with team involvement
Decisions by past experience	Decides based on data gathered by team
Focused on accounting measures	Also focused on customers, markets, speed
Delegates training to HR	HR engaged in training as a process driver
Overhead cost is a necessary evil	Overhead cost can be reduced by speed

Table 6-1. Comparing functional and process organizations

Organizational Structures

The Lean Six Sigma organizational structure has three specific purposes:

1. Institutionalizing the Lean Six Sigma effort.
2. Establishing clearly defined roles, responsibilities, and accountabilities.
3. Establishing clear lines of communication that link organizational leadership to team members.

The natural question is how do you establish the organizational critical mass for gaining momentum and at the same time avoid the risk of collateralization? The answer is to create a structure that integrates Lean Six Sigma responsibilities into the traditional organizational structure and institutionalizes the processes described in the section above.

Organizational Structures

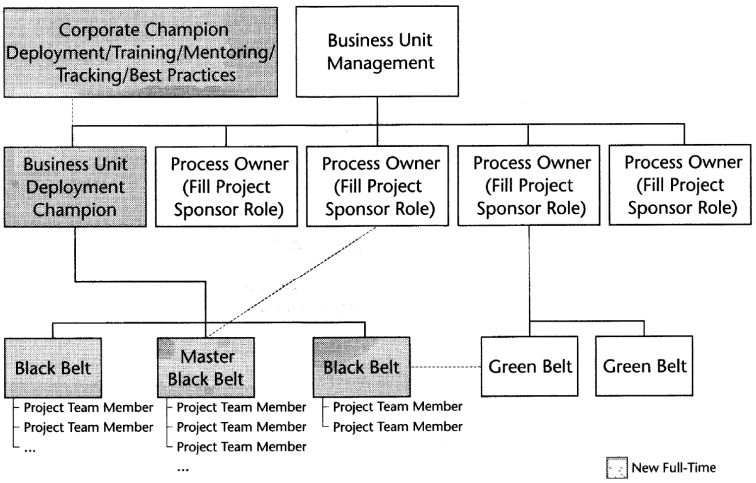

Figure 6-2. Lean Six Sigma implementation structure

Organizational Structures

Infrastructure Positions with Line Responsibilities:

- ✓ CEO/President
- ✓ Business Unit (P&L) Managers
- ✓ Line Manager

New Infrastructure Positions with Specific Lean Six Sigma Responsibilities:

- ✓ Company or Group Champion
- ✓ Business Unit Champions
- ✓ Master Black Belt
- ✓ Black Belt
- ✓ Green Belts (Team Members)
- ✓ White Belts

Organizational Structures

CEO/President

Besides being the person who must decide that adoption of these new methods is of strategic importance to the company, the CEO must also perform a role in infrastructure processes by…

- ✓ Consistently communicating the strategic priorities to direct reports (both unit managers and the company champion, for example).
- ✓ Following up communication with action by constantly reinforcing the importance of Lean Six Sigma efforts to both direct reports (e.g., by monitoring detailed planning, informally inquiring about progress) and to the organization as a whole (e.g., through memos, presentations).
- ✓ Monitoring the rolled-up results vs. plan and taking corrective action.

Organizational Structures

Business Unit (P&L) Managers

The business unit managers work with the champion to clearly articulate the unit's strategy which becomes the "specifications" or criteria for selection of the highest-potential NPV value streams and approval of their supporting black belt projects (a process that the champion typically facilitates with the business unit leaders).

This integration continues as the business unit manager works with the champion to:

- ✓ Identify black belt candidates.
- ✓ Develop and support black belts and other resources in their project work.
- ✓ Create a Lean Six Sigma deployment plan for their unit.
- ✓ Use Lean Six Sigma to actively solve the most pressing problems in the business.

Organizational Structures

Line Manager

The line managers' specific responsibilities include:

- ✓ Aid in project selection within the value stream by contributing their intimate knowledge of the process, its customers, and its suppliers.
- ✓ Help select black belts based on an intimate knowledge of their capabilities.
- ✓ Create an environment for project success.
- ✓ Work with the unit champion and black belts to help provide data and insight on the projects that the teams are working on.
- ✓ Monitor the progress of the project by conducting DMAIC stage gate reviews.
- ✓ Sustain the improvements and financial gains after the black belt has moved on to the next project.

Organizational Structures

New Infrastructure Positions with Specific Lean Six Sigma Responsibilities

To successfully implement an entirely new way of doing business, you can't rely solely on people for whom Lean Six Sigma must compete with other priorities. That's why Lean Six Sigma builds new, dedicated positions around the traditional infrastructure. These positions fall into two broad categories:

- ✓ Champions: Full-time managerial-level personnel responsible for coordinating and overseeing Lean Six Sigma implementation, champions are direct reports to either the CEO (or other "C" level person) or a unit P&L manager/president.
- ✓ "Belts": Black belts and master black belts are full-time positions that report directly to the unit champion. Green belts and white belts are additional trained resources for Lean Six Sigma projects; these positions provide a development path to becoming a black belt.

Organizational Structures

Company or Group Champion

The company champions report to the CEO or COO or president, as applicable. This direct reporting relationship is critical: if the company champion does not report to the CEO or COO, the "C" level officer's engagement will be suspect.

The champion leads the design team, helps develop the corporate Lean Six Sigma strategy, and ultimately monitors its execution. As such, his or her primary responsibility is to ensure that the rest of the company executes a consistent, rapid deployment. Because of this requirement and the need to be able to address major barriers that will arise, *the company champion must be a very strong manager* capable of making it happen. Another role is the monitoring and roll-up of Lean Six Sigma results as compared with the strategic stretch goals set forth by the CEO. This includes making intermediate determinations as to the deployment's effectiveness by monitoring the quality and quantity of training events, resources committed by the business units, and the ramp-up to accretive results.

Organizational Structures

Business Unit Champions

The champions within each business unit are the glue that holds Lean Six Sigma together by building the critical bridge between business unit strategies and black belt projects. Being a business unit champion is a full-time job and the role should be assigned to a person who the company thinks has the potential to become a business unit manager three years. As such, being selected for a champion role is a "step to success" and voluntary acceptance of this role is a must.

Organizational Structures

The business unit champion responsibilities are to:

- ✓ Develop the Lean Six Sigma schedule and deployment plans for the unit (in conjunction with the unit manager and corporate design/deployment team).
- ✓ Oversee the deployment of Lean Six Sigma in their business unit.
- ✓ Identify and, with the business unit manager, remove barriers to deployment.
  - ✓ Lead the process for proper selection of high-value projects.
  - ✓ Provide mentorship, management, and performance review of five to 15 black belt teams.
- ✓ Provide communication (up and down).
  - ✓ Keep the unit manager informed of team progress.
  - ✓ Ensure that "best practices" are shared throughout the organization.
- ✓ Ensure business unit engagement, not compliance.
- ✓ Work with the unit's controller to validate the bottom-line impact of each improvement before the results are rolled up to the company champion.
- ✓ Track, validate, and upload business unit results to the corporate champion.
- ✓ Provide integration for cross-business unit processes.

Organizational Structures

Master Black Belt

Master black belts act as internal expert consultants to black belts and their teams. As such, the master black belts must be experienced in successfully managing improvement teams to reach goals using improvement tools and skilled leadership. In fact, a typical master black belt will have worked as a black belt and completed five to 10 projects with annualized benefits of $2 million per year.

Since master black belts train, mentor, and coach black belts, a candidate must also have proven teaching skills, often gained by teaching three or more sessions in a standard four-week black belt training course.

Organizational Structures

Master Black Belt

In addition, each master black belt is typically expected to become an expert resource in one or more specialty areas, such as the advanced Six Sigma or Lean tools. Master black belts provide the conduit to get best practices communicated with the unit champion and then out to the rest of the organization.

The education and grooming of master black belts is an important process in the organization. During early implementation, few organizations have people with the proper expertise, which is why external consultants initially fill this role.

Organizational Structures

Black Belt

Black belts are full-time positions responsible for leading project teams. They are responsible for delivering the value and benefits that were determined for each of their projects during the project selection process.

Specific black belt responsibilities include:

- ✓ Working with the project sponsor (line manager) and unit champion to formulate and implement improvement projects.
- ✓ Training green belts in the DMAIC process.

To become certified black belts, candidates receive extensive training, usually at least a five-week course built around the Lean Six Sigma improvement process, tools, and leadership skills. They must also have completed a training project and one or two additional projects with total annualized benefits of at least $400,000 per year and must have conducted green belt training.

Organizational Structures

Green Belts (Team Members)

A green belt works on a Lean Six Sigma project only part-time, on a specific process about which he or she generally possesses knowledge important to the success of the project. The green belt will typically receive two weeks of training from the black belt and will learn to apply the specific DMAIC skills that relate to the project at hand. In addition to assisting the black belt, the green belt may be assigned specific projects for independent execution.

Green belts have regular duties assigned by their line managers, but usually they regard the green belt position as an opportunity to excel and gain valuable tools and experience.

Organizational Structures

White Belts

White belts are another part-time resource that some organizations use to expand the pool of people who have some understanding of Lean Six Sigma goals and tools. (The term "white belt" is generic: this role may be designated by the company color.) White belts receive awareness training through classroom instruction, distance learning, books, and/or articles. This typically requires two to four hours of effort. The white belt may take the initiative to join a team as a potential green belt resource and make a contribution to the continuous improvement process.

Organizational Structures

Transition Tips

The management structure outlined above should be considered as a straw model to be modified to suit the needs and culture of your company. The benefit of this structure is that it has been found highly effective in smoothly transforming a company from a functional to a process focus without disrupting existing managers or departments as did some implementations of "re-engineering." The structure respects the existing balances of power within the corporation and uses these strengths to assist the Lean Six Sigma process.

The career advancement opportunities inherent in being selected as a black belt or a champion are not lost on participants. It is not uncommon to have many more black belt candidates than positions. This enthusiasm helps creates a virtuous cycle and organizational momentum.

Yet, like all successful change initiatives, with Lean Six Sigma the new must grow out of the old. Before you make a lot of innovations, it is suggested to speak to people at other companies who have Six Sigma implementation experience.

Organizational Structures

Black Belt Training

A well-rounded black belt training program uses diverse instructional techniques:

Five to six weeks of classroom training, including one week of leadership training, four weeks of Lean Six Sigma, and an optional week to go into deeper detail on Lean or Six Sigma tools—training that should be rich in demonstration, simulation, student practice, and exercises.

Expert coaching (opportunities for one-on-one or small group interactions centered around project needs) to increase the socialization process and accelerate internalization (typically 5-10 days across the overall training cycle).

Individual testing to provide feedback on the effectiveness of learning.

Application of new methods on real projects so participants can internalize new skills.

Access to training materials, case studies, and other resources through both printed and electronic means.

Organizational Structures

Champion Training

The role of the champion differs significantly from that of the black belt and is less standardized across companies adopting LSS. Their primary roles are LSS program governance, communicating LSS to the organization, and ensuring value creation through project selection and effective barrier removal. In essence, the champions are the liaison between the Six Sigma program and the P&L management of the company. They will receive between four and eight weeks of training in the first year of the program and may assist with the training of others beyond this.

Organizational Structures

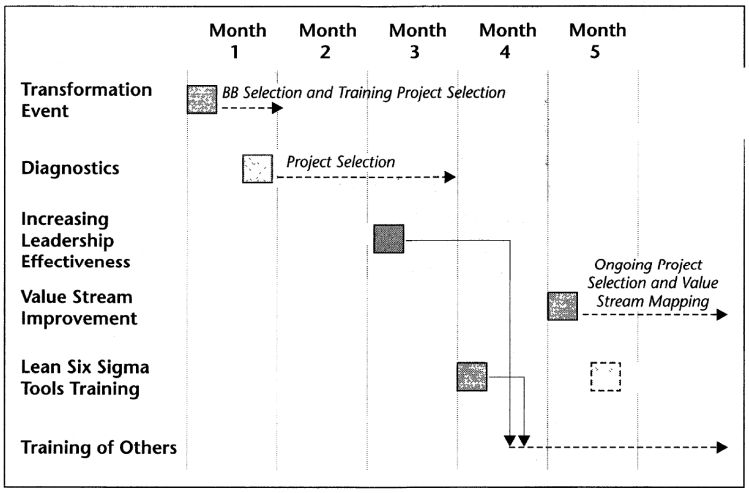

Figure 6-3. Champion training roll-out

Organizational Structures

The training differs substantially from that of black belts:

- ✓ The champions must learn how to both manage the new Lean Six Sigma infrastructure and productively interact with traditional line management.
- ✓ There is a *heavier emphasis on strategic issues rather than tactical.* The champions focus on top-down analytical abilities in order to better direct black belts at key improvement needs. This typically means thorough training and application of financial and NPV analysis and an understanding of valuation theory It also requires a tool set for decomposing the entire business cost into relevant value streams and being able to select the most critical ones for further effort. These are provided in the diagnostic courses and the value stream improvement courses.

Organizational Structures

- ✓ Champions need to be trained to comprehend the tools and techniques of Lean Six Sigma, but only to a depth sufficient to manage black belt teams and know what results to demand. Thus, the"tool" portion of champion training is an abbreviated version of that given to the black belts. In some cases, the champions will attend all the Six Sigma tools sessions along with the black belts, but in most cases they can be adequately prepared with one to two weeks of Lean Six Sigma DMAIC training.
- ✓ Because a key responsibility of the champions is to be able to remove barriers from the path of the black belt and LSS program, champions also attend the *leadership effectiveness course* to enhance their interpersonal capabilities.
- ✓ A key element of effective champion training is to ensure that they are capable of delivering of awareness training to the broader organization. *This is the true test of how well they have absorbed and internalized their own training*. They will often help train local management staffs, project sponsors, and possibly even green belts. This has the side benefit of reducing the overall cost of the initiative by minimizing reliance on external trainers.

Organizational Structures

Leveraging the Learning

For Lean Six Sigma to truly take hold, both formal "classroom" learning and knowledge gleaned from guided practice must be communicated and shared broadly across the company. There are several strategies for doing so:

- ✓ Build a robust curriculum
- ✓ Provide means for people to interact
- ✓ Exploit technology
- ✓ Document and share best practices throughout the company

Measures

The eventual success of your Lean Six Sigma program will be determined by the financial results that Lean Six Sigma adds to the bottom line. As you plan your deployment, you must think in terms of measuring things that will be indicators of the potential financial results to come.

Leading indicators will tell organizations two things:

- ✓ How quickly will the program reach critical mass to pay for itself?
- ✓ Once the program is established, what is the ongoing return on investment?

Measures

- ✓ How quickly will the program reach critical mass to pay for itself?

Possible measures:

- ✓ Number of executives trained.
- ✓ Number of full-time champions identified and trained.
- ✓ Number of full-time black belts selected, as % of target.
- ✓ Number of full-time black belts trained.
- ✓ Size and value of project "queue."
- ✓ Measure of organizational readiness for change (includes management communication and development of the business unit specific "burning platform").

Measures

- ✓ Once the program is established, what is the ongoing return on investment?

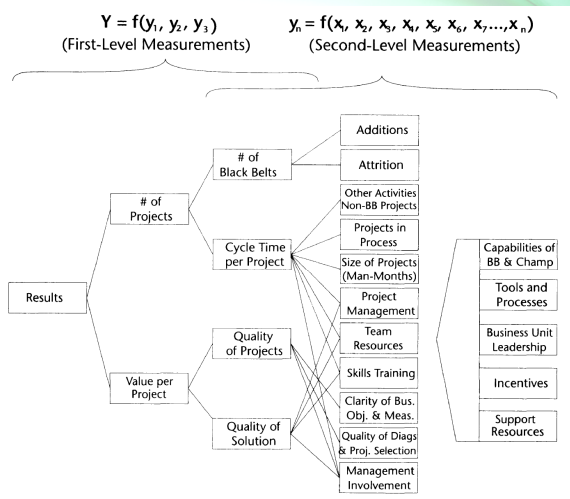

Figure 6-4. Identify critical inputs to measure

Measures

BB Project Data	Completed Projects								Active Projects				On-Hold/ Queue Projects		
	2000				2001 (YTD)										
	Number of Projects	Average Duration per Project (weeks)	Average Savings per Project (annual $K)	Median Savings per Project (annual $K)	Number of Projects	Average Duration per Project (weeks)	Average Savings per Project (annual $K)	Median Savings per Project (annual $K)	Number of Projects	Average Duration per Project (weeks)	Average Savings per Project (annual $K)	Median Savings per Project (annual $K)	Number of Projects	Average Savings per Project (annual $K)	Median Savings per Project (annual $K)
Region A	6	12.0	$467	$390	4	11.0	$309	$216	7	14.6	$204	$200	20	$165	$122
Region B	8	16.0	$250	$255	8	16.0	$340	$280	11	14.0	$286	$250	21	$249	$240
Region C	4	18.0	$259	$188	1	31.0	$1,686	$1,686	7	20.0	$190	$109	7	$250	$250
Region D	7	19.0	$134	$120	7	21.6	$306	$108	9	21.3	$410	$250	8	$486	$294
Region E	4	23.6	$158	$128	4	14.0	$556	$511	5	15.0	$246	$250	12	$214	$250
Region F	2	20.0	$165	$165	2	15.0	$360	$360	3	12.0	$200	$200	9	$175	$175
Total	**31**	**17.4**	**$250**	**$177**	**26**	**16.9**	**$413**	**$320**	**42**	**16.6**	**$272**	**$225**	**77**	**$238**	**$245**

Table 6-2. Displaying project results

Rewards and Recognition

Compensation

Clearly it is useful to know what other firms have done and what have been their results. A company looked at base salary cash and stock bonuses, and key lessons learned. To collect this data, they personally interviewed over 100 black belts and master black belts, analyzed recruiting Web sites and résumés, and discussed compensation plans with a dozen companies considered to be leaders in Six Sigma implementation. The conclusions?

- ✓ The base pay was very dependent on work experience, industry, and location.
- ✓ The bonus cash compensation amounted to an average of 20% of base per year for black belts and 25% for master black belts.
- ✓ When stock option compensation was used, it amounted to about 30% of base, but had a huge variance in valuation and vesting over time.

Rewards and Recognition

To the extent that bonuses are paid on project performance, it is more likely tied to hard savings rather than cost avoidance. But few firms (some notable exceptions) tied black belt compensation to project performance because, in their opinion:

- ✓ It was difficult to estimate who contributed what. It was prone to gamesmanship.
- ✓ It rewarded low-hanging fruit just as much as tougher mature projects.
- ✓ It only created resentment among other team members and hurt overall results.

Rewards and Recognition

Here are some recommendations based on the results of their investigation:

- ✓ Have a modest increase to base salary of 5%-lO% when black belts complete their DMAIC training.
- ✓ To the extent that a bonus is tied to project performance, create a pool of money at the business unit level from savings generated, then share that pool out to all black belts, champions, and green belts.

This approach is non-competitive and non-divisive. Remember you are trying to develop the future leaders of the company, not cowboys or free agents.

Rewards and Recognition

Recognition

One piece of good news from the research was that the black belts they talked to who wanted to jump ship did so for reasons that are easily addressed: they felt they were not receiving adequate recognition or career development and were being "pigeonholed." The fear expressed by some managers that they will lose the black belts to the "market" is not borne out.

Recognition can come in many forms. One of the most meaningful is to have management involved at significant milestones in a black belt's development. At the green belt level, the business unit manager and champion should conduct the recognition ceremony, again showing the unity of Lean Six Sigma and line management.

Rewards and Recognition

Institutionalizing the Decisions

The decisions made about compensation, recognition, and even promoting people through each "belt" level need to be firmly established in corporate policy prior to selecting people to fill the new positions. The management teams that will interview candidates need to be able to *speak with authority* about how these systems work so that people will feel more comfortable moving over to this new, parallel infrastructure.

Infrastructure Tools

These fall into several categories:

- ✓ Project identification and selection software tools
  - ✓ identify time traps and opportunities in the value stream
  - ✓ support the prioritization of projects
- ✓ Program management software tools
  - ✓ track project progress and roll up financial results and financial results drivers
  - ✓ detailed project management tools
- ✓ Learning and leverage software
  - ✓ learning and reference tools (online and PC-Based)
  - ✓ best practice tracking and sharing
- ✓ Team assessment software

Completing the Deployment Plan

Most of the areas needed to address in a deployment plan have been covered here, but here is one more ingredient that hasn't been addressed yet: plans for the *official kickoff of the initiative*, which will bring all your P&L managers on board.

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