Six Sigma Operational Methods

SIX SIGMA FINANCIAL TRACKING AND REPORTING

Measuring Project Performance and P&L Impact

- Achieve a clear line from project savings to financial accounts
- Establish realistic metrics
- Prove net worth of improvement projects

Michael Bremer, Brian McKibben, Thomas McCarty

Six Sigma Financial Tracking and Reporting

Michael Bremer
President
The Cumberland Group
Chicago, Illinois

Brian McKibben
Partner and Vice President
The Cumberland Group
Chicago, Illinois

Thomas McCarty
Jones Lang LaSalle Americas, Inc.
Chicago, Illinois

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PREFACE

In the 1980s the late Bill Smith, a senior field engineer at Motorola, coined the expression "Six Sigma" as a more rigorous approach to reducing defects in Motorola's business processes. His approach quickly demonstrated the power of establishing common metrics, setting outrageous goals, and applying analytical rigor to achieve those goals. Motorola University was created to foster implementation of this Six Sigma methodology. Their charter was to build employee capability globally, with a special emphasis on both technical skills and the leadership skills required to achieve the highest levels of business performance, and customer loyalty.

Six Sigma as a management system evolved out of benchmarking conducted by Motorola University at organizations like General Electric, Dow, DuPont, Citibank, and Caterpillar. It has become a powerful tool for driving breakthrough change inside a business, integrating performance improvement and key business strategies with focused execution.

This book grew out of the *Six Sigma Black Belt Handbook* published in November, 2004. One chapter in the book, "Financial and Performance Measurement," discussed the problem of reported savings, not seeming to make their way to the P&L. Hence our fun title for this book, *I Had a Million Dollars in Savings, But My P&L Did Not Change. Where Did They Go?* Ken McCombs, our editor for the last book, liked this chapter so much he asked us to write a new book based on this subject.

This book provides insights for Black Belts, trying to capture "real" savings, Six Sigma leaders, as well as, performance improvement practitioners using lean manufacturing, lean enterprise, or other business improvement methodologies. It can help engineers talk to accountants about savings, and it provides a number of different ways to ensure that more savings actually make their way to the P&L.

Written by experienced instructors from Motorola University and the Cumberland Group, Chicago, this book is inspired by years of teaching and coaching focused on helping countless aspiring Six Sigma and Lean practitioners to understand and apply these powerful improvement methodologies. These instructors and coaches know from experience what Black Belts and senior leaders need to know to be more successful in their Six Sigma and Lean implementations.

This book avoids the theoretical and focuses instead on practical insights that will drive success at both a project level and an organization-wide implementation. The makings of this book actually emerged over almost 30 years. It took about that long to acquire a reasonably complete view of how organizations *really* work.

The original concept seemed somewhat narrow. But subsequent discussions clarified that the only way to fully explain how Lean-Sigma-CI project results get to the bottom line is by tracking the upstream business process metrics that lead downstream to the financial statement. This is a much broader view that will be valuable to anyone wrestling with the role of Lean-Sigma-CI efforts in their business.

This book provides structure, practical mental models, and some implementation outlines. Hopefully, it emphasizes the importance of "the careful journey," versus "just do it" wishful thinking, i.e., the "whats" of tracking Lean-Sigma-CI results into the financial statement. To fully explain the "hows," we may have to follow later with an in-depth discussion of how four things interplay through all of this: visionary business goals, detailed journey roadmaps, technical processes, and people processes.

If nothing else, this should help explain why measurement is a key to organizational success. The clock and sports scoreboards are basic examples of the impact metrics have on the effectiveness of people working together. It's tempting to say that measurement is the most important of the "fundamentals of high-performance business processes." But I have to stop short of that because I believe that structured "involvement" of the entire workforce is a more fundamental root cause that makes use of measurement and the other fundamentals.

Michael Bremer

Brian McKibben

Thomas McCarty

ACKNOWLEDGMENTS

Michael Bremer: Man, this is hard work! First, I have to thank my coauthors: Tom McCarty, formerly with Motorola and now EVP and Six Sigma Practice Leader at Jones Lang LaSalle, because I never would have had an opportunity to write a second book, if he had not invited me to the party in writing *The Six Sigma Black Belt Handbook*; and Brian McKibben, who is also my partner in Cumberland. Brian has put up with me for close to 20 years, allowing me to bounce new ideas off of the wall and then even more importantly, try them. Brian adds much needed structure to my thought process.

My first partner though is Lynn Sieben. After 30 years of marriage, I still get excited when I see her. She has been a constant source of encouragement and support throughout the writing of both books and in my life. My mother, Mary, was proud of the first book; I'm sorry that she is not with us to see the second.

Finally, I wish to thank you, the reader. We wrote these stories for you. If you read this material and use it to improve performance, to better understand and probe, learning what financial numbers truly represent, and if your organization becomes more competitive and a better place to work, then all of our hard work was not hard work.

When Tom McCarty encouraged me to become a Six Sigma Black Belt, I really did not look forward to the ordeal. Having worked with organizations over 30 years on process improvement, I just did not feel, I had that much more to learn. Surprisingly (to me anyway) is the higher energy level, enthusiasm, and excitement I again have for something I love doing.

Six Sigma as a management system has the power to transform organizations. I am not saying other improvement methodologies could not do the same. But the structure of the DMAIC (if you don't understand it ... you must read the inside) problem-solving process with its spotlight on measurement, and the management system's focus on strategic priorities are very powerful. When I first started doing this type of work in the early 1980s, I wanted a tool like this. In some ways, it is so simple; I can't believe it took me so long to find it. I am very much appreciative of my learning and experiences with Motorola University, as well as all of my other client relationships, where we have been able to explore better ways of doing work.

Brian McKibben: I have to thank several people who helped make the book possible. Michael Bremer, my business partner for many years, has been a tremendous help because of his eclectic way of looking at the world. That provides balance for my structural view that needs a defined process for predictability, but can get bogged down in the details along the way. The results of collaboration are absolute proof that one plus one can add up to three or more.

To an old friend and one-time boss, Jim Nolan, I have to say thanks for being a role model for the way I view both the business management process and the change management process. They seemed to be instinct with Jim, but were always hard work for me. It was reflection on how Jim managed the organizational Support Systems that influenced the Business Process Model as it's shown several times in the book. That provided the explanation for how dramatic business changes can be made seemingly overnight if you have a clear view of which levers need to be repositioned for the changes at hand. I hope you notice where measurement fits in that model.

And to my wife Joanne and sons Jason and Greg, I have to say thank you for putting up with my 24/7 preoccupation with business. I have badly short-changed them of my time, which I am now vowing to change. One consolation is that they are all doing wonderful things in their chosen fields and I hope that just a little bit of that was due to the little time I spent in seed planting or tilling.

Lastly, I want to thank the many people I've worked with over the years, who have offered feedback and ideas that shaped my views of the work world. And special thanks to those of you who noticed my subtle (hopefully) efforts contributed to their team's success. I suspect these are the compliments that keep coaches going.

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1

Introduction

We are here to make another world.
W. EDWARDS DEMING

1.1 Overview

How many people inside your organization would say, "We have the best performance measurement system; we learn so much from it!" Or, "This performance improvement initiative is really great! Our customers, employees, and shareholders all benefited from it." Or might they say something else?

What would they say about leadership? Would they be able to describe the three most important things executive leadership plans to accomplish? Would they have any idea of leadership's role in governing and providing active support for improvement activities beyond listening to a PowerPoint presentation heard with hundreds of other employees?

If they worked for General Electric, Allied Signal, or a handful of other organizations, they probably know what the leadership believes is truly important. But leadership teams in many other organizations tend to have general statements about what is important: We need to innovate, we need to improve customer satisfaction, and so forth. How different those statements are from "We need to be number one or two in our industries," or "We need to promote boundarylessness across our lines of business," which were two GE key statements in the 1990s. Both were backed up with very specific performance metrics.

The title for this book could have been *I Had a Million Dollars in Savings, But My Bottom Line Did Not Change? Where Did Those Savings Go?* Questions one might ask: Were those savings real? Did they make

any difference to the business? Did they increase or decrease credibility between people in the organization? In the world of business performance improvement, these questions have been asked many times over the years. The historical record of most improvement initiatives shows a failure to transform improvements into visible financial results. This is not a new problem. It has been a major issue in business performance improvement initiatives over the last 20 years. However, organizations often improved more than they realized.

There are many Six Sigma Black Belt and Lean Manufacturing books on the market that describe the Control phase of the DMAIC model, or where "lean accounting" texts touch on the simplification of financial reporting, and where the Balanced Scorecard emphasizes the importance of leading indicators and the use of an overall improvement index. Project management books may also describe techniques for sustaining the gains. But none of these texts provide executives with a convenient tool they can use to manage the current year earnings and make certain that savings from improvement efforts actually reach the bottom line, or to understand why, when they don't. This text addresses these issues.

1.2 Numbers Paradox

This book is about measurement, yet at the same time this story has a paradox. How can an organization be numbers driven, yet *not be* numbers driven? What is an appropriate balance between stretch and unrealistic goals? How can leadership governance of performance improvement initiatives move an organization from average performance (which by definition is where most companies and people operate) to great performance? What actions move people from going through the motions, but largely gaming the system, to true commitment? Every organization faces these challenges, whether for-profit or nonprofit, business or government. Unfortunately we have not discovered a "magic pill" to fix these problems. But the answers are not complex. As you read through these chapters you will discover simple steps you can take. Simple does not equal easy, but they are practical, doable actions—one pathway to higher-level performance.

A famous quote attributed to numerous people runs along the lines of "What gets measured is what gets done." A corollary to that expression could also be, "What gets measured is what gets reported." Dr. W. Edwards Deming said many things about measurement in numerous presentations, in *Out of*

the Crisis, and in the three-ring notebook that traveled everywhere by his side. Two quotes that influenced the writing of this book are:

1. "95% of all troubles in an organization are the result of the system (processes) and only 5% are the fault of people."
2. "Over 97% of the circumstances that affect an organization's results are immeasurable, and that a disproportionate amount of management's time is spent on the 3%."

Consider the second quote for a moment from the perspective of a healthy person. There is not a one number that tells you if a person is healthy. And if "healthy" includes a mentaly well-balanced or a fulfilling life, then metrics become even more difficult. Consider a few: pulse, wealth, and maybe sickness. With sickness you may know it when you see it, but sometimes it takes years to become noticeable. This is certainly true of many types of cancers. Wealth, you could count it. But have you ever met an unhappy, wealthy person, or seen an artist who (from your perspective) is bubbling with talent, only to see him or her commit suicide? There is a lot going on inside of a person that is not measurable. Measures for any one of the above items, or even for all three, would still not tell you about the whole person.

That does not mean that meaningful metrics don't exist—many do. Pulse rate, cholesterol levels, temperature, smile counts, observing people serving others, marriages that last more than 50 years, number of good friends, number of promotions, and the like. Some of these are easier to measure than others. But no one metric tells it all.

The same is true of organizations. No one number does it. Balanced Scorecards attempt to bring these multiple perspectives together. And they are certainly better than just one number. Just like with a person, the real depth, the real power is the story behind the numbers, not the number. The number is simply a point-in-time indicator. To know what is really going on, you have to think, and learn the story behind the numbers. Unfortunately, if you look at the way many organizations implement this, they appear to have read Norton and Kaplan's "The Balanced Scorecard—Measures that Drive Performance," in the *Harvard Business Review,* 1992. And then took the four categories suggested by Norton and Kaplan and said, "Well, we need one of these, and one of these, and presto! We have a Balanced Scorecard." That was not the intention of the authors. The metrics on most Balanced Scorecards seem to come from what we *can* measure versus what we *should* measure.

Deming once said, "Most troubles result from process/system problems, not from a person's fault." This was extremely profound thinking, when he said it.

There were not very many people thinking from a process perspective in the 1970s and 1980s. This is still a difficult concept for many people to understand today. Here are two short stories that might better explain this hypothesis.

Story One. A new product development team is asked to develop a blockbuster new product. The team begins its assignment using a set of requirements, constraints, and customer needs provided by marketing and senior management. Halfway through the project, senior management comes to the team and says, "Here are several *other* things we would like this product to do." The company had already committed to tooling, had purchased some equipment, and the team was working pretty effectively. Later, when the product is launched, customers are less than impressed; parts of the design look like an afterthought, and sales only hit 50 percent of targeted levels. Who is at fault? One could point a finger at several candidates, but it would probably be more beneficial for this organization to address these issues from a process perspective. What should the rules be for changing foundation elements of a new design? Should the organization have a series of simple, rapid prototypes to get customer feedback during the design stage? How were the original requirements developed? And so forth. In this story, from the details provided, it is impossible to know the right answer; but more gain would most likely come from fixing the processes, not from beating on the new product development team.

Story Two. Picture a customer service call center. Employee turnover runs around 30 percent per year. When customers call, they are routed to the next available representative. A record exists on when the last call was made, but the screen takes several seconds to load and the representatives are supposed to be resolving their calls within 45 seconds. Policy information is also spread over several screens and in order to answer questions, customer service representatives typically need to go through four or five computer screens. Customer's satisfaction with the process is OK. There is no segmentation of phone calls by customer type. Are you starting to get the idea? Problems in this unit are most likely not employee-fault-type problems. The business processes in the organization are making it difficult for employees to do anything more than average level work. If this unit is going to excel, it is not by telling people to work harder or smarter.

And in today's world, it is harder, not easier, to design and implement "great" business processes due to the complexity of the environment and the fast pace of change.

Organizations also need a language people can understand. Engineers and accountants often encounter difficulties when trying to communicate and cooperate on measuring improvement. They speak in totally different languages when they look at the world of improvement. Today, lean accounting efforts are helping to bridge that gap, but the chasm is still wide and many organizations still struggle with this language barrier. Engineers look at the physical world. Accountants tend to look at how the macro pieces go together. Then, they try to tell a story about the business by looking at the numbers; but they don't have all the pieces of the puzzle to fully describe what is happening in the business from a numbers perspective. The Financial Bridge Model will shed some light on this problem.

1.3 Performance Improvement Initiatives: Were They Failures?

Many performance improvement initiatives have come and gone over the last 20 years (See Exhibit 1.1).

In the eyes of many executives, these initiatives failed to meet their expectations. Studies by A. T. Kearney, McKinsey, and Bain & Company, among others, have shown that 70 percent of executives stated their performance improvement initiatives failed to meet their expectations. While there was a 5-year period in the early 1990s where winners of the Malcolm Baldrige Quality Award experienced significant stock appreciation (more than the

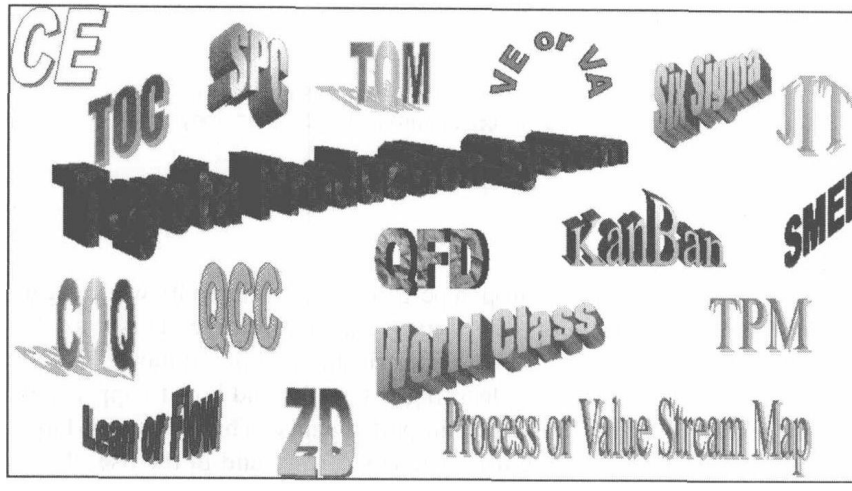


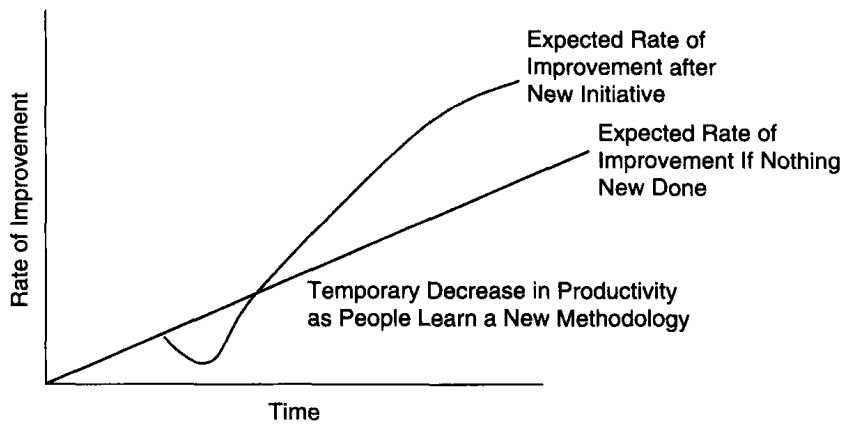
Exhibit 1.1 Performance Improvement Initiatives

growth experienced by their respective industries) they, too, fell by the wayside as the stock market experienced dramatic losses after the year 2000.

So is it true that these programs are not worth while? Or was something else happening? Let's first consider why companies embark on these initiatives:

- Improve competitive position.
- Improve customer satisfaction.
- Address a major organizational issue (quality, timeliness, and the like).
- Increase sales (revenues).
- Improve profitability.
- Decrease costs.
- Improve employee/management relationships.
- Identify major innovation opportunities.
- And the list goes on.

Often when senior executives are interviewed at the beginning of a major organizational improvement initiative they will state, "... this initiative will help us leap ahead of the competition." So their expectations might graph as follows:



There is actually a temporary drop in performance/productivity when organizations implement a major new improvement initiative. This was discovered in research done by General Electric and DuPont in the 1950s. The time invested in training and in learning new skills and how to apply them to work results in a temporary drop in performance. This is true for large-scale change initiatives in the use of new software and in the use of new equipment to do work. It simply takes people a while to figure out the new