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**Roger Burghall
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***Lean Six Sigma
Business
Transformation***

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DUMMIES[®]
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**by Roger Burghall, Vince Grant
and John Morgan**

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Lean Six Sigma Business Transformation For Dummies®

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Contents at a Glance

<i>Introduction</i>	1
<i>Part I: Getting Started with Lean Six Sigma</i>	5
Chapter 1: Introducing Lean Six Sigma	7
Chapter 2: Introducing Business Transformation	23
Chapter 3: Learning to DRIVE.....	43
<i>Part II: Scoping the LSS Transformation Journey</i>	67
Chapter 4: Defining Your Transformation Objectives.....	69
Chapter 5: Assessing Readiness for Transformation	89
Chapter 6: Establishing the Transformation Governance System	107
<i>Part III: Planning the Transformation Journey</i>	123
Chapter 7: Understanding Business Breakthroughs and Fundamentals	125
Chapter 8: Planning for Strategy Deployment	139
Chapter 9: Implementing Strategy Deployment.....	157
Chapter 10: Establishing a Continuous Improvement Organisational Structure	181
<i>Part IV: Starting out on the Transformation Journey</i>	193
Chapter 11: Creating the Right Culture.....	195
Chapter 12: Achieving Everyday Operational Excellence	217
<i>Part V: Sustaining the Transformation</i>	239
Chapter 13: Widening the Scope of the Transformation	241
Chapter 14: Managing the Capability Maturity Journey.....	259
<i>Part VI: The Part of Tens</i>	269
Chapter 15: Ten Tips for Smoothing the Transformation Process	271
Chapter 16: Ten Pitfalls to Avoid	277
Chapter 17: Ten Places to Go for Help	285
<i>Index</i>	293

Table of Contents

<i>Introduction</i>	1
About This Book	2
Foolish Assumptions	2
Icons Used In This Book	3
Beyond the Book	3
Where to Go From Here	4
<i>Part 1: Getting Started with Lean Six Sigma</i>	5
Chapter 1: Introducing Lean Six Sigma	7
Defining Transformation	7
Introducing the Plan–Do–Check–Act Cycle	8
Showing the Way with Lean Six Sigma	9
Identifying the key principles of Lean Six Sigma	10
Explaining Lean thinking	10
Linking up with Six Sigma thinking	11
Accessing the best of both worlds	11
Improving Existing Processes with DMAIC	13
Isolating the problem	14
Working out what’s happening	14
Understanding why it’s happening	15
Coming up with an idea	15
Making sure it’s really sorted	15
Designing New Processes with DMADV	16
Defining the design	17
Getting the measure of the design	17
Conducting analysis	18
Developing the design	19
Making sure the design will work	19
Recognising DMAIC and DMADV Transition Points	20
Bringing It All Together	21
Chapter 2: Introducing Business Transformation	23
Determining Where You Are Now and Where You Need to Be	23
Where are you now?	24
Where are you going?	25
How will you get there?	26
Going for a drive	27

Understanding the Key Principles of Business Transformation	28
Identifying True North.....	28
Following a clear strategic direction.....	29
Planning the route	29
Keeping it simple	31
Keeping on track.....	31
Doing the right things.....	33
Doing things right	33
Dealing with the soft stuff	34
Looking Out for the Pitfalls	34
Checking that everyone's on board.....	35
Considering what can go wrong.....	37
Taking on too much too soon	38
Accentuating the positive with negative brainstorming.....	39
Creating the Vision.....	39
Going backwards – more or less.....	40
Locating True North.....	40
Answering what's in it for me?	41
Spreading the word	41

Chapter 3: Learning to DRIVE 43

Introducing DRIVE.....	43
Define.....	44
Review	44
Improve.....	45
Verify	46
Establish.....	47
Creating the Framework	47
Building the team.....	47
Developing the plan.....	48
Communicating effectively	49
Ensuring clear ownership	49
Getting the measure	50
Taking a Mature Approach.....	51
Using maturity models	51
Assessing capability	54
Deploying the Strategy.....	54
Leading the way	55
Keeping it focused	55
Focusing on the Customer.....	56
Knowing your customers – past, present and future.....	56
Valuing your customers.....	56
Building Links and Strengthening the Supply Chain.....	57
Getting the measure of suppliers.....	57
Making the right links.....	58
Joining up the thinking.....	58

Recognising the Importance of the Soft Stuff.....	58
Defining the need	60
Analysing the gaps.....	60
Creating the training plan	62
Going outside	62
Enabling Continuous Improvement.....	64
Looking at the role of the manager.....	64
Assembling the toolkit	65
Feeling able and being able	66

Part II: Scoping the LSS Transformation Journey..... 67

Chapter 4: Defining Your Transformation Objectives 69

Identifying Your Need	69
Spotting longer-term corporate objectives	70
Working out corporate objectives.....	72
Linking with breakthrough objectives	73
Focusing on the Vital Few	
Breakthrough Objectives	74
Looking at who should be involved.....	74
Step One: Scoping	75
Step Two: Grouping	77
Step Three: Recognising causal interrelationships	78
Step Four: Selecting your transformation objective.....	79
Transformation workstreams.....	81
Creating a Transformation Charter	82
Ensuring it's a living document.....	82
Breaking down the contents.....	82

Chapter 5: Assessing Readiness for Transformation 89

Assuring an Appropriate Business Strategy	89
Identifying your strategy.....	91
Testing and validating your strategy	91
Working With Your Strategic Plan.....	96
Looking at the components of the strategic plan.....	96
Reviewing the strategic plan	97
Defining strategic essentials.....	98
Checking Out the Capability Maturity Road Map.....	99
Recognising that every organisation is different.....	102
Putting together the road map.....	103

Chapter 6: Establishing the Transformation Governance System 107

Leading by Example: Driving the Transformation.....	107
Agreeing the role of the transformation board.....	108
Separating from operational management.....	108
Establishing the Transformation Board Charter.....	109
Identifying who else needs to be involved.....	110
Establishing the Programme Management Office.....	110
Selecting the manager.....	111
Assigning authority and responsibility.....	111
Tracking and Reviewing Progress.....	112
Working out how frequently progress should be reviewed and reported.....	113
Choosing programme/project tracking systems.....	114
Understanding interdependencies and constraints.....	117
Aligning workstreams.....	117
Taking Corrective Action.....	117
Initiating action.....	118
Managing interdependencies.....	119
Updating plans.....	119
Walking the Talk.....	120

Part III: Planning the Transformation Journey 123

Chapter 7: Understanding Business Breakthroughs and Fundamentals 125

Avoiding Initiative Overload.....	125
Recognising that more is less.....	126
Weeding out unnecessary initiatives.....	126
Avoiding succumbing to scope creep.....	127
Identifying Business Breakthroughs.....	127
Distinguishing breakthroughs from daily management.....	128
Working out how many breakthroughs you can handle.....	129
Determining the Business Fundamentals.....	129
Maintaining a routine.....	129
Managing the key processes.....	131
Establishing Key Performance Indicators.....	134
Deciding on the approach.....	134
Acknowledging the value of values.....	135
Weighing up the balanced scorecard.....	136
Looking at management by objectives.....	137
Understanding the notion of Hoshin.....	137

Chapter 8: Planning for Strategy Deployment	139
Making Strategy Deployment Happen in Practice.....	139
Linking back to strategy.....	140
Following the strategy deployment steps.....	140
Decomposing and Cascading	
the Critical Objectives.....	143
Targeting your critical objectives.....	144
Establishing focus areas	144
Specifying process improvements.....	144
Creating the Strategy Deployment Architecture	146
Cascading to the point of impact.....	146
Creating the strategy deployment	
roll-out schedule	147
Playing Catchball	148
Planning a catchball meeting	148
Running a catchball meeting.....	149
Setting the catchball meeting agenda	150
Following on from a catchball meeting.....	150
Introducing the X Matrix	150
Identifying the what, how, how	
much and by when, and who.....	150
Looking at the components of the X Matrix	151
Working out how to use the X Matrix	153
Establishing process measures.....	153
Sorting out the human resources	155
 Chapter 9: Implementing Strategy Deployment	 157
Starting SD Implementation	157
Developing the X Matrix in further detail	159
Creating effective action plans.....	161
Using speedy tracking charts	164
Managing Breakthrough Improvements	167
Getting Back to Business Fundamentals	167
Keeping a handle on the day-to-day work	167
Managing for daily improvement.....	168
Carrying out standardised work	169
Sticking to the Plan.....	171
Ensuring Effective SD Progress Reviews	172
Timing SD review meetings	172
Establishing everyone's roles	172
Setting the SD review meeting agenda	174
Reporting	174
Driving Results with Countermeasures	176
Getting the Most from Visual Management.....	179



Chapter 10: Establishing a Continuous Improvement Organisational Structure 181

Setting Up the Structure for Continuous Improvement..... 181
Creating Standards while Maintaining Flexibility..... 184
Introducing the Continuous Improvement Group..... 186
 The corporate continuous improvement group..... 187
 Divisional/regional continuous improvement groups 188
Understanding the Stakeholders 189
 Business leader 189
 Champion/sponsor 189
 Value stream manager..... 190
 Functional manager 190
 Lean Six Sigma Black Belts..... 191
 Lean Six Sigma Green Belts..... 191

Part IV: Starting out on the Transformation Journey 193

Chapter 11: Creating the Right Culture 195

Culture, What Culture? 195
 Understanding what culture means 196
 Assessing your organisation’s culture..... 197
 Identifying the leadership culture 199
 Initiating cultural change..... 201
Managing a Cultural Transformation 202
 Kotter’s eight steps to cultural change..... 202
 Lewin’s three phases of change..... 203
 Utilising a cultural transformation plan..... 205
Achieving Stakeholder Buy-in 206
 Acknowledging resistance to change..... 207
 Dealing with resistance..... 207
Developing the Vision for Change 208
Getting Communication Right..... 209
 Working out what to communicate and when 210
 Creating a communication plan 210
Developing Employees’ Skills..... 211
 Fostering a learning organisation 211
 Assessing learning needs 211
 Role-specific training..... 212
Recognising that Change
 can be Rewarding..... 213
 Knowing when to reward..... 213
 Initiating a reward and recognition plan 214

Giving Power to the People	214
Facing up to the management challenge	214
Following the Lean Six Sigma approach.....	215
Giving power to teams	215
Staying focused on the transformation process.....	215
Chapter 12: Achieving Everyday Operational Excellence	217
Deploying Lean Six Sigma Training	217
Training the belts	218
Assessing the skills.....	219
Setting up certification.....	220
Prioritising and Selecting Improvement Opportunities	221
Rapid improvement events	225
DMAIC projects	226
Applying manufacturing process improvements to services	226
Establishing How You Do Things	229
Understanding the value stream.....	229
Using Kaizen effectively	231
Achieving results	234
Keeping the focus	234
Giving Power to the People.....	235
Recognising the challenge management faces.....	235
Empowering teams	237
Maintaining focus on the overall transformation.....	238
 Part V: Sustaining the Transformation	 239
Chapter 13: Widening the Scope of the Transformation	241
Looking at Different Organisational Structures	241
Differentiating between divisional and functional structures.....	242
Initiating a value stream organisational structure	244
Considering the role of Lean Six Sigma programme leadership	245
Establishing value streams	245
Managing value streams	247
Getting Closer to the Customer	247
Identifying your customers	248
Improving the customer experience	249
Deploying to the Supply Chain	255
Understanding the supply chain.....	256
Five guiding principles of Lean supply	257
Involving suppliers in the transformation journey.....	258

Chapter 14: Managing the Capability Maturity Journey 259

Introducing the Capability Maturity Model.....	259
Working through the gears.....	260
Examining the elements.....	261
Building the Capability Maturity Matrix.....	262
Assessing capability maturity.....	262
Using effective assessment tools.....	264
Going through the assessment process.....	264
Developing customised questionnaires.....	265
Choosing assessors.....	266
Checking out assessors' skills.....	267
Interpreting the outcome.....	267
Monitoring the Capability Maturity Journey.....	267
Dealing with changes of direction.....	268
Constantly updating the route.....	268

Part VI: The Part of Tens* 269*Chapter 15: Ten Tips for Smoothing the Transformation Process . . 271**

Obtain Leadership Ownership.....	271
Communicate, Communicate, Communicate.....	272
Use Strategy Deployment to Drive Improvement Programmes.....	272
Don't Let Perfect Get in the Way of Better.....	273
Recognise and Celebrate Successes.....	273
Create a Capability Maturity Roadmap and Regularly Review it.....	274
Provide Appropriate Training as it is Needed.....	274
Encourage Leaders and Managers to Manage Daily Improvements.....	275
Listen to the Voice of Your Customers and Other Stakeholders.....	275
Don't Be Afraid to Make Mistakes, but Do Learn from Them.....	276

Chapter 16: Ten Pitfalls to Avoid 277

Too Much Focus on Short-Term Objectives.....	277
Strategies that aren't Clearly Defined.....	278
Not Enough Programme Planning.....	278
Making Assumptions about the Needs of Customers and Other Stakeholders.....	279
Not Obtaining Process Ownership.....	280
Ignoring the Soft Stuff.....	280
Assuming that No Response Means No Resistance to Change.....	281
Strategic Breakthroughs that aren't Really Breakthroughs.....	281
Not Organising Monthly Strategy Deployment Reviews.....	282
Lack of Trained Lean Six Sigma Practitioners.....	283

Chapter 17: Ten Places to Go for Help 285

- Your Colleagues 285
- Other Organisations 286
- The Internet 287
- Social Media 288
- Networks and Associations 288
- Conferences 289
- Books and Publications 289
- Periodicals 289
- Software 290
 - Statistical analysis 290
 - Deployment management 291
- Training and Consultancy Companies 291

***Index* 293**

Introduction

This book builds on *Lean Six Sigma For Dummies* (Wiley), which we wrote to make the topic easy to understand and apply. It's important to understand and apply it because we feel that Lean Six Sigma can help organisations of all shapes and sizes, both private and public, improve their performance. We also feel that Lean Six Sigma can help organisations in their transformation journeys, enabling them to deploy their strategy more effectively.

Readers of this book need to have at least some knowledge of Lean Six Sigma. If this isn't the case, we recommend you have a copy of *Lean Six Sigma For Dummies* (Wiley) to hand, as we make a number of references to that book which will help explain some of the terms and techniques we refer to in this book. Referring to another book so often isn't the usual *For Dummies* practice, but in this instance we wanted to avoid repeating everything about Lean Six Sigma and making this book twice as long.

We also stress that an organisation can deploy Lean Six Sigma without going through a business transformation. Likewise, an organisation can go through a transformation without using Lean Six Sigma. Our focus in this book is to demonstrate how Lean Six Sigma can help an organisation deploy its strategy and successfully undertake transformation.

Lean Six Sigma provides a rigorous and structured approach to both help manage and improve performance, and to support the transformation of an organisation. It helps you use the right tools, in the right place, and in the right way, not just in improvement but also in your day-to-day management of activities.

As often as not, an organisation's strategy fails because it hasn't been effectively deployed rather than because the strategy itself was ill-conceived. Lean Six Sigma and the DRIVE model (Define, Review, Improve, Verify and Establish) can provide a way forward that will keep deployment on track and ensure key milestones are met.

Lean Six Sigma really is about getting key principles and concepts into the DNA and lifeblood of your organisation so that it becomes a natural part of how you do things.

About This Book

The potential of Lean Six Sigma is still nowhere near as well harnessed as it could be. We feel that this is especially the case when it comes to helping organisations successfully deploy their strategies and transform their operations and culture.

It seems that many organisations lose sight of their strategic goals and ambitions and find it hard to focus appropriately on what needs to be done. Everyone's too busy, but it's important to recognise the difference between business and busyness – to know what's important.

We wrote this book with the aim of helping individuals and organisations identify a road map that can help them drive their organisations to their intended destinations. In particular, we wanted to draw out the role of the leaders and managers and introduce our DRIVE model and capability maturity road map as a route to success. We refer to these throughout the book, along with a collection of concepts, tools and techniques to help you on your transformation journey.

Foolish Assumptions

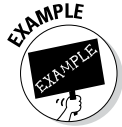
In Lean Six Sigma, avoiding the tendency for people – and managers in particular – to jump to conclusions and make assumptions about things is crucial. Lean Six Sigma really is about managing by fact. Despite that, we've made some assumptions about why you may have bought this book:

- ✔ You're contemplating a full deployment of Lean Six Sigma in your business or organisation, and you need to understand what you're getting yourself into.
- ✔ Your organisation is looking to transform in some way, and you're interested in knowing how Lean Six Sigma can help in the improvement of performance and the deployment of policy and strategy.
- ✔ Your organisation has already implemented either Lean or Six Sigma and you're intrigued by how it might help you achieve more.
- ✔ You're a student in business, operations or industrial engineering, for example, and you realise that Lean Six Sigma and its link to the deployment of strategy could help shape your future.

We also assume that you realise that Lean Six Sigma demands a rigorous and structured approach to understanding how your work gets done and how well it gets done, and how to go about improving your processes.

Icons Used In This Book

Throughout the book, you'll see small symbols called *icons* in the margins; these highlight special types of information. We use these to help you better understand and apply the material. Look out for the following icons:



This icon pops up alongside examples that show you how to apply an idea to your business.



Bear these important points in mind as you get to grips with Lean Six Sigma.



Information that isn't necessary for implementing your transformation but which you may find interesting.



Keep your eyes on the target to find tips and tricks we share to help you make the most of Lean Six Sigma.



We share true stories of how different companies have implemented Lean Six Sigma to improve their processes. We also share true stories of when things go wrong so that you learn from others' mistakes.



This icon highlights potential pitfalls to avoid.

Beyond the Book

Find out more about Lean Six Sigma Business Transformation by checking out the bonus content available to you at www.dummies.com.

You can locate the book's e-cheat sheet at www.dummies.com/cheatsheet/lssbusinessstransformation, where you'll find handy hints and tips.

Be sure to visit the book's extras page at www.dummies.com/extras/lssbusinessstransformation for further Lean Six Sigma business transformation-related information and articles.

Where to Go From Here

We hope you'll want to go for a drive! Grab the steering wheel and map and transform your organisation. But do remember it takes time, preparation and planning. And a lot of commitment.

Please also remember that, with a *For Dummies* book, you can begin wherever you like. Each part and, indeed, each chapter, is self-contained, which means you can start with whichever parts or chapters interest you most.

That said, if you're new to the topic, starting at the beginning makes sense. Either way, there's lots of cross-referencing throughout the book to help you see how things fit together and how to put them in the right context.

Part I

Getting Started with Lean Six Sigma

getting started
with
**Lean Six
Sigma**

For Dummies can help you get started with lots of subjects. Visit www.dummies.com to learn more and do more with *For Dummies*.

In this part . . .

- ✔ Find out more about Lean Six Sigma and 'transformation' and why it's needed.
- ✔ Learn about transformation and the link to Strategy deployment.
- ✔ Get to know the DRIVE Model and how to apply it.

Chapter 1

Introducing Lean Six Sigma

In This Chapter

- ▶ Understanding what transformation means
 - ▶ Breaking down the PDCA cycle
 - ▶ Choosing between DMAIC or DMADV
-

As well as an overview of the broad content of this book, this chapter provides an introduction to what we mean by transforming an organisation and why your organisation may need it. We take a brief look at the DRIVE and Plan, Do, Check, Act models that provide the framework for deploying the strategy that leads to transformation. The chapter also provides a reminder of the key principles of Lean Six Sigma and the DMAIC and DMADV methods used to improve existing processes or design and create new ones.

Defining Transformation

The *Oxford English Dictionary* describes transformation as ‘a marked change in form, nature or appearance’. And in the context of business transformation that definition is a pretty accurate fit.

You may need to address organisational problems such as high error rates in dealing with customer orders, which in turn lead to increased complaints and ultimately loss of market share. But a burning platform situation may not exist at all. The organisation may be targeting growth in some way, perhaps through an entirely new market or product range, for example. It might even be seeking to change its identity and with it the perceptions of the marketplace.

One way or another, though, your organisation is seeking a marked change, be it in performance, appearance or both. And almost certainly, the change is likely to require a change of thinking and behaviour on the part of the people in the organisation, especially the leaders and managers.

Whatever the rationale that’s driving the need for transformation, a crystal clear link to the organisation’s strategy and its deployment is essential. The Plan–Do–Check–Act (PDCA) cycle comes into play here in terms of the planning for and support of the transformation and the deployment of strategy.

A business transformation takes time to achieve and requires the organisation to utilise an effective implementation methodology – the DRIVE model (Define, Review, Improve, Verify and Establish) – and to create a capability maturity roadmap to support the changes. The capability maturity roadmap provides a phased approach to deploying Lean Six Sigma capability in the organisation. Chapter 3 covers the DRIVE model and the capability maturity roadmap in more detail.

This book focuses on Lean Six Sigma as the vehicle to support and drive the changes needed in thinking and behaviour, and that also provides a framework for the improvement projects that emerge through the journey ahead. We provide only a relatively brief summary of the ins and outs of Lean Six Sigma, however, as it is described in detail in *Lean Six Sigma For Dummies* (Wiley).

Before we look at Lean Six Sigma in a little more detail, however, we need to take a look at the PDCA cycle.

Introducing the Plan–Do–Check–Act Cycle

The Plan–Do–Check–Act (PDCA) cycle, as illustrated in Figure 1-1, provides a foundation for strategy deployment.

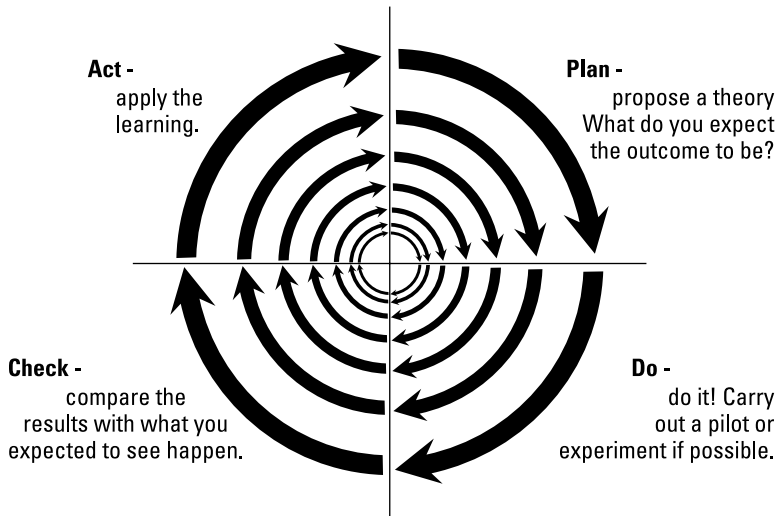


Figure 1-1: The Plan–Do–Check–Act (PDCA) cycle.

Although not overtly referred to in the Lean Six Sigma methodology, the PDCA cycle is very much at the heart of the DMAIC improvement method described in Chapter 2. The PDCA cycle breaks down as follows:

- ✔ **Plan:** This element refers to your theory or hypothesis. If you do this, you expect that to happen.
- ✔ **Do:** Here you put your theory to the test. Ideally, you undertake pilot activities or tests.
- ✔ **Check:** Here you look to see whether the outcomes of your actions in the Do phase are producing the results your Plan led you to expect. To do that properly, you need to ensure you gather the right data and also that you're viewing things from the correct perspective, something you will have determined in the Plan phase. Lean Six Sigma helps you get the measures right, but you need to recognise the importance of going to see actual results in the workplace – the 'gemba', as the Japanese call it.
- ✔ **Act:** Depending on your findings in the Check phase, you may need to make adjustments to the theory you developed in the Plan phase and then run through another PDCA cycle. If things have gone according to plan, however, you can act to put your theory formally in place, or run a larger test depending on the scale of the pilot.

We return to the PDCA cycle throughout the book.

Showing the Way with Lean Six Sigma

To apply the Lean Six Sigma approach successfully, you need to recognise the need for different thinking. To paraphrase Albert Einstein:

'The significant problems we face cannot be solved at the same level of thinking we were at when we created them.'

You want to change outcomes but you also need to realise that they are themselves the outcomes from your systems. Not the computer systems, but the way in which people work together and interact. And these systems are the product of how people think and behave. So, if you want to transform and change the outcomes you have to change your systems, and to do that, you have to change your thinking.

You need to adopt thinking that focuses on improving value for the customer by improving and smoothing the process flow and eliminating waste. Since the establishment of Henry Ford's first production line, lean thinking has evolved over many years and in the hands of many people and organisations,

but much of the development has been led by Toyota through the creation of the Toyota Production System. Toyota was able to build on Ford's production ideas to move from 'high volume, low variety' to 'high variety, low volume'.

Six Sigma thinking complements the lean approach through a systematic and robust approach to improvement that is based on management by fact. In particular, it looks to get the right data, in order to understand and reduce the variation in performance being experienced in the organisation's products, services and processes.

Identifying the key principles of Lean Six Sigma

Lean is not about cutting things to the bone. Rather, it's about providing value for your customers. Taiichi Ohno, the architect of the Toyota Production System, sums up the approach in a nutshell:

'All we are doing is looking at a time line from the moment the customer gives us an order to the point when we collect the cash. And we are reducing that time line by removing the non-value-added wastes.'

And value is what customers are looking for. They want the right products and services, at the right place, at the right time and at the right quality. Value is what the customer is willing to pay for.

Explaining Lean thinking

We're sure you're aware of the half-full, half-empty glass analogy applied to whether someone looks on the positive or negative side. A Lean practitioner might well respond by saying 'it's the wrong sized glass!' Either way, you first need to understand the customer and their perception of value. You have to know how the value stream operates and enable it to flow, perhaps by removing waste and non-value-added activities.



The value stream and the process are one and the same; they're simply different terms. Essentially, you're talking about 'how the work gets done'.

Lean thinking also means looking for ways of smoothing and levelling the way the work flows through the process and, where possible, working at the customer's pace – in other words, it's a pull rather than a push process. And, of course, in the pursuit of perfection, you're always looking to improve things through the concept of continuous improvement.

Linking up with Six Sigma thinking

Six Sigma thinking is very similar to Lean thinking. Six Sigma also focuses on the customer. A key principle of Six Sigma is understanding customer requirements and trying to meet them. If you don't understand those requirements, how can you expect to provide the customer with value?

Again, as with Lean thinking, to understand your processes you need to understand how the work gets done. Data comes into play more so with Six Sigma thinking than with Lean thinking. If you're to manage by fact, you need to have the right measures in place and the data presented in the most appropriate way.

An appreciation and understanding of the variation in your process results enables you to more effectively interpret your data and helps you know when, and when not, to take action.

Six Sigma thinking also means equipping the people in the process so that they're fully involved and engaged in the drive for improvement.

Accessing the best of both worlds

Similarity and synergy exist between Lean thinking and Six Sigma and combining the two approaches creates a 'magnificent seven' of Lean Six Sigma key principles:

- 1. Focus on the customer.**
- 2. Identify and understand how the work gets done – the value stream.**
- 3. Manage, improve and smooth the process flow.**
- 4. Remove non-value-adding steps and waste.**
- 5. Manage by fact and reduce variation.**
- 6. Involve and equip the people in the process.**
- 7. Undertake improvement activity in a systematic way.**

In Lean Six Sigma the key focus is on the customer. You need to understand their perception of value and their critical-to-quality customer requirements – the CTQs. The CTQs provide the basis for your measurement set; you can measure how well you're performing in relation to them. Focusing on the customer, and the concept of value-adding, is especially important because, in our experience, when we start work with new clients, typically only 10 to 15 per cent of process steps add value and often represent only 1 per cent of

total process time. Naturally, many organisations have discovered that their continuous improvement efforts have significantly improved process performance; unfortunately, plenty still exist that have yet to realise the benefits of Lean Six Sigma.

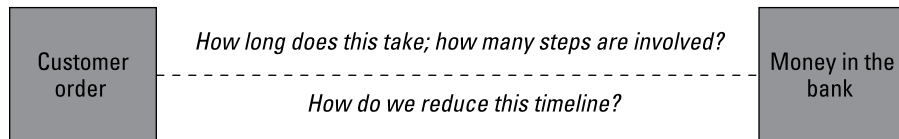
Lean Six Sigma provides a set of criteria to help you determine whether or not a process step is value-adding:

- ✔ The customer has to care about or be interested in the step. If they knew you were conducting this step, would they be prepared to pay for it?
- ✔ The step must either change the product or service in some way or be an essential prerequisite.
- ✔ The step must be actioned 'right first time'.

A value-adding step meets all three criteria. Non-value-adding steps must be removed. Obviously, some steps may not meet these criteria but are nonetheless essential for regulatory, fiscal or health and safety reasons, for example. By identifying and understanding how the work gets done – the value stream – you highlight the non-value-adding steps and waste. In doing so, you ensure that the process is focused on meeting the CTQs and adding value. Understanding, managing and improving the value stream is key to eliminating non-value-adding steps as it sets out all of the actions, both value creating and non-value creating, that bring a product or service concept to launch or process a customer order.

Ensuring the senior team's understanding of the organisation's high level value streams provides a foundation for the prioritisation of value-adding steps in the various processes. 'Order to Cash' is a good example and is illustrated in Figure 1-2. Can you identify process steps that can be removed or reduced in some way? How can you close the gap, speed up the process and smooth the flow?

Figure 1-2:
Looking at
'Order to
Cash': Lean
Six Sigma
thinking in a
nutshell.



Managing, improving, and smoothing the process flow provides another example of different thinking. If possible, use single piece flows, moving away from batches or at least reducing batch sizes. Either way, identify the

non-value-adding steps in processes and try to remove them; at the very least, look to ensure that they don't delay value-adding steps. The concept of pull, not push, links to understanding the process and improving flow.

Pushing not pulling can be an essential element in avoiding bottlenecks. Overproduction, or pushing things through too early, is a waste. One way to improve flow and performance is to identify, remove and prevent waste or, as the Japanese call it, 'muda'.

Managing by fact, using accurate data, helps you avoid jumping to conclusions and solutions. You need the facts! And that means measuring the right things in the right way. Data collection is a process and needs to be managed accordingly. Using control charts enables you to interpret the data correctly and understand the process variation. You'll then know when, and when not, to take action and will be able to accurately describe the state of your process. You can find out more about control charts in *Lean Six Sigma For Dummies* (Wiley) and also in *SPC in the Office* by Mal Owen and John Morgan (Greenfield Publishing).

Involving and equipping the people in the process is vital. The 'soft stuff' mustn't be overlooked. In simple terms, the soft stuff refers to how you work with the people involved in the process, and the key stakeholders who can so easily make or break the improvements you plan. A *key stakeholder* is anyone who controls critical resources, who can block the change initiative by direct or indirect means, who must approve certain aspects of the change strategy, who shapes the thinking of other critical parties, or who owns a key work process impacted by the change initiative. And it's about their acceptance of what you're trying to do. You may well have developed an ideal solution, but its effectiveness is dependent on how well you've gained acceptance from the people in the organisation. Chapters 2 and 3 cover the soft stuff in more detail.

Lean Six Sigma provides two frameworks for improvement. The action you take in improving or designing your processes needs to be undertaken in a systematic way. DMAIC provides the framework to improve existing processes and DMADV covers the design of new products, services and processes.

Improving Existing Processes with DMAIC

The DMAIC cycle is a systematic approach to solving problems and improving existing processes. DMAIC stands for Define, Measure, Analyse, Improve and Control, and these phases are illustrated in Figure 1-3.

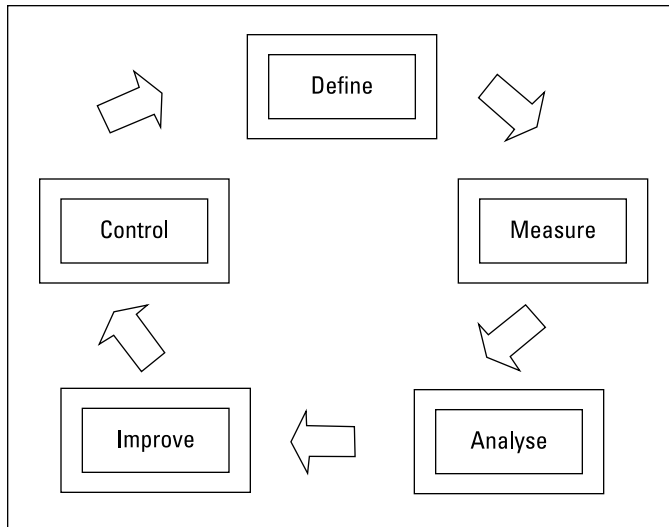


Figure 1-3:
The DMAIC
cycle.



The DMAIC cycle isn't necessarily linear. You could well find yourself moving back and forth, especially to the Measure and Define phases, as you find more information or suspect a particular root cause but need more evidence.

Isolating the problem

When you start any new improvement project, an essential ingredient for success is ensuring that you and your team have a clear understanding of why the project is being undertaken and what it's trying to achieve. With a DMAIC project, you start with a problem that needs to be solved.

Before you can solve a problem, however, you need to clearly define it, which isn't always as straightforward as it might sound. You might not have all the information you need to write a clear problem statement, for example. The Measure phase helps you understand things more clearly and, where necessary, you can update the problem statement and the improvement charter in the light of your new-found knowledge. See *Lean Six Sigma For Dummies* (Wiley) for more about problem statements and improvement charters.

Working out what's happening

In simple terms, the Measure phase is about understanding how the work gets done and how well it gets done. To understand the current situation, you need to know what the process looks like and how it's performing. You need to understand what's meant to happen, and why. You also need to recognise how your process links to your customer.