

THE GOING LEAN FIELD BOOK

A Practical Guide to Lean Transformation
and Sustainable Success

STEPHEN A. RUFFA

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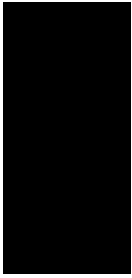
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A Practical Guide to
Lean Transformation
and Sustainable Success

Stephen A. Ruffa

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*For my wife, Staci,
and my children, Adam and Emily,
for their loving support.*

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PREFACE

FOR SOME READERS, calling this a “fieldbook” will set the wrong expectation. To them, the term might imply a step-by-step guide to going lean; they might expect to find little more than a compilation of templates and checklists for implementing today’s proliferation of discrete tools and activities whose direct application seems too often interpreted as the path to “leaning” the corporation.

The Going Lean Fieldbook does not follow this model.

Those who read my previous book, *Going Lean*, will recognize that such a focus would not make much sense. *Going Lean* showed that a much more complex context exists; that using a direct, “cook-book” approach for applying the techniques and practices made famous by Toyota is not the answer. It showed that what might succeed in gaining quick benefits amid simpler, steady conditions does not scale up well to address vast operations producing complex products within a dynamic environment.

The fundamental challenge extends beyond removing waste that is most visible—activities, delays, or materials that consume time and resources but do not contribute value—or mapping value streams, or applying techniques to improve standardization and orderliness. Instead, moving forward first requires taking a step back—taking a fresh look at the business conditions, the corporate mindset, and the management framework within the complex and sometimes chaotic environment in which one must operate—and then addressing the reasons these cause waste to accumulate in the first place.

In other words, going lean is not a matter of tweaking the status

quo; it means completely rethinking the way business operates in order to advance within today's challenging conditions—the way Toyota began its efforts half a century ago.

Going Lean sparked a new way of looking at lean. Using examples backed by data, it showed why going lean means much more than excelling at day-to-day cost-cutting—the most frequent target of its tools and practices. Instead, it requires building dynamic capabilities that promote stability and consistency, even amid today's uncertain and ever-changing conditions, in order to make these outcomes possible. This means extending its application beyond the traditional limits of managing operations—promoting innovation and advancing broader strategic possibilities.

But such a view of lean—appropriately known as *lean dynamics* because it leads to very little waste and is highly responsive to change—also underscores the reality that a different path is needed. Lean dynamics raises new questions; for instance, how does one go about understanding the range of conditions that a company might face within today's dynamic environment? How well are individual corporations or public institutions equipped to deal with uncertainty and sudden change—and what changes will they need to make to meet these conditions? How can they adapt the costly improvements they might have already made, in order to fit them to this solution?

What managers, practitioners, educators, and workforces desperately need is a structured methodology, based on real cases, to sort through the complexities—a methodology that shows where they are, what direction they must go, and the specific actions that others have found to be important to making this transformation.

The Going Lean Fieldbook is intended to help. It offers a new model intended to fill this gaping void, building on the proven methods of lean manufacturing and the groundbreaking principles of lean dynamics first introduced in *Going Lean*. This book provides practical implementation ideas based on lessons from companies across different industries with different starting points and constraints. This information can help corporations and public institutions build a comprehensive lean strategy that overcomes even the most severe challenges and creates the sustainable excellence.

Intended as a companion book to *Going Lean*, this book can also serve as a stand-alone resource, a guide for grasping both theory and practical application. It offers a way for seeing through the rhetoric to understand the breadth of what is possible for businesses ranging from manufacturing, to medical, to government and even educational institutions. In conjunction with *Going Lean* it is intended to provide deeper insights into lean dynamics, helping people in different positions and with a range of backgrounds to recognize the urgent need for change that is critical for so many organizations today.

Beginning with a summary of the underlying principles of lean dynamics, *The Going Lean Fieldbook* highlights the series of levels corporations tend to attain as they mature through their journey toward lean dynamics transformation. Using specific cases and practical examples, it offers insights into creating a structured implementation approach leading to a critical and comprehensive dynamic strategy. It shows how integrating other methodologies and capabilities, from Six Sigma to information technology, can help, generating even greater potential for substantial, lasting benefits.

Simply stated, *The Going Lean Fieldbook* is intended as a tool to help businesses and institutions begin their successful journey to lean dynamics—a guide for understanding the range of challenges they must prepare to face in developing their path, starting from the various points in the current states of lean efforts. It can guide managers who are seeking to hire lean consulting firms by helping them understand which among the many “brands” of lean they wish to pursue, what goals to set, and how to measure progress and hold all involved accountable for results. And it can help guide an organization as it builds a strategy and methodology for proceeding on the journey to going lean—a critical but often neglected precursor to embarking on specific lean activities, which can define whether a lean effort will succeed.

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The Going Lean Fieldbook

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Solving the Problem with Lean

MORE THAN a decade and a half ago, I began my quest to understand what it takes for companies to succeed in going lean. After researching and demonstrating different applications for making its methods work, I became increasingly convinced that lean business practices offer a solution to the serious challenges so many corporations and institutions face today. I simply assumed that those engaged in implementation activities had grown in this belief as well and were solidly on board.

And then reality struck.

As I traveled the country following the release of *Going Lean*, I was astounded by reactions from people familiar with this term—that many who had been involved with it expressed outright disdain for anything termed *lean*. While I had previously understood that some misunderstanding likely existed, these frank discussions served as a rude awakening to the extent of their frustration.

How could this be? What was it that led so many people to stand so deeply against an approach that should instead inspire pride and optimism?

As I dug deeper, I ran across an interesting phenomenon. Despite lean's enormous popularity among executives and practitioners,

I found that a tremendous divide often exists between them and those in the workforce and even within the ranks of middle management—with the former often completely unaware of the feelings of the latter. I began to study this disconnect; it seemed clear that overcoming it would be critical to fostering advancement of a system so dependent on those very people for its success.

Then it hit me. For years I had been closely following and contributing to the advancements in understanding lean as a principle-based approach founded on solid theory and a rigorous structure for implementation. What I had missed was that its *implementation* had very often taken a different course altogether.

Too many firms and institutions seem to be chasing the latest fads rather than implementing rigorous programs founded on the accumulation of decades of knowledge. Attention goes to the individual tools and techniques—often without much focus on the deeper, transformational aspects that lean methods were intended to advance. And the result has become all too clear: serious inconsistencies in how lean is being approached—and, along with this, an alarmingly high level of frustration.

Moreover, I found that the term *lean* no longer brings to mind a single approach; companies and institutions have flocked to its growing number of variants (sometimes as a way to escape its Japanese jargon and unyielding production-based structure). Depending on which of these a business or an institution begins with, lean might assume a very different structure and methodology. These varying interpretations of what lean is all about appear to have contributed to confusion and frustration, and to the very different levels of understanding, maturity, and plateaus in performance that corporations and institutions seem to attain.

So what, then, *is* lean?

On the surface, the answer seems quite obvious. Lean implies the opposite of bloated; going lean therefore suggests cutting out the fat—taking direct aim at operational waste in all its forms and thereby slashing corporations' cost of doing business. Companies focus on removing excess inventories, unneeded movement, and unnecessary processing steps. They apply it alongside technology solutions for improving information, and couple it with Six Sigma for driving down

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defects. In all, lean has become synonymous with cutting down the time, materials, and effort it takes to get things done.

Yet, within today's complex, dynamic business world, this is not nearly enough.

Why is this? While the term *lean* is powerfully descriptive of the *outcomes* this approach represents, implementing improvement in a way that directly targets these outcomes is not the answer. Doing so leaves the foundation supporting how a firm or an institution should roll out its efforts largely unaddressed. Worse still, most charge ahead without first acknowledging their *dynamic conditions*—those shifts in customer demands or changing business circumstances that cause disruption and drive this “waste” to accumulate in the first place. In doing so, organizations risk trivializing what lean is really all about and falling seriously short of attaining lasting improvement.¹

The Dynamic Basis for Lean

Eliminating operational excess has long been the Holy Grail of American business. Henry Ford's Model T was perhaps the clearest example of its application—a powerful demonstration of the cost reduction made possible by precisely honing work steps. But *how* this is done is of critical importance. History shows that Henry Ford optimized his methods for the largely stable environment in which he operated at the time.² However, such stability could not last. When Ford's business was ultimately forced to adapt to customers' increasing demands for variety, the company's fortunes precipitously declined.³

Many of today's corporations maintain a similar focus. Founded on management principles that were honed during the industrial boom throughout the early part of the twentieth century, many companies operate largely on a presumption of stability—a belief that customer's demands will remain consistent and predictable; that conditions will remain inherently reliable. This belief in strong, consistent demand broken infrequently by short periods of adjustment has driven the widespread practices of optimizing for economies of scale and managing-by-outcomes that still dominate businesses of all types. Manufacturers, airlines, retailers, medical providers, educational institutions, and others align their operations, organize their

departments, structure their information systems, and plan the introduction of new products and services within a mindset of optimizing for the specific range of conditions they currently face.

Such a mindset, however, can leave them largely unprepared for the longer, more dramatic shifts that today have become the norm. Economic downturns, spikes in oil prices, and fallout from catastrophic events can quickly erode any gains from “leaning” out activities; companies might see their cost savings quickly erode, their “wastes” reemerge, and their hard-earned quality and efficiencies wane (a result that recent events have so broadly demonstrated). Moreover, many of the changes that companies make to optimize their processes during stable times can instead increase the turmoil and waste that result when uncertainty spikes and conditions suddenly change.

But if going lean is not about “cutting the fat,” what is it? Answering this requires that we first understand the driving reasons behind why the widely regarded benchmark for lean manufacturing, the Toyota Motor Corporation, began its journey toward lean.

A Foundation in Crisis

Toyota began its foray into lean manufacturing soon after the end of World War II as a means for overcoming what must have seemed to be overwhelming constraints. Struggling to gain a foothold despite low, volatile demand for its products (the worst possible mix for a manufacturer), Toyota had to compete with the likes of Detroit, which was thriving amid predictable, expanding mass markets. Moreover, Toyota had to deal with a labor revolt that forced it to make unprecedented agreements to get the workforce back into its factories—including the guarantee of lifelong employment.⁴

What could the company do? Traditional methods clearly could not overcome these challenges, which were far more severe than its competitors had to deal with. Hiring and firing its people to adjust for changes in demand were no longer the answer. Instead, Toyota applied a new way of thinking, shifting everything from how it performed work to the way it shared information and made decisions—even how it rolled out innovation. And in doing so, it created the means for

turning what had now become its most valuable asset—its workforce—into a powerful competitive advantage.

The company broke from the traditional practice of separating work into repetitive processing steps and then synchronizing these using top-down controls. Instead, it created autonomous teams with sufficient skills and equipment to turn out *product families* (groups of items sharing similar processing characteristics)—producing entire parts or components from beginning to end. This made it possible to more precisely synchronize each of its activities with the actual needs of its customers—*pulling* just what was needed to match their rate of consumption at each step rather than *pushing* materials along to meet preset schedules.

Toyota factories no longer produced and stored enormous batches of identical items with the objective of optimizing for a narrow range of anticipated conditions to attain large *economies of scale*. Instead, they turned out smaller quantities that much more closely represented actual customer demand at each step of production. This created the powerful effect of leveling out uncertainty and disruption across the supply chain and, in doing so, generating a different kind of efficiency that more than offset the great economies of scale that traditional practices could produce.

Toyota developed a range of tools and techniques to make this work, supporting such advancements as rapid changeovers for shifting from producing one configuration to the next (a key to gaining the benefits needed from its product family approach, as described in Chapter 6). The result is a system of management that is much better suited to the dynamic business conditions that have today become the norm.

But it is important to understand that Toyota does not stand alone. Airlines like Southwest Airlines, other manufacturers, and even Walmart adopted this very different way of managing their business as they, too, grew facing tremendous challenges. And, like Toyota, they go far beyond targeting the visible outcomes of speedier operations and reduced “waste” so commonly seen as the reasons for their success. By applying a common set of principles, or *lean dynamics*, their lessons point to a powerful means for overcoming the

forces of uncertainty and change and, in doing so, achieving excellence across a broad range of conditions.

Structuring for Lean Dynamics

Going Lean first described the concept of lean dynamics, introducing a clear way to identify those who have succeeded in applying the tools and practices of lean manufacturing to flexibly respond to changes in customer demand, environmental shifts, and other factors. By pinpointing which firms stand above the rest in responding to the shifting conditions and changing demands of today's dynamic business environment, and identifying their shared characteristics, it isolated the principles key to their strong, sustained performances over time.

How is it possible to identify such firms? By using the *value curve*—a graphical tool that illustrates how well an organization creates value within an environment of change. Lean dynamics firms display a stark, distinct difference from traditionally managed companies. They yield stronger, steadier, tangible value even across the most severe market conditions.

Consider the implications. Despite facing serious challenges—from the aftermath of September 11, 2001, to hurricane Katrina, and later when oil prices spiked to near historic levels—these companies continued to advance. Not only did they demonstrate the capability to seamlessly shift their activities and deliberately respond to changing business needs, their much greater flexibility made it less disruptive to roll out new innovations. Their results made it clear that they had gone well beyond the traditional objective of increasing efficiency; instead they demonstrated a dynamic capability to apply business strategies suited to anticipating and responding to changing conditions—even transforming customers' expectations in a way that promoted their own ability to respond.

This fundamentally different way of viewing lean points to a very different starting point. A lean dynamics program *does not directly target waste elimination*; rather, it focuses on the underlying reasons why waste accumulates in the first place—identifying and addressing disconnects across the business that cause the need for buffers, delays, and workarounds, which amplify internal disruption, create lag, and in-

crease loss when conditions change. This focus is critical to structuring a program for improvement that goes beyond trimming operational costs and, instead, builds stability and sustained excellence. Without first addressing major disconnects, localized improvements might simply fade away over time, displaced by disruption, workarounds, and waste that reemerges once conditions inevitably shift.

Just as important is mitigating the severe impact this disruption can have on innovation—a critical force for inspiring customers to buy in the first place. For traditionally managed companies, the challenge is clear. Introducing the latest technology into fresh new products or services can force significant changes in a company's activities—everything from factory layout, work procedures, equipment, and even suppliers—amplifying variation and potentially driving widespread disruption and loss to lagging operations. Mitigating this lag is important to overcoming what can become a deep-seated resistance to introducing new value—a reluctance to press forward with new products and services because of the disruption this would cause, even when there exists a clear demand.

Yet the most immediate focus must be on identifying and correcting those disconnects that act as barriers to engaging the workforce in a meaningful way, thus eliminating a cause for alienation that frequently occurs early in a transformation. The answer cannot come from slogans or management dictates; these cannot impart the genuine enthusiasm that has proven so important for success. Only through restructuring activities so that individuals across the business can become meaningfully involved will they come to understand not only the compelling need for change but develop a deep appreciation of how they must contribute.

Driving a Shared Sense of Purpose

While *Going Lean* comprehensively described the *what*—the principles, tools, and practices of lean dynamics—there remains considerable disagreement on *how* to best apply them. Still, leaders of major improvement activities of all sorts do seem to agree on one point: There exists a critical need for gaining broad-based understanding and buy-in by the workforce.

One widely recognized method for building such support is to

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pursue low-hanging fruit by beginning with the most straightforward targets in order to demonstrate rapid gains. Such a mindset seems particularly prominent within organizations set on going lean; individuals who become trained in uncovering hidden wastes naturally seek to drive out as much inefficiency as possible and thus demonstrate quick savings.

And, as a result, many have missed the mark.

I have often listened in frustration to managers who proudly tout case after case of waste reduction success—while appearing painfully unaware of the widespread disdain for their efforts that has grown among the workforce. Despite participating in continuous improvement activities deliberately structured to promote employee inclusion, many workers continue to feel alienated from what they regard as a top-down directive. I am often astounded by the number of people who have come to regard going lean as a real problem; people from various levels across a wide range of corporations and institutions have bluntly shared with me their distaste for this “fad.” How can this be, particularly with so much effort and attention aimed at the workforce?

Much of the problem, it seems, boils down to a context for implementation that trivializes its intent, causing many to misinterpret lean as “something we should have been doing anyway,” or as nothing more than a repackaging of “failed techniques of the past.” And companies too often reinforce this perception by bypassing critical steps in their eagerness to quickly engage their workforce.

For instance, within large, complex, diverse businesses, lean efforts frequently seem to begin with targeted exercises that seek to create quick wins. Often these consist of facilitated exercises using “sticky notes” with which teams tag wasteful steps or identify changes to improve the cleanliness and orderliness of their work areas. While each of these do have a place, their stand-alone application seems to promote an oversimplified perception of lean, perhaps causing more harm than good.

Engaging the workforce in improvement initiatives requires adequately preparing workers and then including them in meaningful activities for building a solid foundation for their success. However, workers should not be asked to identify improvements affecting the

progression of complex activities spanning vast corporations when they possess only a fragmented understanding of the business. Corporations must first create a framework that substantially broadens workers', managers', and even suppliers' *span of insight*, expanding their understanding of how their work fits into the business's broader objectives and constraints.

For most organizations, this requires some degree of restructuring—dismantling the compartmentalization that has for so long caused departments, workstations, and individuals to optimize for the purpose of their own disparate objectives. This takes structuring improvements by breaking down traditional functional barriers, decentralizing authority, and sharing information to create greater insight into the bottom-line meaning and impact of each step along the way (described in Chapter 6). All must gain a clearer, shared understanding of what goes into creating value from end to end across the business—how each step they perform will create direct value to the customer and contribute to well understood objectives.

Overcoming the challenges that have undermined so many efforts comes not only from learning from those who have long since attained sustainable excellence but from piecing together the best lessons of those still working toward this goal. Perhaps most important is studying their progress as organizations face the challenges of a severe, uncertain business environment—conditions that today are not hard to find.

Lean as a Means for Conquering Crisis

Going Lean was published in 2008, when one of the largest business crises this country has ever experienced began to unfold. An economic tsunami hit companies large and small, sweeping indiscriminately across industries of all types. Corporations quickly found themselves caught in its wake, with many succumbing to what soon became regarded as the most challenging environment in nearly a century.

As the downturn progressed, a simple question came to mind: What lessons can be learned about lean dynamics in the midst of this extraordinary environment?

As it turned out, firms described or identified in *Going Lean* for

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their sustained excellence (including Southwest Airlines, Walmart, Hibbett Sports) continued to perform strongly, even advancing as competitors struggled. Almost all sustained a profit (with the notable exception of Toyota, which sustained less of a financial loss compared to major competitors that required tens of billions of dollars in government bailouts—although it struggled through serious quality problems, apparently the result of an unfortunate shift from its former focus, discussed in Chapter 10). Most continued to press forward, operating largely as they had done before, sustaining their businesses in a way that seems to position them to surge forward when business conditions eventually improve.

Just as important was what this crisis revealed about companies that had been in the midst of their lean journeys. In researching this book, I reached out to a range of organizations and gathered available information on others to better understand what they had done. Some had established techniques to overcome specific challenges; others had built powerful enabling tools. Many offered compelling lessons in implementing different aspects of the concepts that had been identified in *Going Lean*. Still others had shown evidence of what *not* to do; for instance, that conducting widespread but unguided improvement exercises could undermine workforce support—a key challenge to progressing toward sustainable results.

This book serves to pull these findings together. It captures the powerful lessons of companies of varying sizes and types across different industries in their advancement toward lean *maturity*; in doing so, it provides a means for distinguishing between initiatives offering only temporary improvement and those important to progressing toward sustainable excellence.

What do these lessons show? This book explains that advancement begins by learning to see the gaps in traditional methods, but that the path to lean does not directly target the problem. Rather than first addressing the processes where waste is observed, firms and institutions need to take a step back and reassess the way they have chosen to assemble value. Moreover, they need to shift from a mindset of unguided continuous improvement to instead identifying and successively addressing *focal points for structuring their transformation*—

a shift that holds potential to dramatically impact their effectiveness in advancing within the complexities of a dynamic environment.

A lean dynamics solution seeks to prioritize action in these areas as part of a broad methodology for increasing capabilities and progressively advancing in lean maturity. Doing so serves as a means for extending the workforce's insight and involvement, putting them in the driver's seat for addressing pressing customer and business needs, while paving the way for new opportunities to meet the emerging needs of the future.

How to Use This Book

The Going Lean Fieldbook offers a structure for gauging an organization's starting point and for assessing where it should begin, from wherever it currently stands in its lean journey. Illustrated by real cases and practical examples, this book identifies a series of levels that mark organizations' journey to lean maturity, providing the broader context needed for setting a winning course while preventing the misunderstandings that can lead to false starts. Corporations can begin down this path by setting the comprehensive, dynamic, and specific strategy that is critical, yet missing from so many efforts to-day, which integrates the following core elements:

- **Insight:** Create and sustain a shared sense of purpose, a clear and compelling case for change, and objectives and metrics that are understood and embraced at all levels and across the enterprise.
- **Inclusion:** Shift from a system driven by top-down control and outcome-based measures to one that draws on increasing insights, capabilities, and authority of the workforce, enabling direct accountability and visibility of value creation at each step in its buildup.
- **Action:** Relentlessly eliminate lag as a critical means to driving down waste and attaining strong, steady customer and corporate value across a broad range of conditions.

- **Integration:** Build a structure for organizing, guiding, tracking, and synchronizing transformation activities across the enterprise.

This book is not intended to serve as a replacement for case studies or textbooks that hone in with greater detail on individual tools and practices. Instead, it should act as a guide for implementing the underlying principles they describe. It offers a framework for evaluating organizations' current vision and assessing their dynamic value creation—important steps for creating their own lean dynamics roadmap to success. Perhaps most importantly, it points the way to gaining workforce buy-in—often the single greatest challenge and most important element to its successful implementation.

The book is organized into three parts. The first describes how lean dynamics is different and why its philosophy and principles are critical to gaining a competitive edge in today's business world. The second presents core elements that define its application, describing different ways of applying widely recognized lean tools and techniques to develop powerful capabilities that support sustainable results. The third completes the picture, presenting a methodology for constructing a lean dynamics solution and insights derived from a range of complex industries whose efforts offer lessons on individual elements.

Each chapter highlights one or more of three types of supporting information for applying its contents, as follows:

Key Point: Emphasizes specific aspects of points within a chapter considered important to understanding a concept central to implementation

Caution: Identifies critical challenges that might derail lean dynamics efforts

Case Example: Provides insights into how concepts described within a chapter were applied in a specific situation to deepen understanding into how they might relate to other circumstances

The book concludes with appendices that describe a framework for two central concepts within the lean dynamics transformation. Appendix A discusses steps for conducting the dynamic value assessment and summarizes supporting portions of the book; it is envisioned as both an executive summary and a resource for practitioners to refer back to while implementing lean dynamics projects. Appendix B describes the construction of the value curve—a central tool that supports the shift to lean dynamics—and the application of its elements as part of a lean dynamics program.

By suggesting a framework and strategy to proceed, supported by these key points, cautions, and cases, *The Going Lean Fieldbook* is intended to help corporations and institutions of all types through the most critical and challenging part of their lean journeys: the starting point. Moreover, it is hoped that showing how all lean efforts are not alike will help firms and institutions adopt a deliberate methodology for advancing toward the ultimate level of lean maturity, creating strong, sustainable corporate and customer value that can withstand the test of time.

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PART

1

A Case for Change

BEFORE ONE EMBARKS on a complex journey, it is fair to ask the simple questions: Why not just stay put? What is wrong with the status quo, and how much will really be gained by stepping forward onto this difficult road? After all, it is human nature to cling to the comfort of what is known and resist the challenges and uncertainty of what might lie ahead. The more risky the traveler perceives the journey to be, the more likely that he or she will not venture far from home—which means never reaching the intended destination.

Chapter 1 makes clear the basic reason that there no longer remains much choice but to venture ahead. It describes how today's environment of uncertainty and change is undermining many corporations' and institutions' ability to succeed. It explains why merely tweaking what they do now is no longer an option; why sustaining business excellence will take adopting a different focus to better anticipate and more effectively respond to this growing challenge.



Chapter 2 describes the rationale and foundation for making a case for this change to the leadership, employees, and key stakeholders. It describes a new approach for identifying “value,” and assessing how well a business or an institution is suited to delivering strong, consistent value across the range of conditions it might face. This is an important step to fostering the understanding, buy-in, and sense of excitement that is critical yet very often neglected.

Chapter 3 concludes this part by examining the road ahead for those beginning their lean journey. It describes the five levels of lean maturity and the reasons why firms often stagnate along the way. Finally, it shows that advancing in lean maturity requires a vision, structure, and specific techniques for overcoming the potential to stagnate.

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Redefining the Competitive Solution

WE'RE HERE TODAY because we made mistakes," CEO Rick Wagoner said to the congressional committee. "And because some forces beyond our control have pushed us to the brink."¹

With this simple statement, the leader of General Motors—once the world's most powerful manufacturer—essentially acknowledged defeat. The company found itself on the edge of disaster; it could remain afloat only if Congress agreed to give it tens of billions of dollars in taxpayer-funded bailouts—and even then its survival was anything but assured.

How could this titan of manufacturing have plunged into such crisis? Sure, the economy had suffered its worst decline in nearly a century. And with it, customers had simply stopped buying. Yet congressional critics addressed Wagoner and his counterparts at Ford and Chrysler with the same criticism voiced by many observers—that before this downturn, Detroit had been in a steady decline for several decades. Now this once dominant corporation—along with much of this country's automotive industry—teetered at the brink of extinction.

What went wrong with GM and so many other corporations? Have America's businesses become soft, unable to see the inefficiencies and

waste that crept into their operations? Is their challenge as clear as many describe: Find a way to stretch their business further—demand more from workers, speed up processes, apply greater information technology, or outsource more work to lower wage regions? Does the secret to sustaining competitive advantage boil down to finding a better way of cutting costs?

Like so many of America's other once mighty corporations, it appears that GM had simply fallen victim to its own success. For decades, the company's unquestioned market leadership gave it little reason to really change. Despite valiant efforts aimed at cutting costs and refining its methods, it seems that the company did so within the confines of its traditional framework for doing business—an approach that proved to be not nearly enough.

The unfortunate reality is that the environment in which this company must operate today looks dramatically different from the one for which its business practices were built nearly a century ago. Despite all the rationalization and finger pointing, this basic disconnect has significantly contributed to its long, dramatic decline. And this is the same challenge that so many of this nation's corporations and institutions face as well.

Seeing Beyond Stability

GM's way of doing business traces back to its historic quest early last century to achieve the unthinkable. In 1921 the company's newly appointed president, Alfred Sloan, set out to break Henry Ford's iron-clad lock on the automotive industry—one that he held for nearly two decades. Sloan recognized that the enormous efficiencies Ford's methods generated made competing head-to-head based on low pricing a losing proposition. So Sloan pointed his company in a very different direction—restructuring for a business environment that he sensed had undergone a substantial shift.

With automobiles becoming widely available, Sloan recognized that customers no longer sought rock-bottom pricing as their only consideration. He built a system that moved beyond Ford's approach of driving down costs by producing huge quantities of nearly identical vehicles. As described in *Going Lean*, Sloan instead set out to pro-

mote a “mass-class” market, which encouraged more people to buy better and better cars—something that Ford’s way of doing business was ill-suited to support.²

GM succeeded in bringing variety and choice within reach of its customers, moving beyond Ford’s presumption of a single product mass market in favor of a strategy of variety. With five lines of vehicles, its offerings could meet a broad range of customer needs and financial capabilities. This strategy succeeded; it ultimately launched GM to dominate what became the largest manufacturing industry in the world.

Sloan managed his company by operating under what he called *coordinated control of decentralized operations*.³ This meant that the company’s different divisions operated as separate, distinct organizations—designing and producing different lines of vehicles while generating economies of scale through many of their shared resources. But with it came a new burden: the challenge of managing the incredible complexity this created. He needed a way to simplify the problem—to look at each part of the business in the same way, but while preserving the distinct character of each division that would drive his strategy’s success.

What he came up with was a means to track performance by smoothing out short-term fluctuations, essentially measuring based on *average* production levels, something he called *standard volume*.⁴ This greatly simplified oversight, making it easier to relate costs to their driving factors and determine where greater attention was needed, such as where to focus to maximize workforce, inventory, and equipment efficiencies and which managers were performing well relative to forecasted expectations.

It also made it possible to structure the business in a way that gave managers the insights they needed for maintaining efficient use of people, facilities, and equipment without tracking the myriad of details that had made Henry Ford’s methods so complex. Managers no longer focused on the individual details of work as products progressed down the line. Instead, they set their sights on optimizing factories for the averages, which meant turning out huge batches of identical items at a rate that approximated standard volumes. The downside was that efficiencies dropped off precipi-

tously if they had to operate outside of their intended production conditions.

For a long time, this same basic management system thrived; its underlying presumption of steady, predictable demand seemed to closely match the reality of prevailing business conditions. Industries of all types embraced it as the gold standard for managing complex businesses. Today, however, its limitations are becoming increasingly clear, causing an effect that has become quite serious.

To understand why, let us look to an analogous situation that most readers recently experienced in their own lives. The summer of 2008 brought with it a challenge that many people had never before experienced. Gasoline prices rapidly increased, rocketing beyond the dreaded \$3-per-gallon threshold and quickly exceeding \$4 per gallon. The impact was immediate and crippling, with people everywhere struggling to pay what had become exorbitant amounts simply to fuel their cars.

Americans faced a growing crisis. But what was the cause? Surprisingly, as clear as it seemed, the issue was not simply the high price at the pump. Instead, unaffordable gasoline was merely the visible symptom of a much deeper issue—a dangerous condition that had been quietly developing for years.

The “Steady-State” Trap

Many years ago I began a weekly routine of fueling my car in preparation for my drive to work on the days ahead. I clearly recall the price. Gasoline cost somewhere around a dollar and a quarter per gallon. More than two decades later I distinctly remember noting that not much had changed; the price of gasoline still fell within the dollar-something range.

The presumption of such steady fuel prices factored heavily into the choices I made (not necessarily consciously)—just as it seemed to for many others. The result was significant and widespread: suburbs grew rapidly, as did the size of the typical vehicle. Americans’ average daily commute increased substantially, while trucks and SUVs increasingly filled the highways. It is not hard to see why Americans broke record after record for their consumption of huge quantities of low-cost gasoline.

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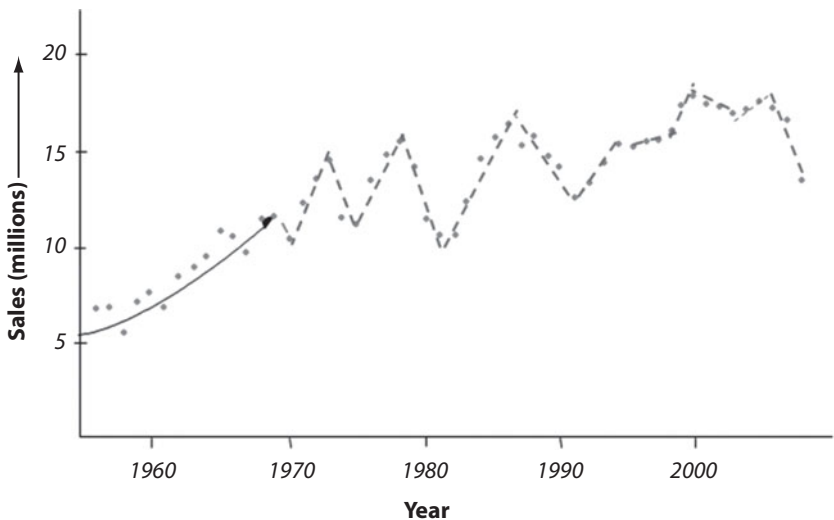
And in doing so, people everywhere locked themselves into lifestyles that were increasingly dependent on continued price stability.

And then everything changed.

When gasoline prices suddenly spiked, most people could do little to change. They still had to drive to work, and they still had to take care of the many obligations that depended on their use of gasoline. The difference was that fuel was no longer inexpensive; drivers everywhere suddenly had to make tough choices in response to their ever-tightening financial circumstances. And the result soon spread to the broader economy.

America's corporations face much the same challenge. Consider the sales trend in the automotive industry, depicted in Figure 1-1. The left side of the graph depicts a smooth and predictable demand pattern in the years following World War II (shown in terms of overall sales)—precisely the environment for which Sloan's sys-

Figure 1-1. Automotive Industry Demand Shift



Data Source: Sales from 1965 to 2008: Ward's Motor Vehicles Facts & Figures 2009, a publication of Ward's Automotive Group, Southfield, MI USA.

Sales for 1956 to 1964: MVMA Motor Vehicle Facts & Figures, Motor Vehicle Manufacturers Association of the United States, Inc.⁵

tem of management was intended. And for decades, this environment persisted; businesses and institutions everywhere came to operate well within a remarkably narrow range of largely predictable conditions.

In the early 1970s, the environment abruptly shifted. Unpredictability skyrocketed; customers' interests began to shift. Businesses that had structured themselves based on a presumption of stability—operating at or near narrowly optimized rates to create great economies of scale to meet precisely forecasted customer needs—suddenly found themselves locked into a way of doing business that was ill-suited for these very different conditions. And each new bout of disruption brought with it the same result: workarounds, disruption, and crisis.

What is particularly striking is how closely this shift correlates to the timeframe in which Detroit's reputation—along with its market share—began its steep decline. This should have served as a wake-up call for the challenges American producers would face. Yet rather than making a fundamental change to accommodate these dramatically different conditions, they redoubled efforts to stretch their existing product focus and practices a little further—and in doing so achieved the same basic result.

Why does this create such a problem? *Going Lean* described that such unstable conditions cause substantial internal *variation*—deviations from intended plans, objectives, or outcomes within traditionally managed organizations built for stability. Variation leads to operational unpredictability, driving the need for workarounds, inventories, and other buffers—*waste* that draws corporate resources without contributing to creating customer value.

Key Point: What Is Waste?

The late Taiichi Ohno, a recognized architect of the famed Toyota Production System, identified seven forms of waste—excesses that do not add value but draw resources, attention, and create delay and overreaction that promotes more waste.⁶



1. **Overproduction** is caused when manufacturers build large quantities of items to maximize economies of scale or build large inventories to buffer against uncertain or changing demands.
2. **Waiting** is a frequent result of shortages, equipment failures, or other causes of delay from a system suffering the disruptive effects of operational discontinuities.
3. **Transportation** is one of the more visible forms of waste, including long travel distances that create the potential for delay and the need to handle material several times during delivery or receipt.
4. **Processing** waste includes extra steps that can creep in over time in dealing with recurring challenges like defects, shortages, and delays due to lagging, disconnected work, or flawed information.
5. **Inventory** waste is most apparent when manufacturers maintain large quantities of either end items or work-in-progress as a way to bridge value-creating activities whose flow is otherwise disconnected or uncertain.
6. **Motion** that takes time but does not contribute to the result is wasteful, such as workers searching for tools or “chasing parts” to prevent stoppages from stock-outs.
7. **Defects** are wasteful on multiple levels. They must be corrected, distracting from operations and causing work that does not create value. Removal of defective parts can cause material shortages on a production line, leading to several other forms of waste (waiting, transportation, motion). Frequent defects create uncertainty, which drives an increase in inventory, another form of waste.

Removing these excesses has become a primary target of today's cost-conscious managers. Yet waste (along with the variation that can drive its necessity) can be difficult and expensive to control—often it simply recurs once conditions again shift. Moreover, attacking waste directly can backfire, creating localized gains with little impact on the

bottom line while compromising firms' abilities to make more meaningful progress.

The real answer is to implement a solution that helps corporations and institutions better respond to change by restructuring to address *lag*—the real driver that acts to amplify this variation and drive up *loss* in customer and corporate value.

Solving the Problem of Lag

A key takeaway from *Going Lean* is that stable, predictable operating conditions can no longer be the central assumption of American business. What distinguishes truly lean corporations is their very different way of doing business that lets them perform consistently and effectively across a wide range of circumstances.

What exactly do the benchmarks of lean dynamics show? Although the reasons for their success are often explained through their many distinct characteristics and practices, the real answer is much more fundamental. They simply function with far less lag to amplify variation and disruption during changing business circumstances. This lets them quickly adapt, even meeting shifts head-on with innovative solutions—turning what others see as crises into opportunities for advancement.

But what exactly *is* lag? Lag is delay caused by discontinuities within a system; these act to amplify uncertainty and disruption, impacting the creation of value. To better understand this, think of the lagging response we have all probably faced when we adjust the temperature of our shower, an analogous situation described by MIT professor Peter Senge in his book *The Fifth Discipline*:

After you turn up the heat, the water remains cold. You receive no response to your action, so you perceive that your act has had no effect. You respond by continuing to turn up the heat. When the hot water finally arrives, a 190-degree water gusher erupts from the faucet. You jump out and turn it back, and, after another delay, it's frigid again.⁷

In much the same way, activities that are riddled with large inventories, extended schedules, and long travel distances tend to amplify the effects of uncertainty. The lag these discontinuities create

typically goes unnoticed when business remains steady and reliable. However, demand spikes or other sudden shifts ultimately lead to an exaggerated response that creates disruption and delay, causing customer value to rapidly degrade and waste to accumulate.

Consider the reaction to a sudden shift in production within a traditionally managed factory. Individuals performing compartmentalized functions typically have little warning of the changes before they strike. Ad hoc actions take over; workarounds quickly displace tightly synchronized plans, causing disruption to spread up and down the supplier chain. Defects and missed deliveries become rampant, while costs skyrocket. Each unforeseen change brings the need for new workarounds—added inventories and schedule padding, or more people and steps to facilitate expediting—most of which remain in place long after the crisis has passed. Over time these wastes accumulate, drawing ever-increasing resources while adding further to the underlying disconnects that are at the root of this challenge.

Correcting lag that causes this downward spiral of loss is what lean dynamics is all about. This book explains why doing so requires a logical, structured approach that progressively addresses the complex interrelationship between each of the major types of flow: operational, organizational, information, and innovation. The result includes not only achieving the lean outcomes that corporations typically seek to attain—greater quality, innovation, and operational efficiencies—but, most importantly, enabling new business strategies while mitigating the impact of dynamic conditions.

Key Point: Recognizing the Impact of Lag

A central tenet of lean dynamics is to address the lag that creates disruptive outcomes when businesses are subjected to uncertainty and change. This lag can come from disconnects between measurement and outcome, often the result of gaps in the flow of information, work activities, or decisions. The best way to understand the cycle of loss this creates is by thinking of how lag impacts each of the four primary forms of flow.



1. **Operational flow** is what we often think of when we picture the buildup of value—the progression of those activities involved in transforming products or services from their basic elements to their finished state, delivered into the hands of the customer. For traditional operations, smooth flow comes from precisely synchronizing inventories and activities to meet steady conditions. But when demand suddenly spikes, for instance, inventories can be depleted and schedule buffers overrun, causing shortages that disrupt standardization and synchronization across the business. The underlying disconnects become exposed, but not before amplifying disruption and crisis until operations finally stabilize at a state of loss that can be many times greater than before.
2. **Organizational flow** is characterized by the smooth progression of decision making by people at all levels and points across the creation of value, which prevents misdirection or overreaction to changes. Organizational structures designed to operate smoothly under normal conditions can quickly shift when crisis strikes. Steep hierarchical structures and strong functional divisions limit individuals' span of insight, which can amplify disruption when conditions change. The result can be delay followed by misdirection—missing the real issue or correcting problems with a sledgehammer that, with earlier intervention, might have been resolved with only a small tap.
3. **Information flow** works closely with operational and organizational flow in creating the smooth movement of accurate, timely information to the right people at all levels and points across the creation of value. Information systems seek to improve flow by sharing insights, just as a traffic report alerts drivers about disruptions ahead. Still, the best information can only do so much; a traffic report does little good if there are no exits from the highway. And treating these systems as a stand-alone solution can *increase* lag.
4. **The flow of innovation** can be seriously impacted within firms riddled with lag. The introduction of new products or services forces significant changes, which create variation



that can disrupt operational flow, particularly where buffers or other lagging factors are present. Corporations tend to avoid this by regulating innovation—extending their existing products and services as long as possible, replacing them only when the loss from making this change is clearly outweighed by the urgent need to generate new sales—something that makes little sense for competing in today's hypercompetitive global marketplace.

Approaching Lean as a Dynamic Business Solution

Just weeks after the tragedy of September 11, 2001, I arrived at one of the nation's busiest airports on my way to a conference. I was shocked by what I saw—what was usually a beehive of activity was virtually empty. Besides those who were working there, I saw few other people throughout the entire terminal.

The implications for the U.S. airline industry were enormous. The bottom had completely fallen out—people everywhere simply stopped flying. Most of the airlines responded to the sudden drop in demand the same way. Without passengers to fill their seats, they cancelled flights and grounded as much as a quarter of their fleet. Employees were either furloughed or laid off in droves. Despite taking such drastic measures, all of the major carriers suffered dramatic losses—with many ultimately falling into bankruptcy.

That is, except one.

In the midst of this crisis that shook at the industry's foundation, Southwest Airlines stood apart. It did not react to the severe downturn and other events following this crisis as its competitors had done. The company kept all of its planes in the air; its employees all remained on the job.⁸ And it was the only major airline to profit.

How was this possible? Because Southwest Airlines' way of doing business is not governed by the conventional system described earlier in this chapter. Whereas others had structured their businesses based on maximizing economies of scale—a way of doing business intended for profiting in a steady, predictable mass market—Southwest Airlines had gone a different direction entirely. As the company's

founder and former CEO, Herb Kelleher, put it: “Market share has nothing to do with profitability.”⁹ Instead, it seems, Southwest focuses on turning out steady value, no matter how conditions change.

By creating a strong connection between what its customers want and its own ability to efficiently operate, the company can quickly adjust to even dramatic changes in its environment. Its steady operations, decision making, information, and even innovation in the face of this and other challenges that followed demonstrate that this company’s approach stands apart from the rest.

Southwest Airlines is not alone; large and small companies (described in Chapter 9) within a range of industries also demonstrate that sustained business excellence demands a different focus. Despite their very different challenges and constraints, these companies display the following set of shared characteristics, which point the way for others to follow:¹⁰

Preparing for Uncertainty and Change

Firms that demonstrate lean dynamics consistently display an uncanny preparedness for change—even crisis. Their long histories of overcoming serious challenges seem to have given them a deep recognition that change and uncertainty are here to stay. Those who wish to follow in their path must develop a similar focus: They must develop the ability to thrive across a broad range of circumstances, steadily advancing their capabilities for delivering consistent, ever-increasing customer and corporate value.

But what *is* value? For these firms the meaning seems quite clear: Value is simply *what their customers say it is—even if they continue to change their minds*. This means that value is not static in nature; rather, it is constantly evolving, driven by changing technologies, competitive forces, and customer desires.

Satisfying this demand for *dynamic* value means seeking to understand, and even anticipate, customers’ needs and to satisfy them by constantly developing and rolling out new innovations—not just when existing offerings have run their course. It requires developing the means to consistently accomplish this, even as the business environment shifts. It also means dampening the impact that rolling

out new products and services traditionally has on internal operations and suppliers. And it means doing the opposite from traditionally managed firms that insist on dumping their own burdens on the customer. Instead, it involves creating the means to protect customers from some of the turmoil that affects them as a result of difficult times.

A powerful result is the extraordinary degree of customer trust this creates—a deep recognition that these firms will continue to deliver the kinds of solid value that customers really need. Customers at Walmart, for instance, trust that they do not have to shop around to get a better price when they find an item they like. And travelers trust Southwest Airlines to offer the lowest fares and get them to their destinations on time—without the frustration of the hidden fees or reduced services demanded by its major competitors.

This very different focus leads to increased competitiveness even during challenging business conditions—often while others struggle to simply remain viable.

Mitigating Lag Versus Chasing the Problem

Business improvement efforts tend to focus heavily on problem solving—isolating specific areas where issues are most evident and then targeting them for action. Many of today's lean initiatives begin with an initial exercise to identify waste in organizations' value streams: finding excesses within the progression of activities required to transform their products or services from their most basic elements and deliver them to the customer. Once they identify excess inventories, processing steps, excessive transportation distances, or anything else that draws resources but does not directly add value to the customer, the typical natural inclination is to target these directly. Yet, too often the result is far less than what they expected.

While there is little doubt that mapping the value stream is an important step toward understanding the problems inherent in traditional management methods, it also creates a dangerous temptation for directly chasing these problems. The simple truth is that *the best solutions do not necessarily follow the problem*.

For instance, many begin at the end of the line, taking action where disruption accumulates and waste is most evident. But the underlying causes are often complex; correcting it might require making changes

that are for less localized (as described in chapter 4). Moreover, what happens when “upstream” activities send disruption down the line to these “leaned out” operations? Disruption reemerges—probably even greater than before—overwhelming activities that no longer have buffers to dampen its effects.

What then should be the focus? Creating a structured solution that addresses the underlying reasons why waste accumulates in the first place. Rather than attempting to advance by using methods founded on the presumption that business will remain stable and predictable over time, those seeking to become lean must fundamentally rebuild their business to address the forces of uncertainty and change head-on.

This means successively addressing the lag that impacts each of the four elements involved in flowing value described earlier, implementing changes in a way that mitigates the dynamic effects that cause waste to accumulate, as will be described in subsequent chapters of this book. The result is farther-reaching benefits that organizations can much more quickly and consistently achieve.

Key Point: Why Chasing the Problems Is Not the Answer

Going Lean described that lean dynamics benchmarks like Toyota, Walmart, and Southwest Airlines did not attain their powerful capabilities by charging straight ahead at visible problems or implementing those initiatives that are most visible on the surface. Instead, they focused on transformational objectives for creating the underlying foundation of smooth flow on which their success depends (described in Chapter 6). Some important considerations for applying this focus include:

- **Understand why changes are needed.** Because making changes to processes can be expensive and disruptive, understanding the bottom-line rationale and larger benefit is critical *prior* to embarking on waste reduction, standardization, or other process streamlining activities.



- **Focus on *transformation* rather than following the problems.** To avoid targeting waste reduction without a central focus, a few simple questions should be considered: Are proposed efforts simply a way of stretching the current approach to doing business a little further? Is this the right sequence for these activities (per the framework described in Chapter 6)? Is this the best way for the business to spend its time, attention, and resources?
- **Insist on *dynamic transformation*.** Rather than simply optimizing for steady-state conditions, efforts should focus on identifying and addressing disconnects in flow and the lag they create. This can help ensure that dynamic effects that create disruption and loss are being reduced.
- **Relate *all* lean efforts to bottom-line metrics.** Too often programs aimed at discrete waste reductions do not take into account the great costs of generating them or the inadvertent shell game in which some areas gain at the expense of others (further explained in Chapter 6).

Promoting Dynamic Stability

How can corporations and institutions consistently meet or exceed customers' demand for dynamic value amid the challenging circumstances facing businesses today? Create a fundamentally different structure—one that is *dynamically stable*—that diminishes disruption to operations, decision making, information, and innovation in the face of changes or disruptions.

Traditionally managed companies tend to be dynamically unstable, meaning that they perform poorly when pressed to operate outside of their intended range of conditions. As described in *Going Lean*, the result is much like pushing a boulder up a hill: They must redirect enormous resources just to keep from falling backward. Firms demonstrating lean dynamics instead create a structure that accommodates a much broader range of circumstances, essentially flattening the hill—dampening variation before it has a chance to build. This lets workers and managers maintain their focus despite enormous shifts,

rather than fall backward, as they otherwise might, with every new challenge.

How is this possible? Toyota, for instance, does this by deliberately mixing together and varying the types and quantities of items it makes on a given production line—producing each in small lot sizes that more closely approximate the rate of customer demand. This dramatically reduces demand uncertainty (which is instead amplified by traditional methods). Toyota's approach of co-producing *families of items* (groupings of items that share common characteristics so it is possible to seamlessly shift from processing one to the next) creates a mechanism for dampening the variation that changing conditions promote (an effect described in Chapter 4).

The result is creating the ability to dampen out the variation that traditionally results from sudden shifts, instead promoting the ability to sustain a consistent focus even during some of the most challenging circumstances. This helps these companies not only survive the downturns, but continue to advance innovation and pursue opportunities to create new value.

Challenging the “Culture of Workarounds”

American corporations and institutions are tremendously adept at dealing with crises. Their ability to overcome adversity and respond quickly when conditions do not turn out as planned has become essential to traditional business management methods. Rising to the top requires a strong capacity to make last-minute saves, like a football player who makes a diving catch in the end zone, for results that are immediate and visible. Yet such a culture runs counter to creating the consistent, dynamic value that is so critical to competing today.

Those striving to go lean must seek to create far greater consistency in their activities, designing their progression of work such that it can remain stable across the entire range of circumstances in which they operate. Lean capabilities, rather than individual heroics, mitigates the need for quick fixes; this can drive the capacity to sustain the rigorous and responsive progression of work, decision making, information, and innovation without the need for resorting to unplanned work, extra steps, or other wasteful measures in response to changing conditions. Achieving such consistency, however, takes

more than restructuring the mechanical aspects of a business; it requires shifting the underlying culture that drives workarounds to flourish.

Changing this imbedded culture represents a central challenge for those implementing lean dynamics. People across the enterprise—managers, workers, and even suppliers—must understand that the most important part of the job is no longer last-minute heroics; instead, they must focus on preventing crises from occurring in the first place. Together personnel must create approaches for continuously improving the dynamic stability of the company and identify ways to forge ahead with new forms of value for the customer and corporation—regardless of the challenging conditions they might face.

Recognizing the Need for Transformation

Jack Welch observed that “only satisfied customers can give people job security. Not companies.”¹¹ Nowhere is this clearer today than in America’s automobile industry. For decades, its workforce and management focused on mitigating internal risks, seeking concessions that would strengthen their respective objectives for workforce protections and controlling labor costs. But all the while they missed the much greater risk—that building agreements based on past measures of success would only further entrench a way of doing business that was poorly suited to meeting the changing needs of their customers.

And now each side risks losing it all.

Firms and institutions must come to see that the real risk lies not in departing from what has become familiar but in sticking with what worked in the past. They must accept that the world is a much different place than it was when their traditional way of doing business was first created. Uncertainty and change have become the norm; customers today expect much more, and in the age of global business and the Internet, they have the means to get it. Conditions have become much more severe; case after case demonstrates the perils of standing still when challenges continue to evolve.

Despite its challenges, sustained excellence in this more severe business environment *is* possible—but only for those who are willing

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to step away from their false sense of security and embrace the principles that distinguish lean dynamics.

The critical challenge for most firms is not only to overcome their preconceived notions and recognize what going lean is really all about but also to translate it, beyond principles, into rapid, visible results and practices that address the real issues and challenges they face. Unfortunately, this is where lean efforts very often fall short. It is far easier to minimize meaningful principles in favor of slogans and simplistic plans that can be quickly grasped but do not build the needed foundation for sustained progress.

The next chapter describes some important steps to building a foundation and creating a case for a solid direction that will win deep-rooted support from everyone across the organization who will contribute. For this to succeed, however, each must clearly understand what must be done and why he or she must change in a way that is meaningful and actionable.

Key Point: Major Distinctions of a Lean Dynamics Approach

Lean dynamics recognizes that traditional methods designed for turning out value based on a presumption of stability and predictability have become stretched to their limits in today's environment of uncertainty and change. Value is dynamic; it is what customers say it is—even if they keep changing their minds. Lean dynamics is about adapting to this changing value and consistently driving efficiency, quality, and innovation across a wide range of conditions.

- Traditional methods build in disconnects by design—gaps within operations, decision making, information, and innovation that together amplify variation and increase its disruptive effects. This *lag* typically goes unnoticed when forecasts prove steady and reliable. However, demand spikes or other sudden shifts ultimately lead to an exaggerated response when subjected to uncertainty and change.

- The greater a business or an institution's lag, the greater the potential to overreact to changes, amplifying internal *variation* and increasing disruptive outcomes. This lag can come from a range of sources: from disconnects between measurement and outcome to discontinuous flow of information, operational steps, and decision making.
- The best way to find lag is to identify its adverse outcomes, the most visible of which is the accumulation of *waste*. Waste is often the result of operating in dynamic conditions but with a management system optimized for stability.
- The bottom-line result is a *loss* in value. Loss is the portion of the value that the business or institution must expend in order to turn out this value—including waste. Reducing waste is therefore critical to maximizing bottom-line value.
- Going lean means more than addressing discrete elements of waste, each of which can have an uncertain impact on the bottom line. It means broadly minimizing loss—not only for existing circumstances but across the wide range of uncertain and changing conditions firms and institutions increasingly face as part of doing business within today's dynamic conditions.

The result is the strong, steady value—the ability to consistently innovate, profit, and advance into new markets within even the most severe conditions—that marks the benchmark of lean dynamics.