Building an Organization-wide Cultural Training Curriculum

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Preface

This monograph describes the proper approach to building an organization-wide cultural training curriculum and provides an example of its use and product. It is organized into three sections.

Section 1 provides an overview of what training is, the types of training curricula that exist within a business, and how a training curriculum is built.

Section 2 provides an example of building an organization-wide cultural training curriculum. It describes building such a curriculum for an organization adopting the lean enterprise commercial model. It begins by analyzing the strategic component of this model and deriving from it the common requirements for conduct that it requires of every member of the organization that a lean curriculum is built. These requirements address one's personal behavior and how he or she needs to work with others.

Section 3 outlines a sample training curriculum that prepares people with the knowledge and skills they need to successfully implement a lean enterprise.

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INTRODUCTION

This monograph describes the proper approach to building a lean curriculum and provides an example of its use and product. The monograph is organized into three sections. *Section 1* provides an overview of what training is, the types of training curricula that exist within a business, and how a training curriculum is built. *Section 2* describes the strategic component of the lean enterprise commercial model. To build a lean curriculum, one must analyze this content and understand the common requirements for conduct every member of a lean enterprise must satisfy. These requirements address one's personal behavior and how members must work together to establish and sustain a lean enterprise. *Section 3* outlines a lean training curriculum derived from such an analysis. It identifies the knowledge and skills the curriculum must teach to prepare people to successfully implement a lean enterprise.

SECTION 1 AN OVERVIEW OF TRAINING AND HOW A CURRICULUM IS BUILT

Formal training is the systematic process that enables a person to acquire new knowledge or skills or greater proficiency in applying either. While training creates conditions that promote learning, it is distinct from learning. Learning is a persistent change in performance accomplished by a person through imitation or discovery refined and strengthened by repeated practice and reflection. Formal training requires a production process that involves an instructional designer, developer, and a delivery mechanism—for example, an trainer conducting classroom training or a computer implementing a computer-based instructional program. Training is organized into courses that have explicit goals; documented instructional content; tell, show, and do methods for transferring knowledge and skills and elevating proficiencies; and a means for verifying that the participant in training has acquired and can successfully apply the competency taught. Learning, on the other hand, is an inherent feature of living organisms. Also, learning is always necessary, formal training is not. Our competencies at birth are insufficient to our needs for survival. We satisfy our added needs by exercising our inherent ability to learn. As our lives expand in scope and direction, we continue to use our ability to learn to acquire the additional competencies we need. While it is true that effective training always accelerates learning—clearly, it is not always necessary. Obviously, if a person already has a required competence, training is irrelevant. Training would also be unneeded if a person was fully able to acquire a competence on his or her own in a timely manner. On the other hand, when a person needs a set of knowledge or a new skill and cannot acquire that competence on his or her own in a timely manner, formal training is essential. This circumstance is more likely to occur the more different the new competency is from other competencies one already possesses, the more complex it is, the scarcer models of its use are, and the less proficient the person is as a learner. Formal training also becomes essential when errors in self-guided learning are potentially destructive.

Categories of Curricula

In general, commercial organizations train three categories of curricula: (a) cultural, (b) technical, and (c) regulatory.

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- *Cultural Curriculum* - Courses in the cultural category educate members of an organization about the role each member must fulfill and how people within the organization are expected to work together. The role referred to here is that set of responsibilities that *everyone* is expected to fulfill irrespective their technical specialty areas or job type (e.g., manager versus line worker). This role is defined by the commercial model the organization adopts, especially the purpose, vision, and values and the competitive and organizational strategies that model specifies. In organizations implementing the traditional producer-focused, profit-driven model with its top-down, function-oriented organizational approach, every employee is expected to receive, accept, and execute their assignments; adhere to corporate edicts; operate within their chains of command; and advance by competing to best meet the expectations of their jobs as defined by their bosses. Much of the competencies required for this common role have been trained through the normal educational system where, from the earliest grades, students are trained to pay attention, get and implement assignments, and behave in a disciplined manner—meaning, consistent with the dictates of whoever is in charge. From time to time, however, special issues arise that introduce cultural initiatives like ethics training or diversity training. The readiness of people to implement the common role required of every member of an organization would be different in an organization adopting a less prevalent model, like the lean enterprise model. Such models[1] make expectations not common in the workplace nor generally indoctrinated in the classrooms and curricula that educate the general labor pool.

- *Technical Curriculum* - Courses in the technical category prepare people to execute roles requiring specialty knowledge or skills, competencies that only a subset of people within an organization must use. It is this fact alone that differentiates technical training from other training. It is not that technical training instructs people in some scientific, mathematical, or engineering task nor that it teaches well defined, systematic processes. All *performance-based training* instructs people in doing a task and provides them a well defined, systematic process for accomplishing it. Thus, for example, communications training is no less "technical" in nature than training in operating a lathe.[2] In point of fact, training implemented for any role that specializes the performance of a set of functions to a subset of employees constitutes an instance of technical training. Thus, in traditional organizations—supervisory, managerial, and executive training should be understood as technical training.

- *Regulatory Curriculum* - Courses in the regulatory category instruct people in behaviors required by a governmental body through law or regulation. Training required to satisfy the regulations of the Occupational Safety and Health Administration (OSHA) represents one example.

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[1] Other examples of models for commerce that make different expectations are Deming's Quality model (Vitalo, 2013), The B-Corporation (Rosenberg, 2011), and the Valve approach (Varoufakis, 2012).

[2] The term "technical" is derived from the Greek word, "techne," which means practical knowledge. An interpersonal skill such as "crediting" is as fully guided by practical knowledge as is the skill of adjusting the timing on a car engine.`

Training in Support of Organizational Change

By definition, implementing a change implies that you are asking people to do something different from what they have done. Therefore, the requirements of successful change always include that people be prepared with the knowledge, skills, and proficiency levels they need to perform their new roles. If the change is limited to a new procedure that introduces no new technology, supporting people's learning may require no more than briefing them about the procedure and answering any questions they have concerning how it should be implemented. The issue is quite different when an organization adopts a wholly different commercial model. Such *organizational change* is extensive in scope and fundamental and provokes a redefinition of the basic role of every member of an organization and how they should work together. Such change initiatives are commonly referred to as "transformational." Changing a business's commercial model from the traditional producer-focused, profit driven model with its usual function-centric, top-down, hierarchical distribution of authority and responsibilities to a lean approach to commerce is an instance of transformational change. It involves adopting a wholly different strategic direction, employs a wholly different operational approach, and implements executive functions in a very different manner than occurs in the traditionally run business.[3] As Deming understood, such transformational change requires a transformation in people (Deming, 2000, p. 92). People must incorporate a new perspective on what the end of commerce is, how it is achieved, what their personal role is in making that happen, and how they need to operate together. The education and training effort required to enable people to implement their new role given a transformational change, therefore, is far more extensive and demanding. Such an effort must be driven by a properly defined new cultural curriculum—a sequenced set of courses that cumulatively prepare people to succeed in implementing the company's new approach to commerce.

How a Lean Training Curriculum Is Developed

Most lean initiatives assemble the curriculum they will train by one or more of several methods. They may adopt what other lean programs have used. They may identify the significant concepts and tools that populate the lean model—e.g., waste, continuous improvement, value stream analysis, Total Productive Maintenance, or hoshin kanri planning—and define their training to address these topics. Or, they may search catalogs of commercially available lean courses for ideas or off-the-shelf offerings. There is, however, only one proper way to develop a training curriculum. It relies on a systematic analysis of the role required of every employee by the new model and the identification of the competencies he or she needs to perform it correctly. It sequences these competencies so that one's passage through mastering them is efficient and most likely to result in their successful acquisition and application.

Why is this approach the only correct approach? For three important reasons. The *first reason* applies to anyone developing a curriculum. It is that the just described development process is the industry standard for the field of instructional systems design, the professional discipline one

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[3] Executive functions are the activities that maintain the organization and guide its progress to success. They include planning, communicating, and securing essential efforts (Barnard, 1968).

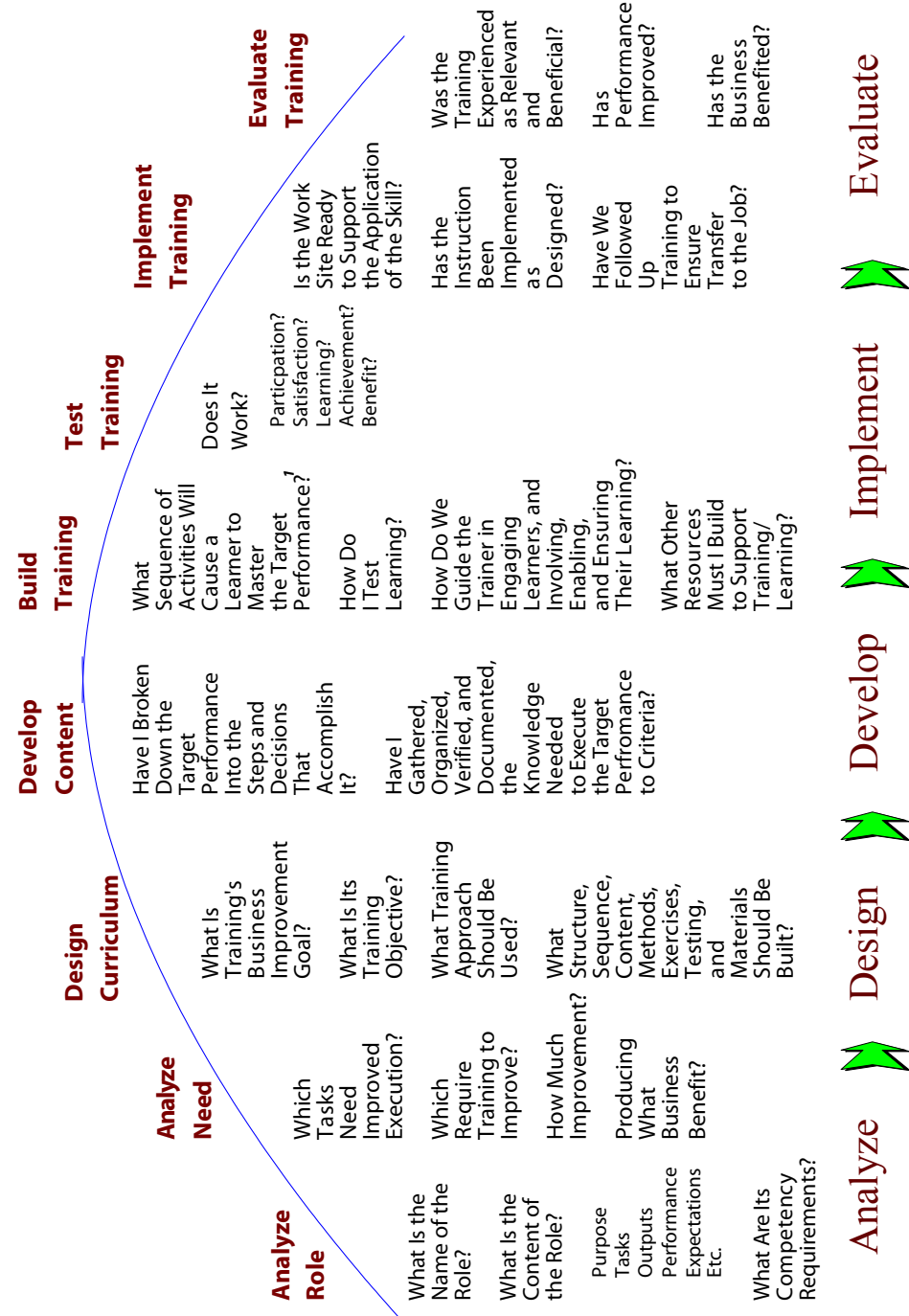## Building an Organization-wide Cultural Training Curriculum

applies to build a curriculum. It was developed as a "best practice model" in 1975 by Florida State University for the U.S. Army Training and Doctrine Command (TRADOC) based on lessons learned from failures and successes in training (Branson, Rayner, Cox, Furman, King, and Hannum, 1975; Richmond, Wrench, and Gorham, 2009). The model was originally labeled the "Systems Approach to Training (SAT)." A later study by the U.S. Navy indicated that 80% of all training problems reflected a deficiency in use of SAT. This industry-standard approach is currently referred to by its acronym, "ADDIE." The acronym stands for Analyze, Design, Develop, Implement, and Evaluate. Exhibit 1, next page, provides a detailed representation of the approach. The *second reason* why ADDIE is the correct approach is because it satisfies the requirements of U.S. Government regulation and case law for the proper way to build training content so that what it teaches reliably relates to what people need to learn in order for them to succeed in their actual roles. Such training content has employment decision consequences—that is, if the content is not correct or complete such that some or all the people receive training that fails to enable their success and action is taken against them for their failed performance, those people lose their jobs. They experience what is termed an *adverse action* that has economic consequences for them. The Uniform Guidelines on Employee Selection (1978) define, among other things, the legally defensible approach to defining training content such that one can demonstrate to the satisfaction of a court that what was trained was indeed what a person needed to know and be able to do to succeed in their roles. The ADDIE model satisfies those requirements. The *third reason* why ADDIE is the correct approach is very specific to people implementing the transformation of an organization to a lean enterprise. A core principle of lean management, also derived from Deming, is that responsible management makes decisions based on knowledge and not mimicry or intuition. As Liker and Convis (1999) describe in *The Toyota Way to Lean Leadership*, lean managers make decisions based on purpose, principle, and verifiable facts using systematic processes. Shook recently reiterated this point clarifying that lean leadership involves the "rigorous application of scientific *thinking*" (Shook, 2013). The ADDIE model is the current "scientific" standard for defining and building effective training curricula.[4]

Building a Lean Curriculum for an Organization

Training to implement one's role within a lean enterprise is culture training. To build the cultural curriculum for an organization, one must analyze the set of responsibilities every member of the enterprise must implement if the organization is to succeed. This set of personal responsibilities is deduced from an analysis of the purpose, vision, and core values and the competitive and organizational strategies specified by the commercial model the organization has chosen to implement. Similarly, every individual's responsibilities for how he or she will work with others are also derived from this same analysis (see Exhibit 2, page 6). Once this common role and how people must work together is understood, the next step is to uncover what knowledge, skills, and levels of proficiency people need to successfully fulfill these expectations. Courses constructed to teach this set of competencies make up an organization's cultural curriculum. We will use the

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[4] There are instructional designers who see the ADDIE model as obsolete favoring instead a type of rapid development prototyping approach. This view, however, fails to appreciate the different purposes served by each approach and especially fails to understand the requirements of U.S. Government regulation and case law relating to the legally defensible approach to defining training content.

Exhibit 1. A Detailed View of the ADDIE Model

Analyze Role

What Is the Name of the Role?

What Is the Content of the Role?

Purpose
Tasks
Outputs
Performance Expectations
Etc.

What Are Its Competency Requirements?

Analyze Need

Which Tasks Need Improved Execution?

Which Require Training to Improve?

How Much Improvement?

Producing What Business Benefit?

Design Curriculum

What Is Training's Business Improvement Goal?

What Is Its Training Objective?

What Training Approach Should Be Used?

What Structure, Sequence, Content, Methods, Exercises, Testing, and Materials Should Be Built?

Develop Content

Have I Broken Down the Target Performance Into the Steps and Decisions That Accomplish It?

Have I Gathered, Organized, Verified, and Documented, the Knowledge Needed to Execute the Target Performance to Criteria?

Build Training

What Sequence of Activities Will Cause a Learner to Master the Target Performance?[1]

How Do I Test Learning?

How Do We Guide the Trainer in Engaging Learners, and Involving, Enabling, and Ensuring Their Learning?

What Other Resources Must I Build to Support Training/Learning?

Test Training

Does It Work?

Particpation?
Satisfaction?
Learning?
Achievement?
Benefit?

Implement Training

Is the Work Site Ready to Support the Application of the Skill?

Has the Instruction Been Implemented as Designed?

Have We Followed Up Training to Ensure Transfer to the Job?

Evaluate Training

Was the Training Experienced as Relevant and Beneficial?

Has Performance Improved?

Has the Business Benefited?

Analyze ▸ Design ▸ Develop ▸ Implement ▸ Evaluate

1. Master means to acquire, retain, use, and achieve.

Exhibit 2. How an Organization's Cultural Curriculum Is Defined

The Business's Strategic Direction as Specified in the Commercial Model It Has Chosen

Purpose Vision Values

Competitive Strategy

Organizational Strategy

What Will It Take to Realize This Direction?

What Everyone Must Do

How Everyone Must Work Together

The Basic Role Every Employee Must Accomplish

How Employees Need to Work Together

What Knowledge and Skills Are Required to Fulfill These Expectations?

The Core Competencies Every Contributor to a Lean Enterprise Needs

The Organization's Cultural Curriculum
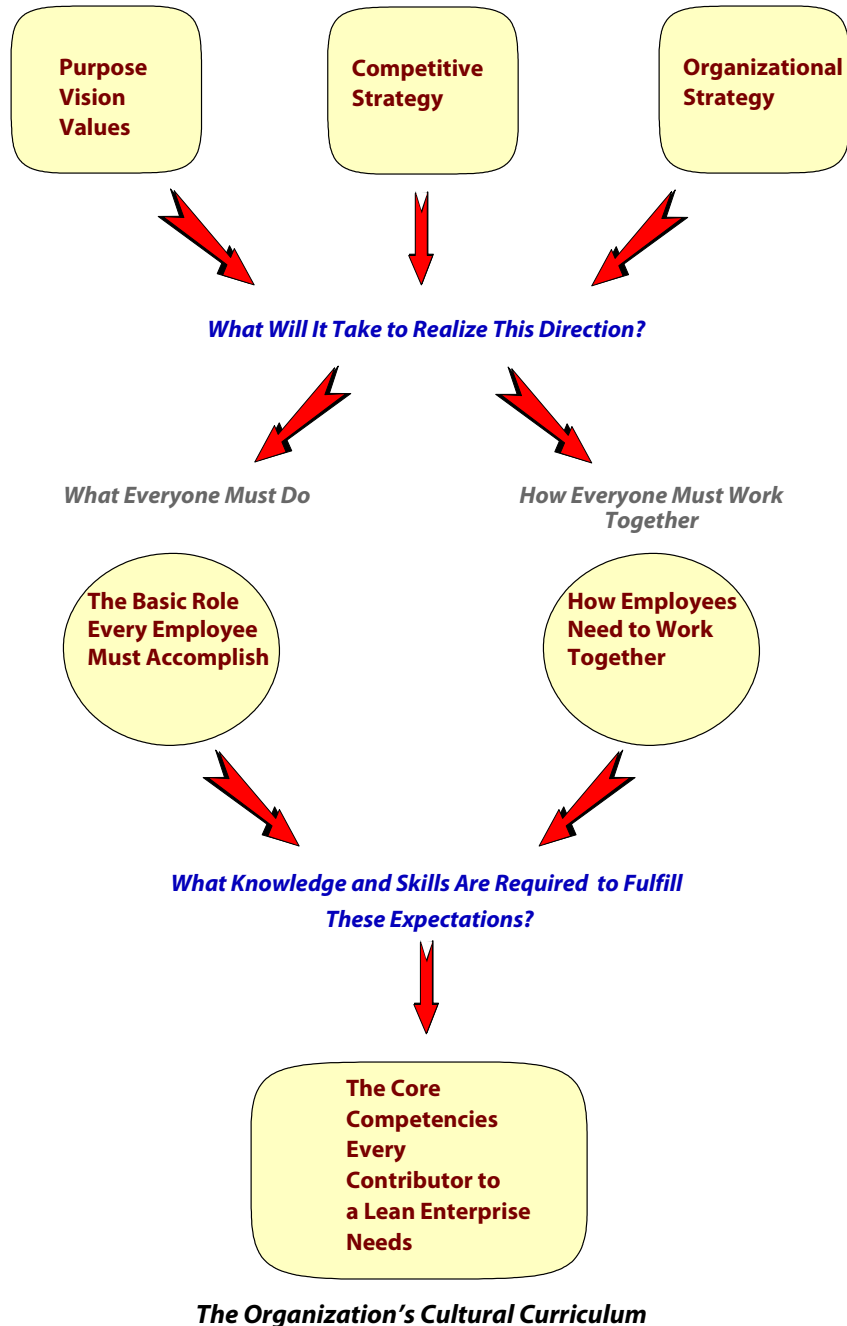
process depicted in Exhibit 2 to construct our lean curriculum. Based on its guidance, we start our work with an analysis of lean's strategic perspective.

SECTION 2 THE STRATEGIC COMPONENT OF THE LEAN ENTERPRISE MODEL[5]

The strategic component of every commercial model records the purpose of commerce as defined by the model and the knowledge one uses to guide a business to achieving that purpose. These ideas define the parameters of what is allowable under the rubric of the model. They enable decision makers to ensure that the specific mission, goals, and marketplace strategies they define for their business are consistent with the dictates of the model they are adopting. They also guide them in planning and building the type of organization required to ensure that their strategy and operations are properly carried out.

Lean Enterprise's Purpose and Vision

Much of the strategic thinking underlying the lean enterprise model derives from the teachings of W. Edwards Deming. Deming taught the leaders of Japanese industry about his quality approach to commerce through the auspices of the Union of Japanese Science and Engineering (JUSE) in the early 1950s. Prior to his arrival, Homer M. Sarasohn and Charles Protzman instructed Japanese management in thinking that incorporated Deming's teaching. It was Sarasohn who recommended to MacArthur that he bring Deming to Japan. Deming went on to play a pivotal role in enabling the resurrection of Japanese industry to its place of worldwide importance in the post World War II era. His 90 hours of direct instruction to the leaders of Japanese industry inspired a renewed confidence and redirection of their commercial efforts. Indeed, Japan as a nation recognized Deming's contributions to the resurrection of their industry by extending to him the Second Order Medal of the Sacred Treasure. Deming's contributions to the lean model as practiced by Toyota Motor Corporation were personally acknowledged and appreciated by Dr. Shoichiro Toyoda, the son of the founder of the Toyota Motor Corporation and its chairman from 1992–1999. "Everyday I think about what he [Deming] meant to us," said Dr. Toyoda, "Deming is the core of our management" (Toyoda, 1988). After a detailed analysis, Vitalo (2013) concludes that "Deming's work represents the heart and soul of lean enterprise" (page v). The core elements of Deming's thinking that underpin the lean enterprise model include:

- his anchoring of enterprise on maximizing the delivery of value to customers as judged by customers,

- his view of the absolute synergy between personal development and organizational success,

- his inclusive perspective of whom must benefit from commerce,

- his identification of learning as the engine of success, and

- his continuous pursuit of perfection defined as a 'zero loss function.'

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[5] This description of the Lean Enterprise model's strategic perspective represents the thinking of Vitalo (2022). As Vitalo and Bujak (2022) make clear, there are multiple understandings of the purpose the Lean Enterprise seeks to realize.

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This judgment of Deming's role seems further supported by the description of the Toyota culture provided by Liker and Hoseus (2007) and their assertion that it is this culture that is the heart of lean enterprise. The culture they describe fully aligns with the teachings of Deming. While most lean writers anchor their discussion of the lean model in Toyota's practice, the strategic component of that model is more properly anchored in the fundamental thinking of its teacher.

Purpose

Lean commerce seeks to maximize the delivery of value to customers. Value is maximized when a commercial transaction delivers only "value" and that value optimizes the recipient's success. A value is understood as a utility, something that enables the party to achieve the purpose he or she seeks to accomplish. Within lean commerce, value received is judged from the perspective of its recipient.

The lean model prescribes accomplishing its purpose by continuously improving the utility of its offering and the buying–benefiting[6] experience it provides and by removing waste from all its operations. Continuous improvement is achieved by refining one's understanding of the customer's purpose, capabilities, and setting and discovering better ways to enable the customer's success. The dual focus on elevating value and eliminating waste is lean's way of representing Deming's notion that quality is maximized when the loss function is zero. As Deming explains, there is loss of value when *either* the nominal output is less than the ideal as defined by what the customer needs to maximize his or her success *or* there is variability in the achievement of that ideal. One affirmatively adds value by aligning the nominal value produced to the ideal and reduces variability by eliminating all waste.[7]

The achievement of lean's purpose is conditioned by a singularly important requirement. This purpose must be realized in a way that benefits all parties to commerce (e.g., employees, owners, suppliers, communities) inclusively. By advancing the success of all parties to commerce, lean commerce expands the opportunities for the exchange of resources among people. It does this by increasing their capabilities to produce value in both personal and material ways. On the personal level, it builds self-efficacy, a individual's confidence in his or her ability to produce effects (Bandura, 1994). Self-efficacy enhances a person's readiness to take on new initiatives, set challenging goals, and sustain one's effort in accomplishing them. It supports interest in and focus on one's tasks and predicts greater success. Lean commerce also systematically develops people's ability to learn. The power of human learning is the engine of success within a lean enterprise. Its emphasis on learning and the systematic development of that capability through training and practice equips people to respond to the disappearance of commercial activities due to the introduction of new technologies or other circumstances. People bridge the cycles of decline of one industry and birth of new industries by applying their ability to learn and adapt. Human learning is both the engine of commercial success within the lean approach to commerce and the second

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6. The buying–benefiting experience includes all the activities the customer must engage in to access, acquire, prepare to use and use an offering; maintain it in a useful state between uses; dispose of it or its byproducts; and extract benefit from it. Each involves an investment of resources by the customer and each should return a value or be eliminated as waste.

7. The notion of "zero loss function" is not an absolute. In practice, Deming demonstrated that, "very close may be as good as best" (Deming, 2000, page 219).

factor that makes commerce sustainable across time. On a material level, the value acquired from prior commerce provides an expanded base for launching new commercial efforts. For example, it may provide the individual with a new means of production. Peoples' elevated personal and material capabilities to engage in commerce create new opportunities for the exchange of value between them. In this way, the lean approach to commerce makes commerce sustainable.

Two other requirements must be satisfied for the purpose defined by lean to be fulfilled. First, the value delivered to customers must be *real* and second, feedback on performance must be *fact-based*.

Values Delivered Must Be Real

The benefits that commerce delivers to each party must measurably enhance that party's ability to succeed in accomplishing his or her purpose. Commerce only succeeds when the parties involved exchange *real* value. *If the utility received is apparent and not real, each party's capabilities are not enhanced.* The illusion of benefit, from a lean enterprise perspective, only dissipates the recipient and creates the opportunity for exploitation. It drains a counterparty's resources making that party less and less capable of future commerce. Only the delivery of real benefit elevates the counterparty's resources. His or her increased resources make future commerce increasingly possible and, over the long haul, sustainable. Thus, if a person seeking nutrition is provided a substance that appears nourishing but is not, even if it is capable of stimulating in the recipient a feeling and report of satisfaction, the end of lean

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Exhibit 3. The Purpose, Vision, and Values Elements of the Lean Enterprise Model

Purpose

To: Maximize the success of each customer in the pursuit for which he/she applies your offering

For: Customers and all other stakeholders

By: Continuously improving the utility of one's offering and the buying–benefiting experience one provides and by eliminating waste in all activities

So That:
- ▶ Customers prosper
- ▶ Opportunities for future commerce are expanded
- ▶ The business grows and employment opportunities are expanded
- ▶ The growth and success of all stakeholders is elevated
- ▶ Commerce is sustainable

Conditions:
- ▶ The goal must be realized in a manner that benefits all stakeholders inclusively
- ▶ The value delivered must be real, not illusory
- ▶ All decisions, judgements, and problem solving must be fact-based and use sound, systematic approaches

Success Criteria:
- ▶ Customers prosper as a result of the offering they are provided
- ▶ Stakeholders succeed and prosper as a result of their application of lean thinking and teamed effort to maximize value delivered to customers and eliminate all waste
- ▶ Commerce grows and is sustainable

Vision

An interdependent and dynamic system organized around a customer and made up of a producer, its suppliers, its delivery agents, and all other stakeholders each of whom is aligned on purpose, teamed in their performance, energized by their personal conviction, capable of leveraging learning to continuously improve everything they do, and pioneering forever in the pursuit of maximizing customer value.

commerce is failed. Since that person is not nourished in fact, his or her ability to survive and thrive is diminished, not enhanced, and the opportunities for future commerce by and with that party are diminished.

Feedback Must Be Fact-Based

Each party's judgment of benefit received must be founded on valid information that is rationally evaluated. *If the feedback provided to a lean enterprise is not valid, it will not be useful in determining to what extent the model's purpose has been realized nor will it enable each party to commerce to improve in the value he or she receives or delivers.* Valid feedback requires that the party receiving it rationally evaluates its meaning. Only then does feedback reveal to what extent one's purpose has been realized and provide a sound basis for learning. The absence of either of these factors—valid information and rational evaluation—denies the possibility of lean commerce. The model is rendered useless since its effectiveness in producing its outcome becomes unknowable. Also, without reasonable inferences drawn from fact-based information, no one can apply the critical tool of learning to the task of continuously improving their delivery of value.

Vision

In Deming's vision the end produced by maximizing the quality delivered to customers is to benefit *all stakeholders inclusively*. "The aim proposed here for any organization is for everybody to gain—stockholders, employees, suppliers, customers, community, the environment" (Deming, 2000, p. 51). Deming views a commercial enterprise as a system comprised of all its stakeholders committed to implementing the quality approach to commerce. This interdependent and dynamic system operates synergistically. Its aim establishes serving the customer as its primary value. The essence of Deming's thinking is represented in lean's vision of the extended value stream, a graphic of which he depicted to Japanese management as early as 1950 (Deming, 1982, page 4). Within the extended value stream, all parties join in adopting lean thinking and pursuing together the maximization of value as delivered to the customer and the elimination of all waste. It is explicitly reflected in the Toyota Motor Company's expansive list of the stakeholders to its commerce that it recognizes and seeks to benefit inclusively by aligning them in a common pursuit of perfection. Exhibit 3, prior page, offers a succinct statement of a business's purpose, vision, and values as defined by the lean commercial model.

Lean's Core Values

Core values are the principles of conduct that people implementing an enterprise abide by as they pursue the enterprise's commercial purpose. Personal values may derive from training or indoctrination, personal beliefs or convictions, or from learning extracted from one's experience of actions taken and their consequences. The values that guide a commercial model, however, are simply the principles of conduct derived from the logic of the model as interacted with the relevant findings of the social sciences. In essence, they are the guidelines that must regulate one's performance if that performance is to realize the purpose specified in the commercial model. As a result, the core values of a commercial model have no "moral" underpinning— meaning, they

are not founded in religion, personal conviction, or a theory of ethical behavior. Despite what one might infer from their label as "values," they have no á priori claim to "goodness" or "correctness." They also are *not* aspirational in nature, but mandatory. The practices that flow from their dictates *are required* for the realization of the purpose of commerce defined by the commercial model to which they relate. Finally, almost always, the core values of the commercial model a company adopts are *not the public speech version* of core values that companies publish on their web sites or in their promotional materials—at least in instances where the company is adopting the dominant producer-focused, profit driven model. By our analyses of such companies, their public speech expressions of core values are constructed for persuasive purposes and are not reflected in the real conduct of the companies communicating them.[8]

Different Commercial Models Imply Different Values

If one commercial model defines its intent communally (e.g., generate benefits for all stakeholders inclusively) and another defines it individually (e.g., maximize personal profit from each transaction), the core values that guide commerce in each case differ. A communal intent requires a collaborative effort toward the same end across all activities relevant to accomplishing that end. Research on human relations establishes that dimensions such as respect, genuineness, and empathy are essential to building relationships in which there is trust, the open exchange of information, and honest collaboration about ends and means.[9] Within the lean enterprise model, these qualities of conduct are usually summarized under the rubric of "respect for people." It is a behavioral imperative for people implementing a lean enterprise—a model whose intent is communal benefit—because showing interest in and understanding of the perspectives of other participants is necessary to engage them effectively in collaborative activity. Indeed, the requirement for eliciting collaboration extends beyond just understanding the other party's perspective to demonstrating by one's behavior a valuing of that party's expectations, ideas, and concerns. Expressions of understanding are necessary for but not equivalent to respecting another's perspective. Respect requires that each party find something of real value in the other party's perspective —some genuinely held common ground upon which they can build a relationship. This common ground serves as the basis for working together. Once present, the parties can work together to find solutions to differences that account for each other's perspectives, should differences exist. The process is much as Follett, another contributor to the lean enterprise model, describes when she explains her concept of "integration" as the method for constructively resolving conflicts of perspectives (Follett, 1995). It begins with clarifying and confirming each other's perspective, finding common ground, sharing constructively the concerns each has for elements in the other's position, and searching together for ways to accommodate the differences while preserving the ideas the parties hold in common and progressing to the goal they seek to accomplish together.

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8   In fact, we use a different approach to uncover the real core values of a going business. Rather than derive them from the company's public speech, we analyze the observed commercial behavior of the company and induce the principles that explain the types of ends served by the company's observed behavior. In almost every instance we have applied this method, the 'real values' that drive observed actions have differed from the company's public speech about their core values.

9   The span of research supporting these assertions extends back at least 50 years. Its sources include research on counseling and psychotherapy, marital relations, education, and organizational psychology among others. See, for example, Truax and Carkhuff, 1967; Carkhuff and Berenson, 1967; and Carkhuff, 1969 and 1983a and the many studies each source cites.

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Collaboration also requires that the parties involved in implementing a lean enterprise operate in an open and honest manner with each other in order that their collaborative relationship sustains.

In addition to research linking these three qualities (showing interest and understanding, valuing another's perspective, and operating in an open and honest manner) to cooperation and sharing between people, there is the general finding of the social sciences that the human conduct exhibited by one party in a relationship is, on average, either reciprocated or complimented by the party experiencing that conduct. Thus, if one party is inattentive, most often the other party responds with indifference.[10] If one party is exploitive, usually the other party either behaves exploitively in response or becomes defensive or does both. Given the purpose and approach of commerce as defined in the lean enterprise model, either of these reactions disallows success.

The Core Values of the Lean Commercial Model

The core values of the lean commercial model have been represented synoptically as continuous improvement and respect for people (Emiliani, 2009; Liker and Hoseus, 2007). When unbundled, each includes a number of specific values. For example, with regard to continuous improvement, the constituent values include thinking long-term and "meeting challenges with courage and creativity," striving for perfection, and using fact-based approaches to problem solving and consensus building. With regard to respect for people, the constituent values include "make every effort to understanding each other, take responsibility, and do our best to build mutual trust." The qualities also include acting to stimulate the growth of others so that they individually and collectively realize the maximum level of their abilities to produce and excel. Both Emiliani and Liker and Hoseus derived these core values from the teachings of the early exemplar of the lean commercial model, the Toyota Motor Company (Toyota Motor Company, 2007). To build a curriculum to support a specific commercial model, however, one must analyze the logic of the commercial model to identify factors of performance critical to its success. Our analysis of the lean commercial model indicates that the following four factors are critical to its successful implementation.

1. *Success through enabling others* - The lean enterprise model defines its purpose as maximizing the success of each customer in the pursuit for which he or she applies your offering. While the customer is its primary focus, ultimately, it must produce this result in a manner that benefits all parties to commerce inclusively. Strangely, this is a "helper's" purpose; it is not the goal we typically associate with business. The reason is that the typical business we encounter implements the dominant producer-focused, profit-driven model whose purpose is to maximize the return of profit to its shareholders (Friedman, 1970). That model is based on self-interest. Its principle is *caveat emptor* (buyer beware).[11]

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[10] There is considerable support for the principle of reciprocity. See, for example, Diekman (2004) and Falk and Fischbacher (2000). Its operation does, however, assume that there is no underlining emotional dynamic operating between the parties that would cause a response specific to that dynamic. For example, the construct of building up credit in a relationship suggests that if one has regularly behaved in a decent and respectful way toward another over an extended period, a single deviation in that behavior is likely to be overlooked.

[11] A recent reminder of this principle is evident in Standard & Poors' (S&P) defense against U.S. Government's charges that the "rating firm committed fraud when it allegedly misrepresented its ratings as independent and objective" (Neuman, 2013). S&P has long maintained pub-

Clearly, the aim of success through enabling others presents different requirements of conduct than the intent to maximize one's personal monetary gain. For example, to succeed as a helper, one must accept personal responsibility for all his or her decisions and actions (accountability), adhere steadfastly to the purpose of helping (integrity), and be truthful in all dealings (honesty); otherwise, the person will not be trusted. Caveat emptor denies the quality of relationship between producer, customers, employees, and all other stakeholders that is needed for lean commerce. By definition, a helping-focused commercial approach requires that the producer's conduct uphold a purpose beyond self-interest. To help another, a person defines his or her conduct based on what the other's needs not based on what will maximize the person's monetary gain. It also must look ahead and anticipate how changing circumstances will impact their customers' needs and wants; otherwise, it will be unprepared to meet that party's new needs. In addition, given that success on first try is uncommon—people implementing a lean enterprise must demonstrate a sustained striving for perfection. This striving, when evidenced in deed, confirms by action that each helping effort, while perhaps imperfect, will be followed by a still better effort. This quality demonstrates to others the genuineness of one commitment to acting in their service.

2. Collaboration - Again, given its purpose of delivering benefits to all stakeholders inclusively, the lean approach to commerce requires that all parties work together as a team. Teaming requires that all stakeholders find common ground and define together the purpose they will pursue and how it should be realized. It also requires the sharing of information and ideas freely and completely among members. Within a team context, decisions are made based on what will advance the common purpose. These choices must also satisfy the values that guide their pursuit of the common purpose. It is the commitment to the common goal and values that enables all parties to rise above their individual perspectives to envision actions that leverage their differences into superior, integrative solutions.

To lead and participate in teams successfully, one's conduct must evidence the personal and social values discussed previously. It also requires the organization to ensure the meaningful involvement of all stakeholders and to communicate fully and consistently with all parties. Both individually and collectively people must use decision-making and problem-solving methods that enable participation and discourse. Engaging people, involving them in the enterprise, and enabling their participation through information sharing and instruction in the skills needed to participate fully are critical to collaboration. Eliciting the perspectives of people and addressing fully and satisfactorily their interests, expectations, concerns, and ideas are also behaviors that evidence these values. As to

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licly "that its letter-grade ratings are independent and objective" (Neuman, 2013). In its defense against the government's charges of fraud, however, the company declared that the government case be dismissed since in two earlier court decisions "judges ruled that such statements by the firm were puffery and therefore can't form the basis for a fraud claim" (Neuman, 2013). In fact the US Circuit Court of Appeals for the Second circuit did conclude that persons harmed because they believed these statements could not sue since "These statements [by S&P] are mere commercial puffery" (U.S. Circuit Court of Appeals Second District, Case 12-1776-cv, 2012). This is a perfect example of *caveat emptor*.

decision-making and problem solving, only information- and knowledge-based approaches serve collaboration.[12] Both types of approaches support participation by others because the bases for decision-making and action are explicit and therefore sharable between people. Biological approaches ("gut feel," intuition, "tacit knowledge") are private, personal approaches that lack explicit rationale. Consequently, the bases for the choices made cannot be represented, shared, and discussed. Only the proposed choice can be represented along with the proposing party's conviction concerning it. This limits participation to either accepting or rejecting the proposed choice.

Teaming extends outside the organization proper. Since the lean model recognizes the communities within which the lean organization operates as stakeholders, teaming with those communities is also required. The core value in this context may be best expressed as good citizenship. It encompasses honoring the language and spirit of the law, promoting the strengthening of communities, and contributing to the enrichment of society. It includes ensuring that no actions are taken that endanger the health or safety of the community or degrade the quality of its environment.

3. Continuous improvement - Continuous improvement is the primary means for advancing the lean enterprise's commercial success. Improvement results from the systematic pursuit, verification, and sharing of learning that eliminates waste and affirmatively adds value to one's offerings and the buying–benefiting experience one provides. Learning is derived from solving problems, exploring new ways of doing business, studying ideas others have documented, and doing experimentation. Every learning must be validated through testing and measurement before it is implemented and shared across the business. Sharing is accomplished by a variety of means. One key method is through revised work standards that document the new current best practice. The application of a revised standard is supported by training and coaching. Its further improvement by employees is similarly supported.

Continuous improvement implies further requirements of conduct. These requirements guide personal conduct and managerial decision making. It also guides the structuring of the organization.

- At the *personal conduct level*, people must evidence honesty, integrity, and a striving for perfection in both personal and professional life and they must be pioneering. This means that people are open to new information and ideas and are willing to venture into imagining and trying new solutions. It also requires that individuals in their personal and executive activities hold the validity of information developed and shared *sacrosanct*. False or inaccurate information, either as input or as output, corrupts learning.

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[12] Information-based approaches use the analysis of empirically derived facts to make decisions and solve problems (e.g., criterion-based decision making, A3 problem solving). Knowledge-based approaches apply a set of knowledge to logically deduce which choice to elect or how to correct a problem (e.g., decision trees, expert systems). Since each is systematic and explicit, both permit participation and critique by others.

- At the *management decision-making level*, conduct must recognize, establish, and maintain effective measurement and communications systems. Learning requires the measurement of performance and the dissemination of this information. People implementing a lean enterprise use this performance information to guide their problem solving and new learning. It clarifies where opportunities for improvement exist and whether the ideas developed to realize those opportunities have utility. Without performance information, no one can rationally decide the validity of a proposed learning. Also critical, executive behaviors must promote, facilitate, and leverage learning throughout the enterprise and across all stakeholders. Indeed, every lean enterprise becomes a *de facto* applied research center. It continuously uncovers better ideas for what to offer and better ways to implement commerce. It also promotes and supports its partners in commerce to do likewise.

- Concerning *structuring the organization*, management decision-making and action must enable the development and sharing of learning and not just the effective and efficient performance of work. Departmentation is functional, not political in lean commerce.[13] Functional decomposition breaks the work of the enterprise into the major business activities that accomplish its purpose (e.g., production or service fulfillment, product development, sales, marketing, human capital management, information technology). Each of these functions has a unique set of expertise underpinning its implementation. Each has a unique technical flow of work that accomplishes its purpose by progressively transforming the inputs it receives into the outputs it contributes to the business. This end-to-end flow of work is called a value stream. The business is organized into these value streams and, within each value steam, it is decomposed into work units based on the work processes that implement the value stream. The assembly and collocation of work units serves to maintain clarity about the substance of the work being accomplished and the linkages between elements of work. It also serves to maximize direct communication and minimize hand-offs. All of these features allow contributors to focus on what they do so they can probe ways to improve it. It allows them to pursue improvements in association with others who either affect and are affected by their work. It also speeds the transfer of new learning and the faster realization of benefits from it.

4. Competition through excellence - Finally, the model dictates that a lean commercial enterprise compete for customers based on the excellence of its offerings as judged by its customers. This requirement has implications not generally recognized by the lean community. As stated earlier, excellence wins in the marketplace only when people are free to choose it. Such freedom of choice is predicated on five factors.

   - The presence of multiple sellers who provide alternative versions of the product or service sought and the buying–benefiting experience associated with it

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[13] Politics drive departmentation when, for example, organizations are divided in ways that protect one or another party's turf or status or reward or punish individuals based on their perceived support for the person deciding departmentation.

- The availability of and buyer access to full and valid information about each offering

- Prospective buyers who have a correct understanding of their real needs

- Prospective buyers who possess the knowledge, skills, and proficiencies needed to make fact-based choices

- Prospective buyers who are free from pressures that compromise rational decision making

Absent these conditions being present in a given market, the seller has power over the buyer since the buyer lacks the wherewithal to make valid, fact-based choices among offerings. The seller can then manipulate the buyer's behavior through various means of persuasion. Whenever either seller or buyer has power over the other in a given market, that market is not free. Anyone who claims to be for free markets, therefore, must also be a protagonist for actions that ensure the above set of conditions are present in every market. Otherwise, one should reasonably conclude that their intent is not free markets but the freedom of producers to exploit markets. A lean enterprise is for free markets because excellence succeeds reliably only in such marketplaces. Only when the above conditions are satisfied will buyers reliably select offerings that best satisfy their needs. Hence, by the logic of its model, every lean enterprise must ensure the continuance of free markets wherever they exist and work to make free any market that is not. To this end, they must work to ensure that full and valid information is available and accessible to prospective buyers about:

- their needs and the real requirements for satisfying those needs,

- their options for addressing their needs, and

- how well each option satisfies those needs.

Lean enterprises must also work to ensure that prospective buyers have the knowledge, skills, and proficiency levels needed to make fact-based decisions and can apply their capabilities to make the choices that fully satisfy them. They must also foster free markets by eliminating market features that retard choice by consumers (e.g., artificial barriers to entry or transfer;[14] barriers to redress for harm done; laws that enable producers to externalize costs or capture exclusively the unintended benefits derived from their activities; laws or regulations that arbitrarily advantage some producers over other producers or otherwise limit consumer choice). As with all features of the model, these are logic-driven imperatives. Unless markets are truly free, the excellence of one's offering will not reliably produce success.

Exhibit 4, next page, summarizes the specific core values one's conduct must abide by if the above four critical-to-success performance factors are to be present.

Lean Enterprise's Competitive Strategy

A commercial model's competitive strategy guides business decision makers in choosing the marketplaces their business enters; defining its offerings; and deciding its approach to attracting,

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[14] Tariffs imposed on foreign producers is one example of an artificial barrier to entry.

Exhibit 4. Core Values of the Lean Model	
Critical-to-Success Performance Factors	**Required Core Values**
Success through enabling others ■ Enable your customer's success in a manner that benefits all stakeholders inclusively ■ Evidence in your character and conduct qualities that elicit their trust **Collaboration** ■ Teamed approach ■ Alignment on purpose and values ■ Sharing of information and ideas freely ■ Inclusive decision making and problem solving **Continuous improvement through learning** ■ Use problem solving, explore new ways of doing business, study ideas others have documented, and do experimentation to detect and eliminate all waste and affirmatively add value to one's offerings and the buying–benefiting experience one provides ■ Ensure the pursuit, verification, and sharing of learning through one's personal conduct and by disseminating best practices via work standards and using training and coaching to enable their correct use. ■ Ensure the pursuit, verification, and sharing of learning by establishing and maintaining functional systems of: 　▪ measurement, 　▪ communication, and 　▪ a functional organizational structure **Competition through excellence** ■ Be chosen based on your delivery of superior real value to customers ■ Act to ensure markets are free so that people can reliably select offerings that best serve their needs	**Personal conduct** ■ Be accountable ■ Act with integrity ■ Be honest in all dealings ■ Hold the validity of information sacrosanct ■ Strive for perfection in all personal and professional endeavors ■ Be pioneering ■ Uphold a purpose beyond self-interest **Social conduct** ■ Respect others ■ Use a teamed approach to working with others ■ Ensure the meaningful involvement of all stakeholders ■ Understand the aims and perspectives of all stakeholders (empathy) ■ Think long-term, anticipate change, and offer solutions that work for the person you are serving within the circumstances he or she faces ■ Ensure full and open communication with all parties to commerce ■ Use decision-making and problem-solving methods that enable participation and public discourse ■ Be a good citizen by: 　▪ honoring the language and spirit of the law, 　▪ promoting the strengthening of communities, and 　▪ contributing to the enrichment of society **Executive activities** ■ Promote, facilitate, and leverage learning throughout the enterprise and across all stakeholders ■ Structure the organization functionally, not politically ■ Foster free markets by: 　▪ advancing the availability and accessibility of valid information about offerings 　▪ removing barriers to competition, and 　▪ enabling citizens to make free, informed, and rational choices that best meet their needs

wining, and retaining customers and achieving profitability. The model's competitive strategy reflects the purpose it defines for commerce, is consistent with its core values, and yields the achievement of its expected results. The lean enterprise's competitive strategy is founded on the following seven guidelines.

Building a Lean Training Curriculum

1. Focus on customers whose purposes you value, whose requirements and expectations you have expertise in meeting, and who reside in areas that the business can effectively service.

2. Win and retain customers by delivering superior value as judged from the customers' perspective.

3. Win and retain customers by providing a buying–benefiting experience that is maximally value adding as judged from the customer's perspective.

4. Create and sustain an extended value stream capable of fulfilling your commitments to your customers.

5. Align all enterprise members and other stakeholders to applying lean thinking across the extended value stream.

6. Free markets by working to eliminate artificial barriers to competition and business practices designed to undermine competition, and by elevating the ability of customers to make information-based choices that best advance their purposes.

7. Strive for perfection in everything you do.

Guideline 1. Focus on customers whose purposes you value, whose requirements and expectations you have expertise in meeting, and who reside in areas that the business can effectively service.

This principle ensures that an enterprise's pursuit of commerce is rooted in the personal values of those implementing it. Commerce initiated from the basis of personal values offers several advantages. First, personal values provide the strongest motivational basis for serving another because they energize the individual most intensely to conceive, develop, deliver, and support commerce that enables their customer's success. Second, motivation rooted in personal values is more likely to sustain one's efforts during times of difficulty. Third, valuing another's purpose is essential to empathizing with that person's efforts and that empathy, joined with expertise, enables the provision of value-adding solutions. The requirement that the enterprise have expertise in enabling the purpose it serves ensures that its commerce is rooted in knowledge and that it can compete based on the excellence of its offering. The dictate that people implementing the model focus their commerce in geographical areas where they can support their customer's receipt of benefit reflects the lean model's emphasis on ensuring that the customer's buying–benefiting experience is also value-adding.

Guideline 2. Win and retain customers by delivering superior value as judged from the customers' perspective.

Value is defined as a feature of an offering that enables customer success and provides them a satisfying experience. Customers maintain an array of values as regards offerings. A lean enterprise's first priority and its absolute imperative is to provide an offering that has utility—meaning, that it materially contributes to the successful accomplishment of the customer's purpose. The *effectiveness* of its offering is the bedrock of its competitive strategy. An enterprise can have no integrity—defined as behavior consistent with the lean commerce model—unless it satisfies

this criterion. Beyond that requirement, a lean enterprise wins and retains customers by maximally satisfying all other customer values including, in Kano's terms, "Must Be's," "Satisfiers," and "Delighters" (Walden, 1993). To compete on this basis, a lean enterprise must develop a superior understanding of its customers' needs and wants, derive from that knowledge the value-adding features that its offering must possess, design an offering that correctly incorporates these features, and conceive a production or service fulfillment process that can reliably produce it. Once a product or service is launched, the guideline also requires that the enterprise engage in activities that continuously evaluate its value-adding status and conceive and implement ways to elevate that status to better enable its customer's success. Finally, this guideline requires that the enterprise's competitive strategy incorporate efforts to anticipate changes in a customer's needs and develop responses to those new requirements. This research activity analyzes the factors that may alter the performance the customer must implement to realize his or her end or change the circumstances within which the customer operates. Based on these analyses, it must conceive ways to make its offering responsive to the expected changes. If a business does not anticipate its customers' future needs, it will not be able to generate a value-adding solution to them when they emerge (Deming, 1982, pp. 25–26).

Guideline 3. Win and retain customers by providing a buying–benefiting experience that is maximally value-adding as judged from the customer's perspective.

This guideline requires the enterprise to also focus on all the activities the customer must engage in to access, acquire, prepare to use and use an offering; extract benefit from it; maintain it in a useful state between uses; and dispose of it or its byproducts. Each of these activities requires an investment of resources by the customer. For the customer to judge a business's offering as value adding, these *necessary* activities of the customer that require his or her investment of effort must also be value-adding.

Guideline 4. Create and sustain an extended value stream capable of fulfilling your commitments to your customers

This guideline requires that the producer establish the infrastructure needed to fulfill its customer's needs. This includes the production or service fulfillment workflow it directly controls (value stream) and the supply and delivery chains needed to augment it. The supply chain includes all the parties external to the enterprise that participate in providing it the inputs it requires to produce its output. The delivery chain includes all the parties external to it that participate in delivering its offering to its customer and supporting its beneficial use. Together, the producer's transformation process (production value steam), joined with its supply and delivery chains, constitute its *extended value stream*. Without a properly constructed and capable extended value stream, the producer's commitment to its customer will not be reliably satisfied. The internal value stream must correctly transform its inputs into the outputs it promises its customers. The supply chain must reliably provide what the producer needs, when it needs it, where it needs it, and in the volume it requires. The delivery infrastructure must reliably enable the producer to provide its customers what they need, where they need it, when they need it, and in the volume they require.

Building a Lean Training Curriculum

Guideline 5. Align all enterprise members and other stakeholders to applying lean thinking across the extended value stream.

Applying lean thinking means adopting the lean enterprise approach to commerce and using its guideline to construct and implement its implementation. Unless every member of the extended value stream implements lean thinking, your business—as the center of that extended value stream—cannot realize its purpose of maximizing the delivery of value to its customers while eliminating all waste from its operations. Waste within a collaborator's activities will eventually represent itself as waste within the producer's activities. If a supplier, for example, has unnecessary steps in its processes, these steps add cost to the supplier's operation that eventually is born by the producer. Similarly, if either a component of the supplier's processes or a factor in its work setting is generating defects, those defects can result in inputs that must be reworked by the producer in order to be used. On the delivery side, if a delivery agent that assists you in getting your offering to your customers acts in any way that comprises the customer's experience of value, you fail in ensuring your customer's receipt of maximum benefit. Also, if a commercial customer, for example, fails to understand the pace of demand for his or her offering and consequently makes large, unexpected swings in demand for your product, those demand swings will strain your production system and cause inefficiencies in operation that generate waste. *The degree to which all collaborators within an extended value stream are aligned and engaged in pursuing perfection in the conduct of their affairs determines the extent to which the lean enterprise at the center of that extended value stream can ultimately succeed.* Hence, each lean enterprise must engage, enable, and support all its members and stakeholders in applying lean thinking within their own activities.

Guideline 6. Free markets by working to eliminate artificial barriers to competition and business practices designed to undermine competition, and by elevating the ability of customers to make evidenced-based choices that best advance their purposes.

This guideline directs the lean enterprise to ensure that the markets within which it operates allow success through excellence. The first step in implementing this guideline is to pursue faithfully the purpose of maximizing the delivery of value to customers while eliminating all waste. That action alone expands the options within any marketplace by offering customers an alternative to their usual *caveat emptor* experience. A company's specific strategy with regard to freeing markets must always place first the task of establishing the firm as a provider of value-adding offerings to its customers. In parallel with this primary step, the enterprise must develop a deep understanding of the dynamics of the marketplaces within which it competes. It needs to assess:

- the degree of market competition,
- the presence of coordination among producers,[15]

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[15] Coordination among producers refers to actions by a group of firms that improves their profits as a result of their accommodating reactions to each other's decisions. One example might be producers in an industry uniformly raising prices, not based on each firm's own capabilities or circumstances, but in response to a price rise announced by one producer. Coordination among producers may include tacit or expressed collusion, which may or may not be lawful.

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- the availability and accessibility to consumers of information relevant to their purchasing decisions,
- the presence of conditions created by law or regulation that are preferential to one or more producers or restrict the rights or options of customers, and
- the capabilities of consumers to make informed, fact-based buying choices that are in their best interests.

As appropriate with regard to the firm's primary task of establishing itself as a lean enterprise, it must undertake progressively expansive efforts to free its marketplaces by continuously pushing to elevate the value of offerings available to customers, expanding the availability and accessibility of information about offerings and offerors, eliminating producer preferential laws and regulations, and elevating customer capabilities to make fully informed, fact-based purchasing decisions. In pursuing this end, it should align itself with others who have a similar intent, such as consumer rights organizations.

Guideline 7. Strive for perfection in everything you do.

This guideline directs the lean enterprise to "improve constantly and forever" its system of production and service (Deming, 1982, page 49). Improvement results from continuously adding value to its offering and the buying–benefiting experience it supports; eliminating all waste from its offerings, operations, and work settings; and continuously elevating the value-adding capabilities of the people and organizations who contribute to it. To add value, it must continuously deepen its understanding of current and future needs and use that knowledge to uncover ways to enhance the value-adding features of its offerings and the buying–benefiting experience it provides. With regard to eliminating all waste from its operations and work setting, the people implementing the enterprise will detect waste wherever it appears and apply problem-solving methods to eliminate it. They will systematically leverage improvement ideas, replicating their use everywhere in the business they are applicable. Also, each member of the enterprise continuously improves his or her performance in detecting waste and adding value by extracting learning from their prior performance. They systematically analyze their achievements, understand the reasons for the success they realized and why still-greater success was not achieved, and transform the results of this evaluation into learning that will elevate their next performances. The enterprise supports the efforts of its contributors by its sharing of information; support for training and education; and its promotion, facilitation, and leveraging of learning across all its members and contributors. The enterprise's efforts extend to elevating the capabilities of the extended value stream to add value and eliminate waste thereby expanding the firm and all other stakeholder's possibilities for engaging in commerce.

The Lean Enterprise's Organizational Strategy

Three elements make up a commercial model's organizational strategy (Exhibit 5, next page). The first element identifies what the model dictates as its critical-to-success resources. Without these resources, no organization can implement the model successfully. Hence, establishing and

sustaining these resources is an organization's first priority. The second element prescribes the rules that govern the structuring of the organization. The third element prescribes the features of culture that must be present.

Critical-to-Success Resources

In every regard, lean commerce is a thinking endeavor in which performers must operate both on their own and in collaboration with others simultaneously. The decisive role and real-time demand for understanding, creativity, problem solving, and collaboration determines the four critical-to-success resources required to implement the lean model's competitive strategy. The four critical-to-success resources are:

Exhibit 5. The Elements of an Organizational Strategy

- Organizational Structure
- Critical-to Success Resources
- Culture

- people,
- knowledge,
- information, and
- communications infrastructure.

People

People are the single, most critical resource needed to successfully implement the lean model's competitive strategy and realize its long-term success. People are the only flexible, real-time agents for developing, refining, and deepening understanding about themselves and their worlds. They are the only commonly available agents that can self-manage their behavior based on unscripted information processing and generate learning and knowledge.[16] They alone can create and reform the networks of collaboration needed to ensure collective success. The lean competitive strategy is utterly dependent on these capabilities. Thus, people are the first and foremost critical-to-success resource a lean enterprise needs in order to succeed. While resources like information and knowledge can enable their success and organizational structure can facilitate their learning and communication, none has utility *except* in the presence of people possessing the desire and capability to strive toward goals and to think, relate, learn, and refine their performance to realize their personal aims.

While people inherently possess the capabilities to act purposefully and to learn—they vary in using them. Thus, one must define other qualities people must possess to implement the lean enterprise model. These qualities are termed in human capital management jargon, "other personal characteristics." They are traits or broad dispositions that persistently evidence themselves in a person's behavior. Such qualities are not inherent—rather, they develop as a

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[16] Computer-based systems have been developed that can detect and solve problems in specific domains and given certain input resources. Also, artificial intelligence systems have been developed that can learn and improve their performance. While some function better than most or all humans in specific domains (e.g., chess playing, nautical chart making, medical diagnosis), none to date match the broad flexibility and agility that *skilled people* can demonstrate as problem solvers and learning producers. Some types of neural networks do perform unscripted learning (e.g., speech recognition) but, to our knowledge, none have demonstrated proficiency at accomplishing complex tasks such as conducting market-based commerce.

result of one's choices in life. While training in the skills needed to fully express these personally developed qualities does enhance their power, effectiveness, and use—it cannot instill the presence of the qualities. Their presence is a matter of personal choice. The following five personal characteristics are required of every contributor to a lean enterprise.

- *Aligns to purpose based on intrinsic motivation.* This means that the individual's commitment to the organization's purpose is based on the native convergence between its purpose and values and his or her personal goals and values—not external incentives. It is from this identity between organizational and personal purposes and values that the individual's contribution of effort flows. The judgment of this convergence must be based on a correct understanding of the organization's direction, the values it is committed to uphold, and an accurate assessment of what contributing to that effort requires of the person. In response to this convergence, the individual organizes him- or herself to fulfill those requirements. In this way, the enterprise's direction guides the performance of every contributor and assures that the performances of all contributors integrate to advance business success.

- *Teams with others.* This means the individual is comfortable with the idea that his or her personal success depends on the success of the team as a whole and finds satisfying the added tasks teaming requires. Contributors to a lean enterprise pursue a common goal *together*. They must own responsibility for the ultimate *team outcome* and not simply for the success of their individual tasks. They must operate as both leaders and members. As leaders, they look to ensure that the direction being pursued is aligned with the common goal. As members, they get their individual assignments done, share their information and learning with teammates company wide, and otherwise enable their teammates' success.

- *Is self-starting and sustaining.* This means the people who power lean commerce must be up, active, and initiating in the performance of their work. They must apply themselves with intensity drawing energy from the challenges they encounter, the results they produce with others, and the learning they create. Contributors to a lean enterprise must be energized from within and not from context, circumstance, or the actions or words of another.

- *Esteems competence as well as results.* This means that the person demonstrates a persistent inclination to produce success through mastery of the skills needed to effect it. A person with this trait is not satisfied with a result happening. Rather, such a person seeks to ensure that he or she has the observable and measurable skills and levels of proficiency needed to *produce that result consistently*. Only such people can ensure that they possess the capabilities needed to meet their responsibilities today and be prepared to assume even greater responsibilities tomorrow.

- *Challenges the current 'state of the art.'* This means that individual thrives on pushing the envelop of personal and collective achievement. This quality extends beyond a readiness to take on each day's new problems or challenges. It manifests itself in being forward leaning forever, always interested in what *could be* and willing to invest effort in imagining and experimenting with ways to make it real. Such people do not require carrots or sticks to "bust bureaucracy" or "challenge the current paradigm." Contributors to a lean enterprise must be dedicated to extending continuously their individual effectiveness and the effectiveness of all other contributors. They must be pioneering—finding excitement and satisfaction in pushing the envelop of achievement and in discovering better outcomes to produce and better ways to produce them.

People who are aligned, teamed, capable, energized, and pioneering need both knowledge and information to implement the lean model's competitive strategy and operate a lean enterprise. Both knowledge and information must be explicit and documented in order to be useful in a cooperative effort.

Knowledge

Knowledge is mental content that names or describes a class of objects, their characteristics, relationships, or operation. Knowledge guides problem solving, decision making, and action taking. It enables a person to detect what he or she is dealing with, recognize its status, detect its relationships to other objects or events, and understand how it operates. It guides people in the correct performance of tasks and the achievement of performance goals. Unlike information, knowledge applies across instances of time, place, and person. For example, that all cars have a unique vehicle identification number (VIN number) is a "chunk" of knowledge that one can apply to every vehicle manufactured anywhere. Consider what this means. That knowledge tells you how you can identify a specific vehicle anywhere in the world. It does this by making you aware of a feature that will always be stamped on a vehicle, and whose exact value will be unique to it. Examples of knowledge are everywhere in a lean enterprise. Here are a few.

- The directions for implementing A3 problem solving

- An exploded diagram of a device

- A repair manual that guides one in diagnosing and correcting the operation of a piece of equipment

- The work standards that broadcast current best practices

- The work flow diagram posted in a workplace to guide contributors in the performance of their work

All the above are examples of knowledge. Even the business intent (purpose, vision, and core values) and the lean enterprise model itself are examples of knowledge. Below is a list of the

specific knowledge resources critical to the successful performance of the lean enterprise model.

- Knowledge documenting the lean commercial model

- Knowledge documenting an understanding of what customer values mean and how they are uncovered, verified, and used within a lean enterprise

- Knowledge documenting an understanding of what stakeholder values mean and how they are uncovered, verified, and used within a lean enterprise

- The business intent of the specific lean enterprise being implemented including its purpose, vision, core values, how it defines profit, and who it recognizes as stakeholders to its commercial activities

- Guides, manuals, and other learning resources to support the mastery and use of lean tools (e.g., Hoshin Kanri planning and deployment process, Kaizen, Quick Changeover, TPM, etc.)

- Learning developed from improvement efforts conducted anywhere in the enterprise

- Extended value stream maps, one for each business function

- Work process standards

Information

Information is mental content that tells about a *specific* person, place, thing, or activity at a given time. It is the equivalent of news. The VIN number for the car *I own today* is information. Information provides the facts one needs to know what a business's status is in realizing its current goals, what the last customer survey reported with regards to how satisfied customers are with the features provided by the enterprise's offering, what the value-added ratio for work process A is, what additional value a suggested improvement will contribute, and what actual gain was produced by a completed waste elimination event. Below is a list of specific information resources critical to the successful performance of the lean model's competitive strategy.

- Identity of enterprise's customers, their purposes, the setting within which they operate, and their capabilities in pursuing their purposes

- Customer values information including what the values of customers currently are and the type and importance [when applicable] of each value and its status as satisfied

- Stakeholder values information including the identity of the enterprise's stakeholders, their connections to the enterprise, their awareness of, concerns about, and expectations for the enterprise

- Current state of process and outcome performance at the business, value stream, work process, work cell, and performer levels and historical reference data

- Current year's business improvement plan including the business's driving and enabling goals and improvement priorities [the output of the hoshin kanri process]

Communications Infrastructure

The communications infrastructure is the underlying facilities, services, and other assets needed to disseminate knowledge and information and allow people to connect, communicate, and collaborate with each other across the enterprise and, ultimately, across the extended value stream.

Within a lean enterprise, this infrastructure emphasizes the visual representation of information and knowledge. The point of use for information or knowledge determines where it is displayed. The importance of information or knowledge for supporting immediate performance determines is prominence. The information displayed may report, for example, the status of current performance for the individual or work cell or work process being implemented. The knowledge displayed may be the work standard the contributor is implementing or job aids that support the correct execution of tasks. In addition to the content that is displayed, the infrastructure must provide access to stored content important to success but only needed from time to time.

The infrastructure also must support cooperative performance by enabling shared activities between people who are not proximate enough for face-to-face communication. To accomplish this end, it must allow people to establish contact with each other in real time, share information and ideas conversationally, store and retrieve facts and learning, and otherwise work together to accomplish business goals, improve business operations, and leverage the products of their improvement efforts as, for example, through instruction. Through this support, the infrastructure plays a critical role in sustaining alignment among contributors and enabling their personal efforts to translate into cumulative and integrative contributions that advance the purpose of the lean enterprise.

Organization Structure

Organizations larger than a single work unit or implementing processes more complex than a single activity divide their work into subsets of operations having progressively more specific focuses. These work units are then arranged hierarchically. Units performing more detailed work are subsumed under units that integrate this work into larger aggregate outputs. This structuring of work into units is called departmentation.[17] Its output is represented by the various "boxes" that appear on a company's organization chart. Each box identifies a distinct work group.

A second task completes an organization's structuring. That task distributes authority and responsibility and defines reporting relationships among the various work groups. Its purpose is to clarify accountability for segments of the company's performance and enable the efficient and effective implementation of work. This task draws the solid or dotted lines that connect the boxes and define the reporting relationships between work units.

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[17] Departmentation can be done on bases other than work decomposition but work decomposition is most relevant method for our purposes.

In everyday practice, an organization's structure is commonly viewed as an administrative artifact rarely used except to discover who is in charge of whom. Even within the lean community, little attention is paid to organization structure—yet, its solution is vital to enabling the effective operation of lean commerce. The developers of lean thinking did pay attention to "matters of organization" (Enomoto, 1995). Following the thinking of Barnard (1968), they recognized that structure establishes the organization's ordinary lines of communication; chains of command; the paths for cascading goals, plans, and performance expectations; and, typically, the path for budget development. In other words, organization structure is the infrastructure across which executive functions operate. *Unless it is designed to enable those functions, it will undermine their performance.*

Organization structure also has a special impact on continuous improvement. The way the organization is structured can itself produce waste and obstruct its removal. It can associate people into work units not based on the processes they implement but on some other factor—e.g., their professional affiliation or the desire to enhance the status of a favored manager or reduce the status of an out-of-favor manager. It can fracture processes across different departments making the tracking of performance difficult, impairing the communication and coordination between people implementing different elements of the same process, obscuring a contributor's line of sight from what he or she does to what is produced, and complicating decision making about proposed changes.

Because of its impact on effectiveness and the sustaining of collaborative efforts, the structure of a lean enterprise must be defined in a way that enables the following features that are essential to the implementation of the lean approach to commerce.

- The waste-free implementation of value-adding work and the affirmative adding of value to the customer's experience

- The connection of people to the outcomes they must produce

- The development of a functional business measurement system that clarifies the status of lean-relevant performance at the business, value stream, work process, and performer levels

- The rapid transfer of knowledge and information between people

- A pathway for cascading the two-way process of hoshin kanri planning

For a complete discussion of the organizational structure required by a lean enterprise and how it is established, see Vitalo and Bujak's (2013) *Lean enterprise: An alternative approach to commerce (Vol. 1)*, especially Chapters 2 and 9.

Culture

Culture is the totality of behavior patterns, artifacts, beliefs, institutions, and all other products of human work and thought that emanate from a social unit aligned around a common goal and

upholding a common set of values. The culture of a lean enterprise, for example, is reflected in its use of teamed problem solving, the ubiquitous presence of information displays in work areas, broad participation by contributors in the enterprise's idea generation or suggestion systems, the use of work standards, and the implementation of hoshin kanri planning.

Since culture is the expression of collective human behavior, it is a *by-product* of implementing the lean commercial model. Unlike culture in naturally forming social units, a commercial organization's culture is not evolutionary. It is the predictable outcome produced by implementing a specific the commercial model. The members of an organization that undertake commerce using one or another commercial model, commit themselves to realizing that model's purpose and abiding by its core values. This commitment is reflected in their conduct. It expresses itself in their individual endeavors, their working together, and the artifacts they fashion to support their efforts. Hence, each commercial model, through the actions of the people implementing it, creates the "culture" that *it requires* to exist in order to realize success as the model defines it.[18] Any observed variation between the cultures of organizations correctly implementing the same commercial model are only within the margins tolerated by the specific model that the people in authority have chosen to implement. The broad strokes of a organization's culture can be described by documenting how the model resolves the following four issues.

1. What is the basis for the individual's contribution of cooperative efforts to the enterprise?

2. What is the role of each contributor in accomplishing the enterprise's commercial success?

3. How must people work together in order to implement the enterprise's commercial model?

4. What kind of relationship must the organization maintain with its contributors?

The Basis for Individual Contribution

Extrinsic motivation is the recommended basis for contribution to organizations implementing the dominant commercial model (Barnard, 1968). A lean enterprise, however, requires a different basis—intrinsic motivation. Intrinsic motivation is based on the native alignment of common purpose and individual motive. This means that there must be an identity between each contributor's natively held goals and values and the goals and values pursued by the enterprise. The achievement of one party's ends substantively and directly realizes the other party's ends. Thus, both contributor and organization maintain *in fact* a common purpose. When it is realized, all parties fulfill the same personally valued end. The resulting relationship forms a teamed approach to accomplishing the organization's business intent that includes all the contributors who constitute the organization. Together, they pursue *a single end defined the same way*. This eliminates the need for manipulating incentives to extract

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[18] In this sense, culture is a *dependent variable—a product of other factors*. Its observable, measurable elements are created by the actions of people implementing their chosen approach to commerce. When the culture that is created matches the culture prescribed by a commercial model, it is evidence that the model's guidelines are being implemented. Once established, however, a culture makes its own contribution to supporting the continuance of the model's implementation. Hence, it serves both as a product of prior and current behavior and as an influencer of future behavior.

performance and the maintenance of mechanisms of vigilance to ensure that the behaviors desired by the organization are being performed. Such activities are required in organizations that "motivate" by incentives and consequences (Barnard, 1968). The complexity of what must be observed and controlled in a large organization ensures that such approaches to eliciting and sustaining cooperative efforts and the adherence to corporate purpose must fail to a greater or lesser degree. The costs associated with implementing these control activities and the failures that ultimately ensue are eliminated when every contributor to an enterprise is intrinsically motivated.

As with all decisions made within a lean enterprise, each person's choice to contribute his or her cooperative efforts must be freely based on the person's rational consideration of the factual givens about the enterprise, a full understanding of the requirements of the role, his or her readiness to satisfy those requirements, and the person's understanding of his or her native values.

The Role Each Contributor Must Perform

The lean model requires the interdependent operation of people who are capable of managing their own performance. Its teamed approach to accomplishing its purpose demands that members operate interdependently. Its focus on zero waste means that every member must monitor his or her own performance and strive for perfection in everything he or she does. Coordination among members must be internally driven, not managed from outside. Only internally driven interoperation is sufficiently timely and responsive to support operating in a manner that is continually adaptive. This means that all contributors must be riveted on the same goal—maximizing the delivery of value to the customer in ways that benefit all stakeholders inclusively. Each contributor must be thinking and doing in a manner that seamlessly integrates with others contributing to the same end. Everyone must focus on excellence, manage their performance to that end, and enable their teammates to do likewise. They must implement current best practices flawlessly while devising and sharing improved practices for the future. When these requirements are translated into a role description, six common responsibilities emerge. These responsibilities define the fundamental role of *every contributor* to a lean enterprise. The six responsibilities are:

1. Master the lean model and the company's approach to implementing it.

2. Add value as defined by customers in a manner the benefits all stakeholders.

3. Measure one's impact on value delivered to customers and other stakeholders.

4. Improve personal and collective performance continuously.

5. Share personal learning with others and enable their improved success.

6. Team with others within one's work unit, across one's value stream and the other the value streams that comprise the business, and throughout the business's extended value stream to accomplish the common purpose.

In summary, one's responsibilities are to understand what you are about, focus on purpose, measure your performance, improve your performance continuously, share your expertise, enable the improved performance of others, and team within and across the business and its extended value stream.

Each contributor implementing these responsibilities with proficiency enables a company to eliminate waste and maximize value to customers while benefiting all stakeholders inclusively. It allows each contributor to operate as a *self-supervised* contributor to realizing the enterprise's purpose. While the performance of these responsibilities does require the enterprise to collect, store, and disseminate information and knowledge and maintain a first-rate communications infrastructure, they do eliminate the overhead of controlling contributor behavior by creating supervisory roles specific to that purpose, freeing those individuals to focus on value-adding work.

How People Must Work Together

While it is clear that a lean enterprise uses a teamed approach to working together, it is important to reflect for a moment on what that means. Multiple people may work together either as a group or as a team. In both approaches, the unit has a goal in relation to which each member has a responsibility. However, the responsibility of each team member for accomplishing the goal varies.

Group Approach

In the group approach, each member's responsibility is to complete an assignment. The completion of these assignments by each member achieves the group's goal. Each individual is accountable for his or her assignment. The individual succeeds or fails solely based on how well that assignment is accomplished. Groups always require leaders. The leader is the group member assigned to perform the executive functions needed to maintain the group (planning, communicating, and securing essential efforts). He or she must set the goal; plan its achievement; make assignments; communicate needed information about direction and performance; decide the coordination resources and activities; and elicit, support, and ensure each individual's performance of assigned responsibilities. Whether the leader is directive or participative in his or her approach, the performance of the executive functions remains the leader's singular responsibility. The "group," meaning the members *as a whole*, has no responsibility for the overall outcome since it operates as a collection of individuals. If the group's goal is not realized, it is the group leader alone who fails. Members succeed or fail based on their performance of their specific assignments.

Teamed Approach

In the team approach, the team as a whole is responsible for accomplishing the unit's goal. Each individual member may have a specialty assignment but always has a team assignment. The team assignment is to ensure that the team as a whole fulfills its

responsibilities and realizes its common purpose. Thus, in a team, each individual is accountable for his or her personal performance *and* for ensuring the success of the team. Success in one's personal assignment is not enough. Team members succeed only when the team as a whole succeeds. This dual responsibility requires members to adjust their performances (what, how, when, etc.) to ensure that the team as a whole advances to its common goal. It also requires members to be fully functional in managing their own performance, managing the interfaces between their performance and the performance of their teammates, and ensuring that both efforts align with accomplishing the team's goal. Further, it requires that they are capable of assuming multiple roles and enabling the success of other teammates.

Since the responsibility for overall team success is distributed to all members, a team does not require a dedicated leader. It may, however, designate a member or rotate members to chair team meetings and answer external inquiries about the team. Absent a dedicated leader, it remains each team member's responsibility to perform the executive functions needed to maintain its organization (planning, communicating, and securing essential efforts). This is done through virtual or physical meetings. The team sets its goal; plans the achievement of that goal; decides assignments; and plans the communication of information about direction and performance and the coordination of resources and activities. It also monitors its members' engagement and readiness to contribute, and plans ways to enable their success in accomplishing their team responsibilities. But, the *effecting* of communication, engagement, learning, teaching, and supporting team member success is accomplished by *each team member* for him- or herself and in support of each fellow teammate. In essence, executive function decisions are made collectively and executed individually by each team member.

The Approach a Lean Enterprise Requires

If one's approach to commerce requires maximum investment and personal involvement from its contributors, seeks to eliminate overhead, and needs real-time integration of efforts among contributors—the team is the superior choice over the group approach. It uses distributed performance to effect the unit's continuous adaptation to changing circumstances and real-time coordination of efforts across unit members. Member performance is aligned based on their common understanding of purpose, implementing goals, and approaches. The team approach alone has the capability of eliminating the management overhead associated with implementing controlling behaviors. Clearly, these characteristics fit the lean enterprise model's strategic goal and competitive strategy. Therefore, it is a teamed approach to working together that a lean enterprise exhibits.

How the Organization Must Relate With Its Contributors

The people who implement a lean enterprise create relationships with each other that are:

- organized around accomplishing the enterprise's purpose,

- permeated by accountability but focused on learning in the service benefiting customers,

- governed by the principles of the lean commercial model,

- devoid of the principal–agent conflicts described in agency theory (Eisenhardt, 1988),

- typified by a striving for perfection that drives on realizing the organization's goal while enabling the success and fulfillment of each of its members,

- imbued with the qualities of decency, respect, fairness, and valuing for each other member,

- aligned with ensuring the validity of information because it is the fuel of learning and performance improvement,

- inclusive of diverse perspectives,

- committed to developing integrative solutions that elevate the value of everyone's thinking, and

- enlivened by each other's growth and achievements.

In summary, people who power a lean enterprise operate together as a community of professionals dedicated to a common purpose and a common code of conduct that extends not just outward to the people they encounter in the marketplace but inward to each other.

SECTION 3 A LEAN TRAINING CURRICULUM

Following the process depicted in Exhibit 2, page 6, we have just analyzed the strategic contents of the lean enterprise commercial model. We have derived the answers to the following questions:

- What is the role of each contributor in accomplishing the enterprise's commercial success?

- How must people work together in order to implement successfully the enterprise's commercial model?

We also now fully understand the logic dictating the necessity for these solutions. Exhibit 6, pages 33–35, summarizes the strategic perspective of the lean model. It contains the facts we need to derive the content of a lean curriculum.

The Content and Structure of a Lean Curriculum

To derive the content of a lean curriculum, we analyze the core responsibilities to uncover the specific qualifications a person needs to implement the common role. These qualifications are the knowledge, skills, and other personal characteristics needed to successfully fulfill the role. It is this content that the lean curriculum instructs. This content is also used to fashion the recruitment and selection methods used by the organization to bring on new members. It also supports constructing the onboarding process the organization uses to orient new hires.

Exhibit 6. The Lean Enterprise's Model Strategic Component

Purpose

To: Maximize the success of each customer in the pursuit for which he/she applies your offering

For: Customers and all other stakeholders

By: Continuously improving the utility of one's offering and the buying–benefiting experience one provides and by eliminating waste in all activities

So That:
▶ Customers prosper
▶ Opportunities for future commerce are expanded
▶ The business grows and employment opportunities are expanded
▶ The growth and success of all stakeholders is elevated
▶ Commerce is sustainable

Conditions:
▶ The goal must be realized in a manner that benefits all stakeholders inclusively
▶ The value delivered must be real, not illusory
▶ All decisions, judgements, and problem solving must be fact-based and use sound, systematic approaches

Success Criteria:
▶ Customers prosper as a result of the offering they are provided
▶ Stakeholders succeed and prosper as a result of their application of lean thinking and teamed effort to maximize value delivered to customers and eliminate all waste
▶ Commerce grows and is sustainable

Vision

An interdependent and dynamic system organized around a customer and made up of a producer, its suppliers, its delivery agents, and all other stakeholders each of whom is aligned on purpose, teamed in their performance, energized by their personal conviction, capable of leveraging learning to continuously improve everything they do, and pioneering forever in the prusuit of maximizing customer value

Core Values

The core values of a lean enterprise guide every member's personal and social conduct and their performance of executive functions.

Values related to personal conduct - These principles apply to the conduct of an individual as an individual operating on his or her own. They include: being accountable, acting with integrity, being honest in all dealings, holding the validity of information sacrosanct, striving for perfection in all personal and professional endeavors, being pioneering, and upholding a purpose beyond self-interest.

Values related to social conduct - These principles apply to the conduct of an individual as he or she interacts with others. They include: respecting others; using a teamed approach to working with others; ensuring the meaningful involvement of all stakeholders; understanding the aims and perspectives of all stakeholders (empathy); thinking long-term, anticipating change, and offering solutions that work for the person you are serving; ensuring full and open communication with all parties to commerce; using decision-making and problem-solving methods that enable participation and public discourse; and being a good citizen of the communities within which you work.

Values related to executive activities - These principles apply to the conduct of an individual as he or she works to ensure the organization's success and the presence and continued contribution of cooperative efforts by all contributors. They include: promoting, facilitating, and leveraging learning throughout the enterprise and across all stakeholders; structuring the organization functionally, not politically; and fostering free markets.

Exhibit 6. The Lean Enterprise's Model Strategic Component (continued)

Competitive Strategy

1. Focus on customers whose purposes you value, whose requirements and expectations you have expertise in meeting, and who reside in areas that the business can effectively service.

2. Win and retain customers by delivering superior value as judged from the customer's perspective.

3. Win and retain customers by providing a buying–benefiting experience that is maximally value-adding as judged from the customer's perspective.

4. Create and sustain an extended value stream capable of fulfilling your commitments to your customers.

5. Align all enterprise members and other stakeholders to applying lean thinking across the extended value stream.

6. Free markets by working to eliminate barriers to competition, preferential treatment of one or another business, and elevating the ability of customers to make evidenced-based choices that best advance their purposes.

7. Strive for perfection in everything you do.

Organizational Strategy

Critical-to-Success Resources

► People who are aligned to purpose, teamed across the business, energized, capable, and pioneering

► Knowledge that guides performance (problem solving, decision making, and action taking)

► Information about:

▷ The enterprise's customers, their purposes, the setting within which they operate, and their capabilities in pursuing their purposes, and their values (identity of values, type, importance, status as satisfied)

▷ The enterprise's stakeholders, their connections to the enterprise, their awareness of, concerns about, and expectations for the enterprise

▷ Current state of business performance at the business, value stream, work process, work cell, and performer levels and historical reference data

▷ Current year's business improvement plan including the business's driving and enabling goals and improvement priorities [the output of the Hoshin Kanri process]

► Communications infrastructure having the capability to disseminate knowledge and information and allow people to connect, communicate, and collaborate with each other across the enterprise and, ultimately, across the cooperative system.

Organization Structure

Defined functionally to enable:

► The waste-free implementation of value-adding work and the affirmative adding of value to the customer's experience

► The connection of people to the outcomes they must produce

► The development of a functional business measurement system that clarifies the status of lean-relevant performance at the business, value stream, work process, work cell, and performer levels

► The rapid transfer of knowledge and information between people

► A pathway for cascading the two-way process of Hoshin Kanri planning

Exhibit 6. The Lean Enterprise's Model Strategic Component (continued)

Organizational Strategy

Culture

▶ The basis for the individual's contribution to the enterprise is rooted in his or her personal values and their natural alignment with the purpose and values of the organization. It is not induced by extrinsic incentives.

▶ The role of each contributor is to: (1) master the lean model and the company's approach to implementing it; (2) add value as defined by customers in a manner the benefits alll stakeholders; (3) measure one's impact on value delivered to customers and other stakeholders; (4) improve personal and collective performance continuously; (5) share personal learning with others and enable their improved success; and (6) team with others within and across the extended value stream to accomplish the common purpose.

▶ People work together as a team to accomplish their work cell, work process, value stream, and business goals. Each individual is accountable for his or per personal performance and for ensuring the success of the team as a whole. Personal success only occurs when the team as a whole succeeds. Member performance across the enterprise is aligned based on their common understanding of purpose, implementing goals, and approaches.

▶ People who power a lean enterprise operate together as a community of professionals dedicated to a common purpose and a common code of conduct that extends not just outward to the others they encounter in the marketplace but inward to each other.

By analyzing the requirements for assuming and performing the contributor's role within lean commerce, we can identify the specific competencies every contributor to a lean enterprise must possess. We can also identify the personal characteristics he or she must evidence. Exhibit 7 presents the competencies that every contributor to lean commerce must demonstrate. Exhibit 8, next page, provides added information about each skill identified in Exhibit 7.

Exhibit 7. The Core Competencies Every Contributor to a Lean Enterprise Requires

Knowledge	Skills
▪ Being able to explain the lean enterprise approach to commerce including its strategic, operations, and executive components and the concept and principles critical to its implementation (e.g., value, waste, flow, pull, etc.) ▪ Being able to define what customer values are and explain how they are uncovered, verified, and used within a lean enterprise ▪ Being able to define what stakeholder values are and explain how they are uncovered, verified, and used within a lean enterprise	▪ Action planning ▪ Goal setting ▪ Information- and knowledge- based problem solving ▪ Information-and knowledge- based decision making ▪ Learning from performance ▪ Measurement ▪ Teaching and coaching others ▪ Value detection ▪ Waste detection ▪ Working with others

Core Competencies

Knowledge of the lean approach to commerce is required because it is the foundation that guides decision making and action and ensures the alignment of individual performances. An

understanding of customer and stakeholder values is essential because it is customer values that inform every decision made in a lean enterprise and it is the mandate of contributors to satisfy those values while benefiting all stakeholders inclusively. Thus, everyone needs to understand what values are and how they are uncovered, verified, and used within a lean enterprise. Goal setting, action planning, measurement, and learning from performance are required to manage

Skill	Description
Action planning	Organizes and documents how to implement a problem solution. It contains a statement of the goal to be accomplished, the steps to be taken to realize that goal, the resources allocated to implement the solution, a list of anticipated barriers to success and possible solutions, and the action people will take should they not be able to implement the solution as planned.
Goal setting	Defines what is to be achieved in observable measurable terms. A proper goal specifies the result to be produced; who is to benefit; the name of the method to be used to accomplish the goal; what benefits are to be produced; what constraints on resources, decision making, or action must be abided by; and the benchmark that must be met for the goal to be judged as achieved (Vitalo, 2013a).
Information- and knowledge- based decision making	Methods that make decisions either by collecting and analyzing information or by applying knowledge to infer the proper choice.
Information- and knowledge- based problem solving	Methods that solve problems either by collecting and analyzing information or by applying knowledge to infer the proper solution.
Learning from performance	The systematic analysis of an observed outcome that generates learning one uses to guide improvement in the next performance of the task or process. The skill uncovers what enabled the success that was realized and limited it from being even more. It then extracts learning from this analysis and generates guidance for making improvements.
Measurement	A group of skills that enables one to calibrate the status of something, compare that status to an expected result, explain the sources of variation that are observed, and predict the effects of proposed actions.
Teaching and coaching others	A group of skills that enable people to transfer expertise from themselves to another individual and support the refinement of another's proficiencies.
Value detection	Ability to detect features of an offering, work activities or their sequencing or features of the work setting that add value to the offering received by the customer or to his or her buying–benefiting experience.
Waste detection	Ability to detect features of an offering, work activities or their sequencing or features of the work setting that do not add value to the offering received by the customer or to his or her buying–benefiting experience.
Working with others	A group of skills that enables one to lead and participate in teams effectively. Includes basic communication skills (clarifying, confirming, constructive criticism, and hitchhiking) and other skills such as managing differences.

Exhibit 8. An Elaboration of Each Core Skill

one's own performance and implement information-based problem solving. Value detection is required in order to decide what enhances the businesses offering and operations and what does not. Waste detection is required in order to detect opportunities for improvement through the detection of non-value-adding work. The methods of information- and knowledge-based problem solving are needed to eliminate waste, add value, and improve personal and collective performance. The working with others skills of clarifying and confirming, constructive criticism and hitchhiking (Byron and Bierley, 2003) along with others skills essential to leading and participating in teams enable the collaborative approach to enterprise dictated by the lean model. Together, these core skills, when mastered with sufficient proficiency, enable each performer to:

self manage his or her efforts including aligning those efforts with the organization's purpose,

- coordinate personal efforts with others,
- continuously improve one's own performance and the effectiveness of the organization's offerings, work processes, and workplaces,
- enable the improved performance of others, and
- fulfill the role of leader and member within teams.[19]

The level of proficiency required is defined by the conditions of performance that exist within the enterprise. The more diverse, complex, and novel the work required by the enterprise is and the narrower its tolerances for error are, the greater the proficiency levels required. *Volume 2* of *Lean Enterprise—An Alternative Approach to Commerce* provides guidance for mastering each of the core competencies lean contributors require and for applying them to accomplishing the tasks essential to building and sustaining a lean enterprise.[20]

Structuring the Lean Curriculum

Once the contents of the core lean curriculum are identified, one must organize them for development and delivery. A curriculum is first organized based on dependency or prerequisite relationships between its contents. If I need to master one set of content before I can learn and use another, then the former content must be developed and delivered first. Within the lean core curriculum, for example, one must understand the meaning of "value" before he or she can appreciate the meaning of "waste" since it is the absence of value that fundamentally defines what waste is. Similarly, one must understand what value and waste are before one applies performance improvement methods like gemba kaizen. Simply knowing the categories of waste is not sufficient. For example, you cannot judge whether an activity is an instance of "unnecessary processing" without understanding what value is. Unlike search or interruption, something can be judged "unnecessary" and therefore "waste" only by reference to what is value adding for the customers you are serving and not by an analysis of the activity in itself.

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[19] Omitted here is the competence a worker requires within the specialty area in which the person contributes. While everyone requires such competencies, they are specific to the technical role of each individual worker and thus are not part of the common set of core skills needed by all workers.

[20] A draft version of Volume 2 will be available electronically on the Vital Enterprises web site beginning in October 2013.

Building a Lean Training Curriculum

Even more fundamental than the concepts of value and waste is the knowledge of the lean commercial model itself. Given that all decision-making and action within a lean enterprise serves to advance the purpose of commerce as defined by the lean model in a manner consistent with its core values, one obviously needs a basic understanding of that model before he or she can contribute. Also, everything that one is being asked to learn derives its significance from its role in implementing the model. Nonetheless, even this content is not the curriculum's "root node." Indeed the root node or starting point for the lean curriculum is always the Working With Others (WWO) skills (Byron and Bierley, 2003). The reason should be obvious based on a review of the lean strategy for success. Teaming within and across work units and across the entire extended value stream is essential to lean enterprise. It is the basis for organization and every activity implemented within it, especially the collective pursuit of learning and improvement. It is also essential for the effective participation in training since training itself is a social event wherein people must share and receive information effectively and efficiently. Thus, these WWO skills are critical to participating in the very training experiences that will instruct all other contents (Vitalo, 2004). Consequently, the WWO skills represent the starting point for the development and implementation of a lean core curriculum.

One might think that with these basics under one's belt, a person is ready to learn performance improvement methods such as gemba kaizen. That would be incorrect. Before you can improve anything, you need to be able to measure its status. "Improvement" has no meaning in the absence of measurement, at least within a lean enterprise context. Yet, to measure anything you first need to identify what it is and what its expected performance or goal is. Only a properly stated goal tells you what you need to measure.

Exhibit 9 depicts an ordering of some of the contents of a lean curriculum based on their dependencies. Each higher placed item is a prerequisite for learning the next lower placed item. Once the curriculum's content is ordered based on dependencies, one applies other principles to sequencing content within elements. One such principle orders the presentation of content from schema to detail with each step progressively elaborating the former (Sweller, van Merrienboer, and Paas, 1998). For example, complete information-based problem-solving methods contain guidance for implementing three basic stages: Explore, Understand, and Act (Carkhuff, 1973). These three overarching steps represent a schema for problem solving. The *Explore* stage of problem solving identifies the performance to be improved (activity or result, key feature). It describes through observation, measurement, and discussion what is happening, where, when, with whom or what, and with what effects. The *Understanding* phase sets a goal for improvement,

Exhibit 9. Some Dependency Relationships Between the Contents of a Lean Curriculum

Working With Others
↓
Lean Commercial Model
↓
Value
↓
Waste
↓
Define a Performance Goal
↓
Measure Performance
↓
Problem Solving

uncovers the reasons for the current state, generates ideas for how to improve that state and achieve the goal, and selects the best alternative to implement. In the *Action* phase, a plan of action is made and implemented and the effects of the change are evaluated. Based on the evaluation, learning is developed and the change is accepted, modified and implemented, or rejected. All complete versions of information-based problem solving such as A3, DMAIC, Ford 8D, or gemba kaizen have elements that address each of the three generic stages. We teach the generic approach as expressed in this schema first since it has the broadest applicability. We use it also to educate contributors to the flow of problem solving and to act as a cognitive framework for learning and retaining the more detailed operations that are performed within each stage. It also enables our learners to detect if a proposed problem solving approach is complete or leaves out some essential element of the process. Afterward, we breakdown each stage into its constituent elements and instruct each step in its order of execution as defined by the overall process. It is only after this training that we instruct students in specific versions of information based problem solving. By that point, steps within those processes that are unique—if, in fact, any are—require only brief instruction.[21]

Final Steps

Once you have defined and organized your curriculum, the remaining work designs and develops the instruction that guides training. The steps are to define a terminal learning objective for each course and a set of enabling objectives for each terminal objective. A terminal objective specifies the behavior the person will learn from the course—for example, "to be able to detect 100% of the instances of waste in a workplace based on a walkthrough of the work area and an observation of the work processes implemented within it." The enabling objectives represent learning outcomes that cumulatively produce the terminal objective. One example would be "to be able to name and define the eleven categories of waste." Another would be, "to be able to detect with 100% accuracy into which category an given example of waste belongs." You should also assemble the content for each course or, at a minimum, outline that content. You then should profile your trainee population with regards to their learning strengths, preferences, and needs. This enables you to tentatively identify the instructional methods, mode, and media each course should employ. Given this knowledge you can make "build, buy, or adapt" decisions about courseware. Naturally, if the curriculum is for supporting a lean enterprise, you will establish measurement if its effectiveness and recycle the results training produces, including the effectiveness of the instructional guidance, into improving the curriculum continuously. For additional guidance in developing instruction see Carkhuff and Fisher (1984, 1984a) and Carkhuff and Pierce (1984, 1984a) among many other readily available resources.[22]

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[21] For additional guidance in building a curriculum, see Hodell (2004, 2011).

[22] Other resources can be found on the web at: http://www.instructionaldesign.org/books.html and http://www.upsidelearning.com/blog/index.php/2010/07/20/22-books-for-beginner-instructional-designers/

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