LEAN ENTERPRISE SYSTEMS
DESIGN INSTITUTE

► Location: Knoxville, Tennessee
► Duration: One Week
► 2000 Dates:
  January 30-February 4
  March 26-31
  May 21-26
  July 9-14
  August 13-18
  October 1-6
  December 3-8
Tuition: $3650 (includes meals and lodging)

1. PARTICIPANT PROFILE
Lean production concepts are of particular interest to managers and technical employees involved in the design and continuous improvement of the product delivery process, including production and materials managers; manufacturing and design engineers; marketing and customer service managers; and representatives from quality, purchasing and cost accounting.

2. OVERVIEW
What is the Lean Enterprise?
The word “lean” implies quick, agile, and without fat. In the early 1990s, Lean Production involved the concepts and principles of a management philosophy effectively deployed by major Japanese companies, primarily to the factory floor. Today, businesses realize that a Lean Enterprise can be achieved by applying many of the same concepts and principles throughout the entire value stream. To do so, companies must:
1. Focus on customer value.
2. Identify the product delivery system (value stream) by product.
3. Redesign the product delivery system to remove waste.
4. Simplify and align material, information and process flow.
5. Make value flow quickly and continuously as pulled by the customer.
6. Execute with teams and relentlessly pursue perfection.
7. Use shared measures to gauge performance.

As a new system of commercial competition, the Lean Enterprise has many dimensions. From the marketing perspective, this means individualized, highly variable combinations of goods, information and services, the prices of which are based on customer-perceived value. From the production perspective, the Lean Enterprise represents the ability to produce a wide and rapidly changing variety of goods and services to customer order in small quantities.

The design perspective involves integrating supplier processes, production processes, business processes, customer relations, and the product’s use and eventual disposal. From the organization’s perspective, the Lean Enterprise is characterized by the ability to achieve and integrate new productive capabilities out of the necessary business processes, the expertise of people, and physical facilities — regardless of their physical location within the organization.

At the level of management, the Lean Enterprise is characterized by a shift from
the command and control philosophy of the modern industrial corporation to one of leadership, motivation, support and trust. Finally, at the individual level, the Lean Enterprise represents the emergence of a knowledgeable, skilled, entrepreneurial and empowered total work force.

The Strategy.
To achieve results, companies must translate lean principles into a total business strategy. While the words may vary, the strategy must focus on customers, processes and people. Success always begins with some means of capturing value from your customers. This cannot be an internal activity; it must involve real conversations with real customers. Today’s customer is more sophisticated and demanding than ever, and the ability to discover, confirm and exceed their expectations must not be left to chance.

Next, we begin to capture information on customer order patterns. Since this should be done by product family, an important first step is to identify the product families currently offered. This can be done by developing a Pareto chart relating the product and corresponding quantity, along with the process routing for each product, in order to reveal patterns of common routings for products. Once product families have been defined, customer lead time distributions should be established for each. Some customers are more demanding than others, and this high level of demand must be established early in the process. Ultimately, criteria must also be established for deciding in which order the product families will be considered for re-design. The goal: to address the entire value stream for a given product and then proceed to the next-most important.

Of course, a primary objective is to eliminate waste. Waste is defined as unnecessary complexity, activities, and transactions which add cost to the product but do not add value. Dealing with a given product family, plans must be made to eliminate all forms of waste, including waste associated with transportation, inspection, rework, delays and storage. The strategy concentrates on streamlining and simplifying each step of a product family from order entry through distribution; this helps increase responsiveness and reduce variation in product characteristics and flows while improving productivity, quality and delivery performance.

Finally, it is crucial that each employee understand the importance of the effort. They must realize that the Lean Enterprise is not just another “program of the month”; instead, it is a completely new management philosophy that is necessary to remain competitive in the future.

The Institute’s Role.
The purpose of the Lean Enterprise Systems Design Institute is to teach managers how to implement the principles of the lean management philosophy. These principles are applied first to the factory floor and then to all parts of the product delivery process. Finally, the same principles are applied throughout the value stream,
including suppliers and distributors. The Institute is extremely applications-oriented. Practical exercises and simulations (both manual and computer) support the theory presented as part of the overall educational process. Several real-world examples are presented to support key ideas throughout the program. Attendees can expect to participate in group working sessions and to present team results.

The Institute represents a new initiative in several important ways. While it is a logical extension of the quality improvement philosophy, the Institute goes a step further by focusing on defect prevention rather than detection. The Institute operationalizes many of the concepts of Shigeo Shingo, Taiichi Ohno and others in a manner which is practical and easy to understand. The Institute also emphasizes the importance of variance reduction as a viable strategy for supporting increased flexibility and responsiveness.

The result: managers who possess the skills necessary to actually begin implementing an initiative within their company to reach new levels of performance. For this reason, many firms have sent cross-functional teams to the Institute to foster team-building and as a first step in the implementation process.

3. COURSE FOCUS
Creating a Lean Enterprise is a very broad topic and every principle involved cannot be covered in detail during a five-day period. Therefore, the Institute focuses primarily on improving the product delivery process. Other topics — such as activity-based costing, integrated product design, and flexible work force development — are introduced but not discussed in detail.

Designing a Lean Enterprise involves consideration of five major segments of the Product Delivery System. During the Institute, each of these process segments is discussed, with hands-on exercises supplementing discussion. These exercises highlight the differences between traditional manufacturing approaches and the new principles.

One major training objective of the Institute is to teach participants how to achieve drastic improvements simultaneously along multiple dimensions of performance through the proper design of lean production processes. These improvements include reduced throughput times, increased levels of quality, improved performance against delivery commitments, and reduced variability throughout the value stream.

A second major objective involves learning to extend the application of lean principles in both directions of the value stream. This extension is where the largest opportunities exist: forward to more effectively manage customer orders, and backward through the material supply channels.

The key to success in building a Lean Enterprise rests in the ability to effectively employ the concepts of rate-based planning. With rate-based planning techniques, a company plans for an agreed-upon level of
flexibility with respect to both quantity and model mix changes over time. Then, as actual orders are received, production levels are allowed to fluctuate in response to daily demand requirements. To ensure success, sales and marketing must work very closely with production planning and scheduling to agree upon the upper and lower demand bounds which can be achieved in the short term.

In addition, the procedures for accepting customer orders must prevent the maximum flexibility limits from being exceeded without management intervention. This is accomplished by controlling the order-promising function through finite scheduling approaches to ensure that the input stream is compatible with available flexible capacities. Suppliers must be engaged in this process, since they are likely to represent flexibility constraints as implementation begins. Recognizing limitations throughout the value stream allows the firm to make valid commitments to its customers.

4. KEY OBJECTIVES
- Define customer value and the value stream for each product family
- Develop time-based marketing strategies which provide enhanced customer value
- Identify critical competitive advantages which guide and direct the redesign of the Product Delivery System
- Establish rate-based planning procedures which balance production and procurement capacities (flexibility) against demand variations
- Create supplier partnerships which ensure an uninterrupted flow of quality materials into the production process
- Introduce the principles of activity-based costing as they apply to the Product Delivery System and support processes
- Identify a means of organizing to assist in achieving a successful implementation
- Identify operator and team training programs which create a positive environment for change

See course schedule attached.

5. METHODS OF INSTRUCTION
The Lean Enterprise Systems Design Institute is an applications-oriented program. In the first half of the week, instructors introduce concepts and principles and then follow up with exercises and simulations which demonstrate how the concepts can be successfully applied. An initial production simulation allows participants to experience and identify the characteristics of a typical mass production environment with its inherent shortcomings. Following presentations and discussions of lean concepts and principles, participants work in teams to redesign the production environment. The effectiveness of the new design is demonstrated through another simulation.

The second half of the week is devoted to concepts and principles which can be successfully applied at the enterprise level.
A computer simulation captures the essence of the interconnected value stream — including suppliers, the manufacturer and customers — and identifies specific strategies which represent leverage points in bringing about meaningful change. The primary points of the computer simulation are reinforced through a hands-on simulation which demonstrates the benefits of a redesigned value stream by measuring performance before and after the redesign.

6. FACULTY
Course instructors include faculty of the University of Tennessee’s Colleges of Business Administration and Engineering, as well as key leaders from industry.
Instructors include:
► Dr. Tom Greenwood, Director of Lean Enterprise Forum and former Director of Global Manufacturing Systems for Carrier Corporation. Tom has implemented lean production concepts in various industries throughout North and South America, Europe, Asia and the Middle East.
► Dr. Ken Gilbert, Professor of Management Science. Ken teaches and consults in such areas as production management, information systems management, and management science. He has taught in North America, Europe and Asia.
► Dr. Ken Kirby, Associate Professor of Industrial Engineering. Ken has considerable experience in redesigning manufacturing systems and business processes. His international experience includes England, Ireland, France, Spain, Brazil and Singapore.
► Dr. Jim Reeve, Deloitte and Touche Professor of Business and Accounting. Jim is the founder of the Cost Management Institute. He has extensive experience in the application of activity-based management within lean production systems. Jim has taught in North and South America as well as Europe and Asia.
► Dr. Alex Miller, William B. Stokely Professor of Management. Alex’s research is focused on facilitating innovation in large organizations, especially through strategic planning, new corporate ventures and broad-based organizational change.
► Dr. Bill Parr, Professor of Statistics. Bill integrates statistics with other key areas of business management such as customer value, systems management, and managerial-leadership. He also manages the Lean Graduate Internship Program.
► Dr. Jim Schmidhammer, lecturer with the Department of Statistics. Jim is co-founder of the Statistical Consulting Center and program developer for the Center for Executive Education. Jim manages the Lean Benchmarking Initiative.
► Dr. Mandyam Srinivasan, Professor of Management Science. He has more than five years professional experience with leading automobile manufacturers. Srin has been published in a wide range of academic and professional journals and is chair of the Lean Research Council.
7. FACILITIES
Classes are held in the executive classrooms of The University of Tennessee Center for Executive Education. These facilities are specifically designed for group-interaction programs.

Accommodations are single-occupancy rooms at a nearby hotel.

8. SUPPLEMENTAL OFFERINGS
This course is supported by one and two-day workshops which have been developed to assist organizations in successfully applying the concepts and principles presented during the week. These workshops include:
- Business Planning, which covers organizing process management and area teams; implementation plans, timelines and issues; area team metrics; and evaluating progress.
- Integrating Product Design and Delivery Processes, covering such topics as complexity reduction; design for manufacturability; modular BOM structure; mistake-proofing and FMEA; product and process cost reduction; and flow process documentation.
- Materials, which covers rate-based materials management; point-of-use materials and kanbans; and supplier process integration.
- Sales and Operations Planning, covering such topics as market scope; customer profiles; demand planning; rate-based production planning; rate-based order management and scheduling; and distribution channel integration.

9. RELATED COURSES OF INTEREST
Response Surface Methodology
Practical Strategies for Process Improvement

10. CONTACT
For more information on The Lean Enterprise Systems Design Institute, please call or write:
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E-mail: mdc@utk.edu

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# Lean Enterprise Systems Design Institute Schedule

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