



Still waiting to start your training?

Let the LeanMan get you started on your Lean journey

Introducing *The LeanMan LLC*

2023 Product Catalog

The LeanMan

Lean Manufacturing Training



2023 Product Catalog

The LeanMan LLC Catalog

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Prices displayed subject to change

Please refer to the LeanMan LLC web site

www.TheLeanMan.com for current prices.



The LeanMan

Lean Manufacturing Training

- ✓ Hands-on learning for your organization
- ✓ Reusable kits and training materials
- ✓ Consistent and repeatable metrics
- ✓ Learn – Do – Teach environment

What can The LeanMan do for your business?

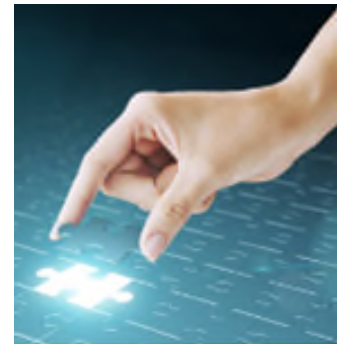
It's easy to get started implementing Lean into your company!

Each Deluxe Car Factory Kit includes the executive overview "*Learning-to-See-the-Waste.*" The event can be completed in under one hour and is a perfect way to start your lean journey. The event includes facilitator's talking points to make execution a snap, while the instruction placemats take the worry out of the event for the first-time simulation participants. It's fun and it packs a real WOW lean punch!

You will be in good company!

Companies, colleges and consultants around the world have chosen [*The LeanMan*](#) for their Lean Principles training tools. See the listing [*In Good Company*](#) at the end of the catalog for a list of just a few of the members who have joined the team.

The hands-on simulation kits contain event scenarios that can be completed in under one hour for executive overview, or the simulation can be configured to last for as long a period as needed to fully explore the elements of lean.



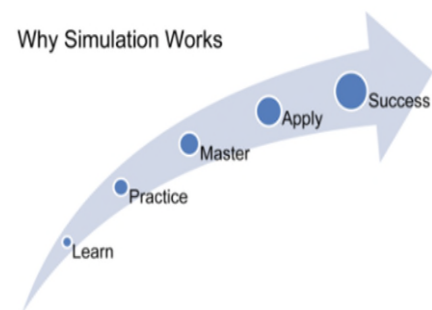
It's the perfect way to start your lean journey!

Fundamentals of Simulation Training

The American Society for Training and Development (ASTD) recommends using a multi-sensory approach to teaching adult learners.

Adults by nature do not like to read operators manuals, watch instructional videos, or listen to lectures on what to do. They like to learn by doing, they like to become an expert, and then best of all they like to teach others what they know.

Adult learning isn't a simple act. It involves a complex, interrelated series of cognitive processes, including attention, perception, and memory. Based on cognitive psychology—the science of how



2023 Product Catalog

people process information—the principles of instructional design can help create and present Lean Mfg. training materials that are consistent with the way people learn.

The LeanMan Lean Principles Simulation Kits will provide you with an interactive Learn-Do-Teach hands-on tool to help introduce you and your team to these learning principles, and suggest how you can combine effective instructional design with the power of simulation to create Lean training materials that work, on the job and in the classroom. And most important, adults establish long term learning when associated with a high state of emotion or exhilaration -i.e. **FUN!**

The Value of Training

Training costs a few bucks, but as the *Three Greeks* cartoon suggests, payback comes quickly.

Motorola calculates that for every \$1 spent on training, there is a \$30 productivity gain within three years *Ronald Henkoff, "Companies That Train Best," Fortune (March 22,1993).*

A study by the National Center on Educational Quality of the Workforce at The University of Pennsylvania found that a dollar invested by a company in education was more than twice as effective in boosting the firm's productivity as a dollar invested in new machinery. *Washington Post (December 29, 1996).*

Across a variety of business operations, the potential for workforce productivity gains is tremendous. Driving even a 5 percent improvement in productivity can result in substantial bottom-line improvements. *Paul Sparta, Workforce Performance Solutions (June 2005)*



Why not Legos?

Lego blocks have been the simulation selection of choice by many trainers because they are readily available, inexpensive (if you don't consider the Escalade needed to cart them around) and they do a quick job getting the basics of the lean flow across.

So, what do they miss? Anyone who has spent any actual time in the shop with hands-on assembly of product knows that not all parts are created equal (except Legos) and that the randomness and variation in the components fit and finish present a challenge to the idealistic flow.



The LeanMan simulation products are designed to provide some natural size variation like the wooden pegs, or finger-fighters like the small stackable metal parts; plus, some intentional variation for measuring the effects of nonconformance on quality like inserting the black wheels into the flow. The resultant metrics are realistic, statistically repeatable from team to team, and add an element of finesse to the event missed by the overly simplistic Legos or by trainers who have never worked with their hands in a shop.

Product Catalog

The LeanMan Deluxe Car Factory Kit - \$613.68

Deluxe Kit. This package contains the materials of the Basic Kit as described below, and adds the simulation exercises and facilitator guides to make training simple with excellent results. There are three simulation scenarios provided in the Deluxe kit.

The Deluxe Kit simulations include the Lean Principles Training Learning to See the Waste – a 2-Step Executive level 30-minute simulation with a real WOW factor; the 6-Step TPS simulation, and on the USB Drive a customizable 4-Step “Batch ‘n Queue to Lean Transformation” event. Several Power Point presentations are included and are perfect for introducing executives and others to the value of lean. Each exercise event includes earned value Financial Metrics. The Deluxe Kit now also includes the ToyodaWay Game Set files as a great ice-breaker and a good way to learn the history of lean.



This deluxe kit is recommended for first time purchaser and will provide immediate presentation and simulation exercises suitable for all management levels including top management and associates.

Deluxe Package Contents:

The Deluxe Kit contains over 300 parts, packaged in a durable container with a Polycarbonate cover that latches securely to hold the materials for travel. Approximate dimensions of the kit are 16"x13"x2".

The package includes a Deluxe USB Drive with the PowerPoint files for each simulation event; a set of 8.5 x 5.5 laminated participant placemats and facilitator guides for the Learning to See the Waste 2-step executive simulation event, including the 10-Second Test and the Earned Value financial metrics laminated sheet; two wet-erase markers for metrics; and a large-digit easy to read stopwatch to time the events. The package also includes the color printed and bound TPS Simulation facilitator guide and 8.5 x 5.5 laminated participant placemat set.

Special Bonus:

Each Deluxe or Deluxe-Plus USB Drive includes several bonus presentations to make training fully comprehensive, and FUN! Files include 5-S for Lean; The 14 Philosophies behind the Toyota Production System (TPS); the Five Principles of Lean; The Lean Self-Assessment Excel Tool; Visual Control for Lean; and Visual Systems for Lean.

GREEN LeanMan Deluxe Car Factory Kit - \$506.94 (You save \$106.74)

GREEN Deluxe Kit. This package contains all of the same simulation capabilities as the standard Deluxe Kit, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan Basic Car Factory Kit - \$388.45

Basic Lean Factory Simulation Car Kit is the base building block for all of our Car Factory simulation kits and makes a great way to expand the capacity of any of the Deluxe or Deluxe-Plus Car Factory products.

The Basic Kit is also a great way to obtain a complete hardware set of materials upon which the more experienced Lean Principles trainer can design and implement his or her own lean principles training plan. In this regard, while the Base Kit does not provide any supporting presentation or supporting simulation exercise materials, it is a very economic method for experienced lean trainers to supplement their own methods.



The Basic Kit is recommended for lean trainers comfortable with the Lean Principles and their own presentation methods who just desire the reusable kit of hands-on car factory materials and are comfortable enough to know how to use them with no instructional or support documentation.

The Base Kit contains 20 plain car bodies, with enough wheels, disk brakes, and axle pegs for assembly. Extra wheels, disks and pegs are included. There are two painted car bodies which can be used to introduce mixed mode production into the work cell. The two additional cars can be used as “moles” to run through the flow to provide throughput metrics, as desired, by the facilitator. There are two ergonomic tools included, one is used to provide an easy peg insertion to prevent discomfort to the fingers and wrist (not really needed, but introduction of ergonomic concepts is part of the 5S safety principles) and a wheel extractor tool used to ease disassembly of the completed cars.

There are 5 sub-assembly holding fixtures used to simulate the batch mode operation and the waste of transport moving items as a batch. There are 5 product kit bags used to pick car kits for delivery from the stockroom, plus the yellow plastic box containers are used both in batch mode for material movement and in lean mode for point of use material Kanban containers. A large digit stopwatch for timing events completes the kit.

Basic Package Contents:

The Basic Kit contains over 300 parts, packaged in a durable container with a Polycarbonate cover that latches securely to hold the materials for travel. Approximate dimensions of the kit are 16"x13"x2".

Please Note: This Base Kit does not include any of the MS PowerPoint presentation or simulation scenario materials designed for use with the Car Factory. It includes only the toy car materials and stopwatch. Therefore, the GREEN Basic Kit would be identical to the standard Basic Kit.

2023 Product Catalog

The LeanMan Companion Car Factory Kit - \$457.75

Companion Lean Factory Simulation Car Kit builds upon the Basic Car Kit by providing some easy to facilitate Lean Principles training exercises and support material files on an accompanying USB Drive.

The Companion is recommended as an additional kit for those who have purchased the Deluxe Kit and wish to add capacity to the simulation sessions or train multiple teams for a little competitive fun.



Companion Package Contents:

The Companion Kit contains over 300 parts, packaged in a durable container with a Polycarbonate cover that latches securely to hold the materials for travel. Approximate dimensions of the kit are 16"x13"x2". The package includes a Companion USB Drive with the PowerPoint files for each simulation event; a set of 5.5 x 8.5 laminated participant placemats for the Learning to See the Waste 2-step executive simulation event; a participants TPS simulation laminated placemat set, and two wet-erase markers for metrics; and a large-digit easy to read stopwatch to time the events.

GREEN LeanMan Companion Car Factory Kit - \$446.78 (You save \$10.96)

GREEN Companion Kit. This package contains all of the same simulation capabilities as the standard Companion Kit, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

The LeanMan Deluxe Double Car Factory Package - \$1071.00

Deluxe-Double. This special offer package includes the Deluxe Car Factory Kit and The Companion Car Factory Kit at a reduced price, saving you over \$160.00. The Deluxe Double is perfect for larger groups of participants, where running two teams is an excellent way to stimulate learning with a bit of competitive fun and comparison metrics.



Deluxe-Double Package Contents:

The Deluxe Kit and The Companion Kit each contain over 300 parts, packaged in two durable containers with a Polycarbonate covers that latch securely to hold the materials for travel. Approximate dimensions of the kits are 16"x13"x2".

The **Deluxe Car Kit** package includes all of the regular Deluxe Kit features and bonus files plus all of the laminated participant placemats, including the 10-Second Test and the Earned Value financial metrics laminated sheet; two wet-erase markers for metrics; and a bonus large-digit easy to read stopwatch to time the events. The ToyodaWay Game Set files are also on the USB drive. The **Companion Car Kit** package includes a the 2-Step LTSTW 8.5 x 5.5 laminated participant placemat set and a bonus TPS Laminated placemat set. Also included is the Large Group Simulation files (no printed materials) on the USB drive.

GREEN LeanMan Deluxe Double Car Factory Package - \$945.60 (You save \$125.40)

GREEN Deluxe Double Kit. This package contains all of the same simulation capabilities as the standard **Deluxe Double** Kit, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan Deluxe-*Plus* VSM (Value Stream) Package - \$1,229.50

Deluxe-*PLUS* VSM. The greatest lesson to be learned from the VSM simulation is that not all change is lean and not all lean changes will result in lean flow. Unless you keep an eye on the whole value stream, you may end up with isolated islands of perfection (work cells) linked by systems that are optimized for their own self-interest (goals optimized for purchasing, receiving, stockroom, inspection, etc.) without concern for your “island’s” needs. Value stream mapping is essential to prevent such unwanted and wasteful results.



The LeanMan Deluxe-*PLUS* VSM Loop Simulation is a complete Lean Principles training package. Containing all the materials and presentations of the Deluxe Kit, the VSM package includes materials to map the value stream flow and to explore the tools of continuous improvement along the way. The continuous loop VSM simulation training exercises allow the class room training period to run for as long as the facilitator requires, exploring thoroughly all elements of the Five Principles of Lean at each process point in the stream.

VSM Package Contents:

The LeanMan Deluxe-*PLUS* VSM package includes all of car factory materials and presentations as in a Deluxe Lean Factory Car Kit and a Companion Car Factory Kit, but all packaged into two shallow containers plus additional materials needed to simulate the entire value stream. Optionally, the two containers can be packaged into one double deep container at the customer request.

The package also includes the VSM material set of 6 Kanban flags, 8 Non-conforming Material Report cards, 8 Material Requisition cards, 8 Job Ticket cards, 8 Heijunka cards (all cards are laminated) and a supply of wet-erase markers to set limits and record metrics.

The car factory simulation materials are all packaged into two single double deep containers approximately 16x13x2 for easy transport and setup when traveling on the road, or even when just traveling between training sessions. Each of the single containers can also be used individually as Deluxe Kit for smaller group simulations. A single deep container approximately 16x13x4 is optional upon request as shown in photo.

GREEN LeanMan Deluxe-*Plus* VSM (Value Stream) Package - \$1,045.58 (You save \$183.91)

GREEN Deluxe Plus VSM Kit. This package contains all of the same simulation capabilities as the standard **Deluxe Plus VSM** Kit, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan Deluxe-*Plus* Kanban Package - \$930.25

Deluxe-*PLUS* KANBAN. This simulation is a complete Lean Principles training package. In addition to the materials and presentations of the Deluxe Kit, the package includes materials to create a full customer-pull value stream flow and to explore the tools and communication techniques of Kanban along the way. The addition of the Kanban kit supplies the extra materials needed to turn your Deluxe kit into a fully integrated customer-driven value stream "from customer to factory to supplier."



This simulation training will help participants understand how lean philosophy and techniques can be applied in a totally random mixed-mode customer-pull product flow utilizing Kanban cards and other Kanban signaling devices to control flow and inventory levels.

The event is the Zoom-Zoom Car Factory and Showroom. Customers take delivery from the Show Room at random, which triggers stock replacement from the factory Warehouse, which then triggers the Planning Dept. to order a replenishment from the Factory, which in turn causes a duplicate car to flow back into the Show Room. Along the way, various Kanban methods are employed.

Kanban Package Contents:

The Deluxe-*Plus* Kanban material kit consists of the complete contents of the Deluxe Car Factory Kit, plus the materials needed to support the Kanban Customer-Pull mixed-model loop simulation.

The whole package fits into one double-deep approximately 16x13x4 container, which holds the USB Drive and facilitator guides and participant placemat sets for The Learning to See the Waste; The TPS Simulation; and the Kanban Simulation exercises.

This Deluxe-*Plus* Kanban package also includes an 11x14 laminated inventory supermarket slideboard. Kanban Cards include 16 Kanban Production cards, 16 Move/Job Ticket cards, 8 Material Requisition Cards and 8 Non-Conforming Quality Cards.

GREEN LeanMan Deluxe-*Plus* Kanban Package - \$777.19 (You save \$153.06)

GREEN Deluxe Plus Kanban Kit. This package contains all of the same simulation capabilities as the standard **Deluxe Plus Kanban Kit**, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan Deluxe-*Plus* Heijunka Package – *(only available in the Grand Package)*

Deluxe-*Plus* Heijunka. "HI-E-JUNE-CA"-- The "Leveling the Waves" presentation presents an alternate way to approach the function of master scheduling and planning for a lean manufacturing environment.

The LeanMan Deluxe-*PLUS* Heijunka Simulation is a complete Lean Principles training package. It includes a unique 6 x 6 slot Heijunka Box (14"x15"x4") when assembled) plus all of the materials necessary to explore thoroughly all of the elements of Heijunka scheduling and how it relates to the Five Principles of Lean.



Recommended class size is at least 10 hands-on participants, but varies with the flow method being simulated. There are two Heijunka flow simulations provided. The facilitator is then encouraged to build upon these examples by using the techniques described in the Leveling the Waves presentation and in the Facilitators Guide to run a third simulation using a toss of a die to randomly build one of 6 models.

Heijunka Package Contents:

The Deluxe-*Plus* Heijunka material consists of the complete contents of the Deluxe Car Factory Kit, plus the extra materials to support the Heijunka mixed-model loop simulation.

Additional Heijunka materials include the 49-page color printed and bound Facilitator Guide, a 6x6 Heijunka Box, 16 Heijunka Kanban cards, 16 Job Ticket order cards, two 450 pc dispenser packs of detail components, inventory gravity fed slide board, and all supporting files on USB Drive.

All materials are packaged in a single double deep container approximately 16x13x4, or about the size of a brief case, for easy transport and setup. The Heijunka Box can be assembled in under 5 minutes.

GREEN LeanMan Deluxe-*Plus* Heijunka Package – *(only available in the GREEN Grand Package)*

GREEN Deluxe Plus Heijunka Kit. This package contains all of the same simulation capabilities as the standard **Deluxe Plus Heijunka Kit**, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan VSM Upgrade - \$699.25

VSM Upgrade for your Deluxe Car Factory Kit, or any Deluxe-*PLUS* Package, to include the VSM Value Stream Simulation. This simulation training will help participants understand how lean philosophy and techniques can be applied to maximize customer value, minimize waste, and reduce costs through workplace organization and visual controls, one-piece flow, quality at the source, and pull scheduling.

VSM Upgrade Package Contents:

Upgrade includes a Companion Car Factory Kit, the VSM Presentation materials on USB Drive and the color printed and bound Facilitator guide and placemat set, and the VSM Kanban control hardware items.



Note: Duplicate materials between the Deluxe package and the VSM package are not included. This upgrade in conjunction with a Deluxe Kit will equal a full Deluxe-*PLUS* VSM Training Package.

GREEN LeanMan VSM Upgrade - \$626.27 (You save \$72.97)

GREEN VSM Upgrade Kit. This package contains all of the same simulation capabilities as the standard **VSM Upgrade Kit**, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats with easy wipe off wet-erase-markers are still included.

2023 Product Catalog

The LeanMan Kanban Upgrade \$415.75

Kanban Upgrade for your Deluxe Car Factory Kit, or any Deluxe-*PLUS* Package, to include the LM Kanban Simulation.

The upgrade kit supplies the additional materials to turn your Car Factory Trainer kit into a fully integrated customer-driven value stream from customer to factory to supplier.

This simulation training will help participants understand how lean philosophy and techniques can be applied in a customer-pull product flow utilizing Kanban cards, signaling devices and Heijunka planning to control flow and inventory levels.



Kanban Upgrade Package Contents:

Upgrade includes the VSM Presentation materials on USB Drive and a color printed and bound Kanban Facilitator guide and placemat set, plus the VSM Kanban control hardware items. All materials are packaged in a single deep container approximately 16x13x2, or about the size of a thin brief case, for easy transport and setup.

Note: Duplicate materials between the Deluxe package and the Kanban package are not included. This upgrade in conjunction with a Deluxe Kit will equal a full Deluxe-*PLUS* Kanban Training Package.

GREEN LeanMan Kanban Upgrade \$368.36 (You save \$47.38)

GREEN Kanban Upgrade Kit. This package contains all of the same simulation capabilities as the standard **Kanban Upgrade Kit**, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats are still included.

The LeanMan Grand Package - \$2,014.90

The **Grand Simulation Package** presents the trainer with a complete complement of Lean training materials all packaged into two easy to travel containers. The Grand includes

- The Deluxe Car Factory Kit,
- Companion Car Factory Kit,
- VSM Upgrade Package,
- Kanban Upgrade Package, and
- Heijunka Upgrade Package.
- Large Group Package Files
- Developing Lean Eyes Files
- 5-S Philosophy Handbook File
- Fun with Little's Law files
- The ToyodaWay Game Set files
- The VSMgt Service and Repair Shop files
- Solar calculator



Together they provide all the necessary materials to completely explore the Lean Manufacturing implementation, with an executive overview and shop level events that range from beginner to advanced.

Note: The Grand is the #1 selling LeanMan product to Colleges and Universities and Consultants across the world!

Grand Package Contents:

Two Car Factory Kits, the VSM Upgrade, the Kanban Upgrade and the Heijunka Upgrade materials. Packaged into two double-deep containers. Includes Two Stopwatches, four wet-erase markers, a total of 96 Laminated Kanban material control cards, Laminated Participant placemats for each simulation event with Facilitator Guides for each, and a USB Drive with all simulation materials and forms, plus the Special Bonus presentation items that are include in the Deluxe Kit.

GREEN LeanMan Grand Package - \$1,744.37 (You save \$270.53)

GREEN Grand Package. This package contains all of the same simulation capabilities as the standard **Grand Package**, except no paper handbooks or read-me files are printed. All are printable by you from the USB. Laminated participant placemats are still included.

2023 Product Catalog

The LeanMan Ultimate Plus OPT Package - \$1,050.00

The Ultimate Plus OPT Package presents the trainer with a complete complement of Lean training materials all packaged into two easy to travel containers.

The Ultimate includes

- A Batch Flow simulation
- Kaizen Event evaluation of Batch
- 5-S training
- 5-S Game files
- Lean Principles Training
- The ToyodaWay Game Set files
- Lean Flow simulation
- Earned Value Analysis



The Ultimate also includes two ice-breaker type games to teach the participants how to become a team and to understand team communication techniques.

The **Ultimate Simulation** explores the concepts of the learning curve when introducing product into a production team, the techniques used to capitalize on the voice of the people include using kaizen methods, the 10-second test and the 15-minute observation teams to voice the obstacles in the flow, and to continually improve production methods with the goal of improving flow velocity. The Simulation begins with Batch Flow + Kaizen, then introduces 5-S methods, and based upon kaizen outcomes and implements 5-S, to finally develop a Lean Flow. Earned value analysis shown the way. The experience uses two identical Race Car products with over 200 components in a 5-work station flow plus finished goods. The simulation can be presented in either 2 Half-Day events, or 1 eight hour Full-Day event

This full day event focuses on understanding a factory, hidden factory costs, eliminating waste, how people learn and how teams work together, and the importance of flow velocity. A batch flow is used to introduce the learning curve and frustrations of a batch push. Participants are then introduced to Kaizen, or voice of the people. Then the team is introduced to the 5-S philosophy, tools and strategies as developed by the Toyota Motor Company. Following 5-S is a presentation on the 5 principles of Lean Flow.

After the 5-S familiarization presentation, the students are invited to participate in a series of fun games which repeat and focus the concepts and terms of 5-S.

2023 Product Catalog

The students are invited to participate in a series of fun games which repeat and focus the concepts and terms of Lean

Next the participants set up a simulated Lean Flow factory, with the 5-S implementation and point of use (POU) inventory, to run the two products again and analyze the earned value difference between the Batch and the Lean flows.

The Ultimate Training presentation is interactive, and the Guide links each of the presentations in seamlessly as the day progresses.

The OPT Simulation Includes:

The OPT Factory Simulation Dice Game explores the variables that influence production outcomes. A great introduction tool for new production supervisors, managers, and product planners, or anyone working in a production environment. This 8- hour course is also an excellent teaching tool for industrial training course work.



There are 14 scenarios presented in either 2 four-hour Half Day events, or 1 eight-hour Full Day event. The game can be played with 8 to 12 participants. Three additional participants can be added with the extra chips and dice included.

The game consists of two types of dice, each representing yield variables; 50 white chips to “wet” the line; 50 black poker chips, and 100 poker chips of a different color to act as product and to indicate lead time. Laminated cards for operation number are included along with wet erase markers to write the participant’s name. Tape is provided to attach the laminated card holders to the table edge so other participants can see where each operation is being performed. A large digit calculator is provided for metrics.

A USB Drive containing several files for set up, for QUILS metrics recording, and a 108 slide Power Point presentation for the participants to follow along with the facilitator as the game progresses.

A printed and bound facilitator guide that provides detailed instructions for sequencing and facilitating the games, plus several discussion point questions to ask the participants for each of the 14 steps. Also, included on the USB Drive is a *“Train-the-Trainer”* Excel file to simulate each of the games to provide an easy way to learn how to move product, keep score, and to teach the trainer the concepts of each of the 14 game steps.

An excel file on the USB Drive is used for automatically calculating the metrics using the QUILS concept. QUILS stands for **Q**uality, **U**nit cost, **I**nventory, **L**eadtime and **S**hip performance.

The LeanMan Ultimate Simulation Package - \$750.00

The Ultimate Simulation presents the same Ultimate Simulation experience as the Ultimate Plus, except it does not contain the OPT simulation.

The Ultimate includes

- A Batch Flow simulation
- Kaizen Event evaluation of Batch
- 5-S training
- 5-S Game files
- Lean Principles Training
- The ToyodaWay Game Set files
- Lean Flow simulation
- Earned Value Analysis



The underlying reason for the Ultimate Simulation with a mechanical product.

Many customers who own one of the LeanMan Car Factory kits, using the wood cars and just a few components, have stated that those kits do a great job of displaying the principles of lean. However, the few components leave little to discuss in the kaizen events when it comes to displaying the effects of communication, team interplay, the learning curve on the team. Such things like adding a new member to a well-established flow will slow the flow until the new member learns the hands-on details of the process, how to perform it at speed, and how the communication system within the team works. They asked for a more detailed product to build with more variations and components.

Thus, the Ultimate Simulation with the Meccano STEM units to build with over 200 components and some tricky assembly techniques. Thus, the learning curve from the 1st build in Batch Flow until the 4th build in Lean Flow is tremendous. The 1st unit in Batch typically requires over 90 minutes, while the 4th build in Lean has been performed in under 22 minutes. The changes to techniques required to improve flow along the way are very creative, and the kaizen events just flow with ideas on how to perform the tasks better. Everyone learns at a faster rate by sharing the "voice of the people."

The package also includes presentations on communication, both visual and aural, and team development and interaction, with a couple ice-breaker games that are fun to play and allow the team participants to get to know each other. One game involves tossing a nerf ball between members in a circle, and once at top speed, suddenly add or remove a member and watch what happens to velocity. Just like a person showing up late or not at all. A soft nerf-like ball is included in the package.

The LeanMan VSMgt Service & Repair Center Simulation - \$32.50

Value Stream Management (VSMgt) concepts are explored with this unique and fun alternative simulation designed to be used with any of your LeanMan Car Factory Kits. The Service and Repair Center simulation is a unique twist on the standard Car Factory simulation exercise. In this learning experiment, pre-assembled cars are returned to the factory for service and repair. The value stream management decisions relate to the door-to-door processes that occur in a service department, with some returns simply requiring a review, some a rebuild, and some require ordering and waiting for replacement parts.



Transform the service and repair department into a smooth lean door-to-door flow utilizing lean principles, while maintaining the turn times and quality demands of the customer.

This simulation exercise is an alternative to the larger and more complex VSM Loop simulation. It uses just one Car Factory kit of materials and presents a value stream for customer service using a door-to-door look at the paperwork forms, decision processes, and hands-on repair of customer returns.

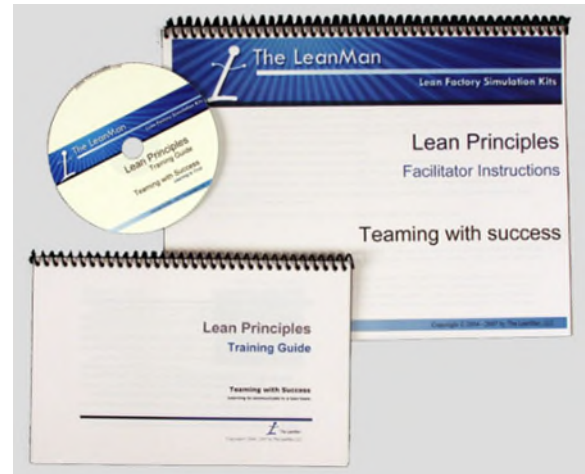
NOTE: The VSMgt simulation exercise is included in the Grand Simulation Package, and can be purchased as a separate purchase to be used with the other car factory kits, and **will require at least one LeanMan Car Factory Simulation Kit to perform the VSMgt event.**

Team Development

The LeanMan Teaming with Success Training Package- Available only as part of the Grand Package

NOTE: This presentation set is now included as part of the Grand Simulation Package (files only).

Teaming with Success Training is a behavioral science-based approach to understanding teams and team membership, the effect of introducing a change such as lean manufacturing into a team, and how to lead the team through the resultant turmoil back into a highly productive state.



One of the reasons lean implementation efforts fail in the early stages is the lack of understanding of human behavior in a team setting. Some of the most obvious improvements in product flow are rejected by the team leaving supervisors to wonder why. They often attribute the cause to poor attitude and lack of team spirit. A misstep by the lean trainer to elicit cooperation can backfire and cause long term damage to the team.

Lean leadership is an essential element for creating lasting and rewarding lean results. While the lean principles are not particularly hard to understand, they are not a natural way for teams to evolve. As such, the introduction of lean methods into a team creates an uncomfortable feeling in the early stages. Early warning signs of turmoil are often misinterpreted and attributed to personalities on the team. A lean leader must correctly interpret these warning signs, and carefully lead the team to success.

Teaming with Success is based on the behavioral science of team dynamics and will acquaint your lean leader with the essentials necessary to support a successful lean implementation plan. A few of the subject elements presented in Teaming with Success are: Selective Perception; Communication: verbal and visual; Team Membership; Barriers to Success; The Team Model; and The Trust Equation.

Teaming with Success Package Contents:

One Teaming with Success USB Drive, one 43-page color printed and bound Facilitator Instruction, and one sample Teaming with Success Training Guide Handbook.

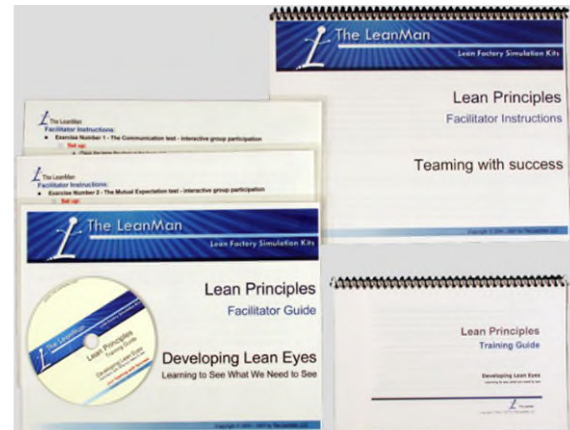


2023 Product Catalog

The LeanMan Developing Lean Eyes Training Package- Available only as part of the Grand Package

NOTE: This presentation set is now included as part of the Grand Simulation Package (files only).

The Developing Lean Eyes presentation is based on the Gestalt theory of group communication where "Learning to See What You Need to See" considers the various bits of educational bias and environment influence each member of a team brings to the group, and teaches each to look at the work environment with a new set of eyes.



This presentation and exercise set reviews the Gestalt theories and how people communicate with each other verbally and non-verbally. It also teaches the advantage to a lean team when communication evolves to a high-speed nonverbal level. It is aimed at answering questions about why team members are resistant to change and the gut level feelings that can defeat even the best of intentions. It helps develop an understanding of language, culture and communication issues that are barriers to team success, and shows team members how to learn to see the waste with a new perspective.

The Lean Eyes presentation ends with a lead-in to the Learning to See the Waste two-step hands-on Car Factory simulation exercise. This exercise, facilitators guide and participant placemats are provided with each Car Factory Simulation Kit, purchased separately. The Car Factory Simulation event is not necessary to gain the full impact of this training package.

The LeanMan 5-S Game - \$41.95

This is the same **5S Game** included with the LeanMan 5S Simulation and Game Set Product. Now you can purchase the games separately if you are already practicing 5S and are looking for a clever way to refresh and support the 5th S -Sustain.

The Jeopardy-like game with 25 questions and the Who Wants to Be a Millionaire-like game with 15 questions challenges the skills while reinforcing the underlying elements of the 5S Philosophy.

This "easy to digest" format is designed as a memory trainer for the terms and definitions of 5S. The goal is for participants to come away with a clear distinction between the principles and the terms used when discussing the 5S methods. Participants are given a slide show presentation of the terms and definitions with key words underlined which are used later to answer the game questions. Facilitators familiar 5S can use the slideshow to discuss the key philosophies of the System. Facilitators unfamiliar with 5S will still find it easy to follow along with the slideshow using the materials given.

The games use the training information provided in the LeanMan 5S Simulation Training Kit PowerPoint presentation to create the "5S Jeopardy" and "Who Wants to Learn Lean - 5S" fun filled games. The games are certain to put the team members through their paces as they test their knowledge about the 5S philosophies. The "Who Wants to be a Millionaire" game makes good use of sound, just like the TV show.

5-S Game on USB Drive Contents:

One 5S Game Set USB Drive



*USB Drive is the
typical file
delivery method
unless otherwise
requested*

Please Note: Product ships USPS Priority Mail flat rate when purchased alone.

The LeanMan ToyodaWay Game - \$31.45

The **ToyodaWay Game Set** USB Drive is a fun spin-off of key information presented in Jeffrey K. Liker's book - The Toyota Way (McGraw-Hill 2004). It is a fun way to present the philosophies of the Toyoda family that are the foundation for the Toyota Production System and Lean Manufacturing.

The Jeopardy-like game with 25 questions and the Who Wants to Be a Millionaire-like game with 15 questions challenges the skills while reinforcing the underlying elements of the TPS Philosophy.

This "easy to digest" format is designed as a memory trainer for the ideas and foundations of Lean Manufacturing. The goal is for participants to come away with a clear distinction between the principles and the terms used when discussing the five principles of lean. Participants are given a slide show presentation of the terms and definitions with key words underlined which are used later to answer the game questions. Facilitators familiar TPS can use the slideshow to discuss the key philosophies of the System. Facilitators unfamiliar with TPS will still find it easy to follow along with the slideshow using the materials given.

The games are based on the information provided in the LeanMan TPS Simulation event, which is part of the Deluxe Car Factory Simulation Training Package, and used to create the "ToyodaWay Jeopardy" and "Who Wants to Learn Lean - The ToyodaWay" fun filled games. The games are certain to put the team members through their paces as they test their knowledge about the lean philosophies. The "Who Wants to be a Millionaire" game makes good use of sound, just like the TV show.

ToyodaWay Game Contents:

One ToyodaWay Game Set USB Drive



Please Note: Product ships USPS Priority Mail flat rate when purchased alone.

NOTE: This presentation set is now included as part of the Grand Simulation Package (files only).

Simulation Support

The LeanMan 5-S Philosophy Handbook- Available only as part of the Grand Package

The **5S Philosophy Handbook** is a guide book for participants of the LeanMan 5S Training Simulation to use to follow the presentation and discussions during the simulation event. The booklet also makes a fine reference for participants to keep and use at their work station as they practice the 5S activities each day.



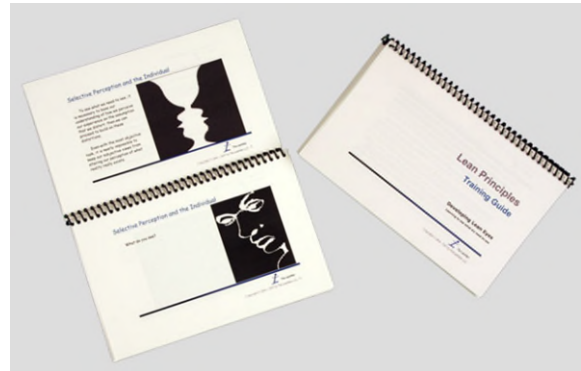
This handy user reference book discusses in detail the 5S concepts, tools and strategies for workspace organization. The contents of the 5S Philosophy Handbook follow closely the 5S Simulation Training Simulation Kit's 5S Review presentation; the 5S Refresher slide show; and the two LeanMan 5S Games which are included on the 5S Simulation Training Kit USB Drive. One copy of the handbook is included with the 5-S Simulation and Game Set.

NOTE: This item may be purchased as a special order. Contact the LeanMan for a price quote.

2023 Product Catalog

The LeanMan Developing Lean Eyes Handbook- Available only as part of the Grand Package

The **Developing Lean Eyes Handbook** is a guide book designed for participants of the LeanMan Developing Lean Eyes Training Package to use during the event to follow the presentation and discussions, or to keep and use at their work station as a reference guide.



This handy reference book discusses in detail the Lean Visual Communication concepts, waste identification tools and strategies for team member acceptance of lean principals.

The contents of the Developing Lean Eyes Handbook follow closely the LeanMan Developing Lean Eyes Training package PowerPoint presentation are included on the Training Package USB Drive.

NOTE: This item may be purchased as a special order. Contact the LeanMan for a price quote.

2023 Product Catalog

The LeanMan Teaming with Success Handbook- Available only as part of the Grand Package

The **Teaming with Success Handbook** is a guide book for participants of the LeanMan Teaming with Success Training Package. It is intended to be used by participants to use during the event to follow the presentation and discussions. It also makes a handy reference to distribute to participants to keep and use at their work station as they put their training into practice.

This handy reference book discusses in detail the Lean Leadership concepts, tools and strategies for team member communication and building trust.

The contents of the Teaming with Success Handbook follow closely the LeanMan Teaming with Success Training package PowerPoint presentation are included on the Training Package USB Drive.



NOTE: This item may be purchased as a special order. Contact the LeanMan for a price quote.

2023 Product Catalog

The LeanMan Learning to See the Waste Handbook- Available only as part of a Car Factory Package

The **Learning to See the Waste Handbook** is a companion guide book for participants of the Car Factory Simulation Training Package. The intent is to use it during the event and during the follow-up Continuous Improvement and Kaizen discussions held after the event. Facilitators may choose to distribute the handbooks to each participant to keep and use at their work station as a reference guide for reducing waste in their work processes.



This handy reference book discusses in detail the Lean concepts of waste; presents two powerful waste identification tools with instructions on how to use them; and discusses additional strategies for team members to reduce or eliminate waste from their daily processes.

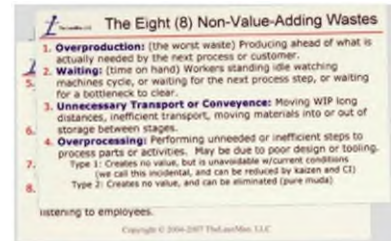
The contents of the Learning to See the Waste Handbook follow closely the Lean Principles Training PowerPoint presentations associated with any of the Deluxe or Deluxe-PLUS Car Factory Simulation Packages.

NOTE: This item may be purchased as a special order. Contact the LeanMan for a price quote.

Replenishment Supplies

The LeanMan 8-Wastes NVA Activity Wallet Cards (50 pack) - \$30.45

8-Wastes Wallet Cards help in identifying and then eliminating the 8 wastes are the keys to workplace productivity. These handy wallet-size cards are great to keep with you as a reminder of the 8 Wastes.



The 2 x 3 1/2-inch cards are double-sided color laser printed on premium heavyweight gloss stock. Sold in package of 50 cards.

8-Wastes Card Package Contents:
Ships as a set of 50 cards.

Expansion Products

Large Group Simulation Package - Available as stated below

NOTE: This presentation set is now included as part of the Deluxe Double, the Deluxe plus VSM and the Grand Simulation Packages (files only).

The LeanMan **Large Group Package** is an upgrade for any two or more Car Factory Kits. The 4-step simulation is designed to train large, but variable sized, groups of participants in the four main flow methods.

The Large Group Simulation package includes a printed and bound color 84-page facilitator guide which provides lists of things to observe and point out to the people, comments to add for clarity, and suggestions for improvement.



Large Group Simulation Parameters:

This simulation is designed to operate with variable sized groups of participants using up to 3 Car Factory Kits of material, and can be adjusted as needed to accommodate from 5 people to 39 people. Simulation is limited to 10 sets of car material when a single kit is shared between two teams. Adding a disassembly person as the Customer can alleviate some of this limitation as materials can be put back into the stockroom from the delivered cars. This may be recommended for the Demand-Pull simulation events where material moves at a higher production velocity

The 5 main process points are Stockroom, Subassembly, Final Assembly, Inspection, and Finished Goods. Conveyance is an option if there is space in the training room to place the process points at some distance from each other. This distance spacing is highly recommended because it more accurately simulates a real production shop. The Detail Department is optional, increasing the minimum participant count to 6 people per team if used.

Fun with Little's Law - \$20.00

The LeanMan **Fun with Little's Law** contains several PowerPoint presentations which explain the definitions of Little's Law; provide several relevant examples to operations and finance; and suggest how to use the law to create metrics for the LeanMan Car Factory simulation exercises. Examples are included for the Learning to See the Waste and the Heijunka simulation exercises.



Little's Law Relationships provides the background of the mathematical relationship between Throughput, Inventory and Cycle Time.

Little's Law Laundry provides an interesting application of the laws in setting up a small business adventure - a laundry service.

Little's Law and Process Improvement provides an analytical approach to the LeanMan Car Factory 2-step simulation exercise where the relationships of Throughput, Inventory and Cycle Time are used to improve flow.

Heijunka and the Box looks at the queuing formula and the Heijunka process in a mixed mode operation.

Little's Law Financial Metrics applies the law to the finance side of business, with ROAR Industries annual financial statement as a basis for an analytical consideration of the business performance.

NOTE: This presentation set is now included as part of the Grand Simulation Package (files only).

Little's Law Package Contents:

All PowerPoint files are delivered on a USB Drive.



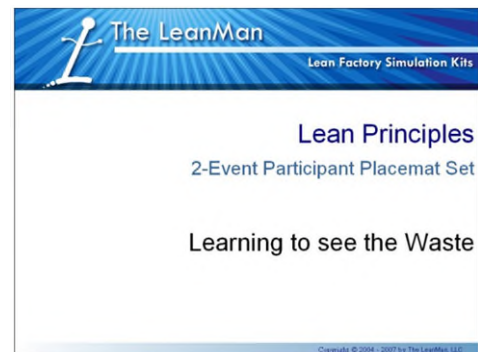
2023 Product Catalog

Learning to See the Waste Participant Placemat Set

Available as stated below

A set of these placemats is included with all Companion, Deluxe and Deluxe-PLUS Kits, or the Grand Package

The standard simulation is for 8 people running 10 minutes per exercise with 20 cars.



These extra sets of the laminated Learning to See the Waste Participant Placemats can be used with a single Car Factory kit to run 5-minute exercises with 10 cars, using two teams of 8 participants. Or with a second Card Factory Kit to run two full teams in parallel for extra fun and comparison metrics. This is the perfect way to double up the executive level simulation exercises with large groups using a single Car Factory Kit. (Set includes the laminated materials only - no presentation or USB Drive)

Since the Learning to See the Waste presentation is intended as an introduction to Lean Principles exercise, it most often is given to upper-level managers, marketing managers, customers and supply chain professionals, and very often in large group settings of 50 or more. The Learning to See the Waste Participant Placemat Set provides the extra instruction placemats needed to perform this multi-team simulation.

The Learning to See the Waste Participant Set consists of laminated 8.5 x 5.5 double sided placemats which include the simulation instructions for each participant. Batch 'n Queue on one side, Lean Flow on the other.

Please Note: The USB Drive containing the PowerPoint presentation detailing the full Learning to See the Waste concepts and lean principles is included with either the Deluxe or Deluxe-PLUS Kits.

LTSTW Laminates Package Contents:

Laminated 8.5 x 5.5 double-sided instruction placemats for the two-step Batch 'n Queue and the Lean Flow simulations.

NOTE: This item may be purchased as a special order. Contact the LeanMan for a price quote.



History of Lean Events

The Lean Factory Simulation begins with the Batch 'n Queue method based on Adam Smith's division of labor principles. These were later solidified by Frederic W. Taylor and presented in his 1911 book "The Principles of Scientific Management" (New York: Harper & Brothers). Taylor's methods became the bedrock for production flows around the world. This batch process is nicely presented in the New Manufacturing Challenge: Techniques for Continuous Improvement by Kiyoshi Suzaki (The Free Press, 1987), and it is Suzaki's model that becomes the first simulation event. (The Deluxe Kit provides all this history and more in greater detail in the Power Point training presentation included on USB Drive)

The simulations then progress through the techniques of one-piece cellular flow, continuous flow with Kanban signals, ending with a lean flow using a pull system. Along the way, additional lean concepts are layered onto each event, such as Value Stream Mapping, learning to see waste with the NVA test, and more. There are four main flow concepts presented, with four variations of each type described in the kit, plus many suggestions for training the workers to think lean. Please see the Suggested Training Syllabus on the References tab.

Key learning objectives of the simulation

- Understanding Lean concepts of one-piece flow, pull systems, inventory reduction, and more
- How production flow has followed batch 'n queue over the last 100 years, and why change is needed
- How to see where waste and inefficiency exists in each type of flow
- How line imbalance and inventory stockpiles affect the customer
- How to see the whole value stream
- How to optimize the efficiency of the whole stream versus the efficiency of the individual process
- How to identify Value Adding and Non-Value Adding activities
- How to seek continuous improvement, one step at a time
- How to Think Lean

The need for Lean Principles Training

The Evolution of Lean presentation is included with each Deluxe level training product. It is a historical approach to understanding lean principles and modern theory of operations management. The purpose of this presentation is to lay the foundation for understanding why offices, factories and in fact any group of people in business together operate the way they do, and why the application of the lean concepts is so important in today's time-based competitive global economy.

2023 Product Catalog

Success or failure of your lean journey depends upon how well the team buys into the concepts, and the lean leadership that is provided to them. Most groups operate in the traditional "functional separation" mode based on a century old concept that says the best way to manage the big organization is to break it into small functional organizations, and if each small functional group, then optimizes for its own best goal that somehow by default the big organization would be optimized. Wrong!

Lean principles training helps us to see the value stream that flows through and between each of the small groups and to help us set goals that will optimize the value for the entire organization. The Evolution of Lean presentation lays the path from traditional batch 'n queue methods of the twentieth century to the lean flow of today.

The concepts presented relate directly to the Lean Factory Simulation Kit training guide and provides the team with the ability to test out the theories before taking them to the shop.

A Bit of History

At the turn of the last century companies were mainly mom and pop shops where products were craftsman items produced out back by pop while mom did the accounting at the kitchen table. As the business grew the functions of accounting, purchasing and production plus any other needs were handled by people brought in specifically to focus on these special duties.

Typically, they shared a large office space and communication between members was very informal. Collectively they formed the transformation process to take raw inputs into the process and deliver a finished product out to the customer.

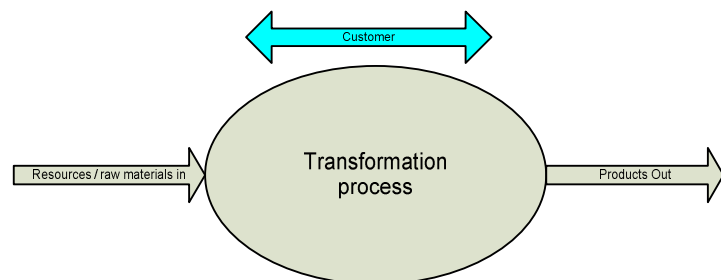
Management of these large business models, and more specifically improving their efficiency, became the work of *Frederic W Taylor*.

Taylor saw the business being run as one large transformation problem. Materials and resources were inputs, and products were outputs.

As business grew communication between the functional elements and the owner became strained, efficiencies were lost in the chaos. Taylor began his studies with the manual labor required to perform tasks, and the improvement of labor efficiency by careful study of the component parts of each task element, i.e. movements of the worker.

This eventually led Taylor to publish the discovery of the "*one best way*" process for each type of work task. His principle led to the development of industrial engineering as a career for process design.

As the business continued to grow the special functions became formalized Functional Departments within the transformation process with separate offices and independent managers. Formal communication between the departments became ridged as well with specific information needs placed on forms to be filled out and all documentation requirements to be filed.

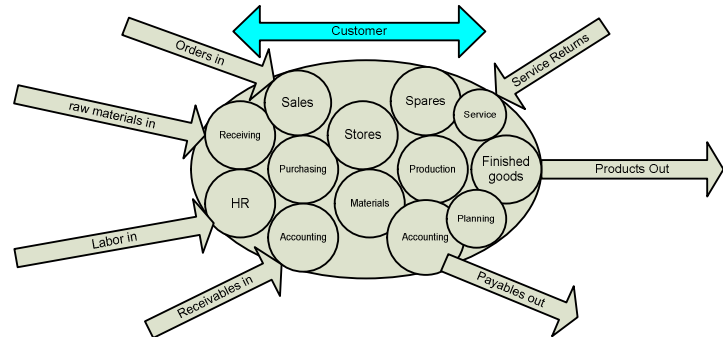


2023 Product Catalog

Frederic W Taylor's 1911 Scientific Principles divided the "big business" transformation process into smaller and more easily managed functional departments tasked to design their own "one best way" processes under the skillful eye of trained industrial engineers and managers, and then turn them into formal standards, with each department isolated and operated under independent management, where department *goals are optimized* for each function's own best interest – even to the detriment of overall company efficiency.

The theory was based on the concept that if each function was optimized for their own greatest efficiency then the whole company must by default become optimized.

These Functional Departments were designed to provide the owner with an element of control over the large business where specific focus could be applied where and when needed, but on a smaller scale the owner could manage one element at a time.



The result of this focus on optimization of each functional element department is a dedicated skill set development within each department, an understanding of standards and processes that can only be performed by members of the select team and therefore limited to the availability of only those people, while others wait for the output.

This *results in long lead times* to produce the overall product of the operation, even when the only value adding step, the one for which the customer is willing to pay, may be buried deep in a stream of non-value adding tasks.

Materials to be passed between the functional departments typically require queues and delays while waiting for the next department to clear the way to receive it, and then perform their function. Most departments have an INPUT queue box to hold requests until they can be processed, and an OUTPUT queue box to hold completed materials or forms waiting for that special person to arrive to pick up and transport the item to the next departments INPUT queue. This is what is referred to as *independent process flow*.

Paperwork forms must be completed, approvals obtained, priorities analyzed, resources assigned, work tasks queued up and eventually the work completed. Let's visualize the delivery of a spare part requested by a customer, and the functional elements that the process interacts with from order receipt to payment acknowledged. Imagine the formal documentation required between each step in the sequence, the formal forms and approvals, and the queue delays between each activity.

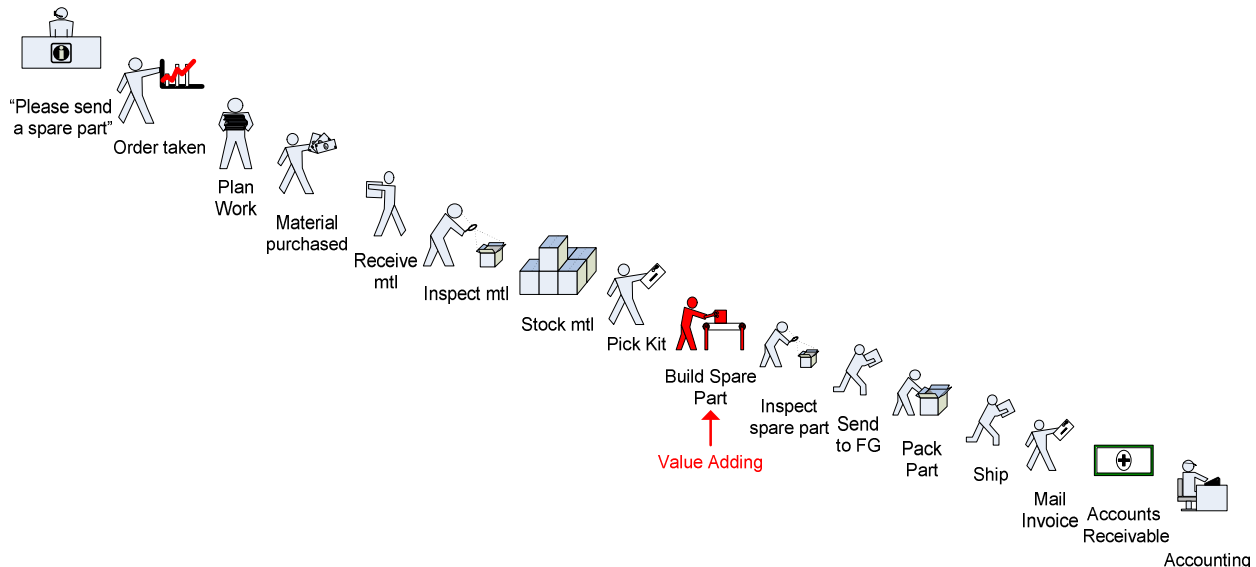


2023 Product Catalog

Interactive contact between departments not under direct supervision of the value producing department manager require queue and delay while each interacting department sorts out priority, resource availability, sometimes additional authority and responsibility and then *reaches a mutual agreement* on “when and how.”

The result of this focus on optimization of each functional element department is a dedicated skill set development within each department, an understanding of standards and processes that can only be performed by members of the select team and therefore limited to the availability of only those people, while others wait for the output.

This results in long lead times to produce the overall product of the operation, even when the only value adding step, the one for which the customer is willing to pay, may be buried deep in a stream of non-value adding tasks.



Value Stream Management is the process of measuring, understanding, and improving the information flow. The value stream is mapped with all of the individual interactions required of all associated functional departments or tasks that are part of the flow necessary to keep Cost, Service and Quality for a company's products and services as competitive as possible. Then the operation steps are realigned to optimize flow from customer order all the way back to the source of materials, and any operation that can be moved to a background function and out of the way of flow is thus moved, and production velocity and throughput are brought to the forefront of the process to optimize on the customer's needs, not the individual internal departments of the company.



Simulations

The LeanMan Car Factory Kits include several simulation events which are pre-designed to help you get started training lean principles right out of the box. Several of these simulation events are described in the paragraphs below, and as you will see, the LeanMan Car Factory is a very powerful tool which provides you the ability to create custom training formats tailored to suit your students' specific needs.

Simulation	Group Size	Time	Audience	Steps
Learning to See the Waste	5-8	100 min.	Executives, Supply Chain, Support Depts	2
LM Car Factory Simulation	5-8	100 min.	Mid-Level Management, Shop workers	4
LM Large Group Simulation	5-39	60-150 min.	Large Audiences	2 or 4
TPS Simulation	8-12	110 minutes.	Mid-Level Management, Shop	5
VSM Simulation	11-15	280 min / Continuous Loop	Supply Chain, Mid-Level Mgmt, Purchasing, Planning, Shop	9
LM Heijunka Simulation	8-12	190 minutes	Mid-Level Mgmt, Planning, Shop	3
VSMgt Service & Repair Center	9-12	140 min.	Office and Administration, Supervisors, Shop	3
LM Kanban Simulation	8 to 12	260 minutes	All levels, from executive to shop operator, supply chain.	4
OPT Factory Simulation	12 to 15	8 hours	low to mid level production people	14

The TPS Car Factory Simulation

The TPS Car Factory Simulation exercises included with the Deluxe and Deluxe-PLUS Package kits are designed to closely mimic the Toyota Production System paper airplane simulation, *but without wasting all that paper!*

The six exercises take you from large batch to lean flow with 2-bin Kanban, plus each exercise ends with an analysis of the 8 wastes and a Financial Chart to calculate earned value - *the bottom line!*

$$\text{EVA} = \text{Sales} - \text{COGS} - \text{Capital Expense}$$


It's all about learning to see the waste!

The following charts detail the timing and sequence of each simulation event performed by the LeanMan Simulation products.

2023 Product Catalog

LeanMan Car Factory Simulation – Learning to See the Waste 2-Step Event

100 minutes

LM Car Factory LTS Introduction 30 minutes	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> PowerPoint 2-Event Training Guide [optional] 31 slides </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Introduction to Lean definitions and waste terms</div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Introduction to the 10-Sec Test and Observations</div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Introduction to the LeanMan Car Factory Kit components</div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Introduction to the two participation events</div> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> 5 minutes 10 minutes 5 minutes 10 minutes </div> </div>
Simulation Events 1 & 2 40 minutes	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> PowerPoint Participation Placemat Set 5 Slides </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Setup Table with event 1 placemats and kit of materials</div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;"> EVENT 1: Batch n' Queue push: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Reset Table with event 2 placemats and point of use materials</div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;"> EVENT 2: 1-piece pull [lean]: Fourth build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [3 participants + observer team] </div> <div style="margin: 0 10px;">}</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Discuss observations and metrics</div> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> 5 minutes * 10 minutes 5 minutes * 10 minutes 10 minutes </div> </div>
Self Study LTS Waste 30 minutes	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  Flash Movie </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px;">Introduction to Lean Manufacturing definitions and terms and techniques to observe and eliminate waste in the flow. Self-Study Flash Movie</div> </div> </div> <div style="text-align: center; margin-top: 10px;">30 minutes</div>
<p style="font-size: small;">* Metric Times are dependent upon technic used. Either fixed time for each event and count completed cars OR allow time for all cars to be completed and measure time per car.</p>	

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	Group Size	Time	Steps
Learning to See the Waste	5-8	100 min.	2
<p>This 2-Step simulation is the simplest event to run but packs a big WOW factor. It requires just one Car Factory Kit per team plus the laminated participant placemats. It's so easy to perform a single person can facilitate five or more teams, making it great for large audiences and conventions.</p>			



2023 Product Catalog

LeanMan Car Factory Simulation – STD 4-Step Event

100 minutes

LM Car Factory LTS Introduction 30 minutes	<div> <div>PowerPoint 4-Event Training Guide 25 slides</div> <div> Introduction to the LeanMan Car Factory Kit components </div> <div> Introduction to the four participation events </div> </div> <div> 15 minutes 15 minutes </div>
Simulation Events 1 & 2 30 minutes	<div> <div>PowerPoint Participation Placemat Set 5 Slides</div> <div> Setup Table with event 1 placemats and kit of materials </div> <div> EVENT 1: 3-pc Batch n' Queue: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div> Reset Table with event 2 placemats and re-kit materials </div> <div> EVENT 2: 1-pc Push: Second build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> </div> <div> 5 minutes * 10 minutes 5 minutes * 10 minutes </div>
Simulation Event 3 & 4 40 minutes	<div> <div> Rearrange tables with event 3 flow and re-kit materials </div> <div> EVENT 3: 1-pc Pull: Third build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div> Rearrange tables with event 4 flow and POU materials </div> <div> EVENT 4: 1-piece Lean Flow w/Pull: Fourth build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [3 participants + observer team] </div> <div> Discuss observations and metrics </div> </div> <div> 5 minutes * 10 minutes 5 minutes * 10 minutes 10 minutes </div>

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* Time for exercise runs can be fixed, or variable as facilitator desires.

	Group Size	Time	Steps
LM Car Factory Simulation	5-8	100 min.	4
<p>This 4-step simulation uses one car kit per team, and a single facilitator can easily run 2 or 3 teams for a little competition. This simulation event is targeted toward people who work in a team or who want to spend a little more time discovering the differences in the four main flow methods.</p>			



2023 Product Catalog

LeanMan Car Factory Simulation – TPS [Toyota Production System] 5-Step Event

110 minutes

LM Car Factory TPS Introduction	<div> <div>PowerPoint TPS Car Factory Simulation 43 slides</div> <div>Introduction to the TPS simulations and facilitator instructions</div> </div> <p>Facilitator only</p>
Simulation Events 1 & 2 30 minutes	<div> <div>PowerPoint Participation Placemat Set 5 Slides</div> <div> <div>Setup Table with event 1 placemats and kit of materials</div> <div>5 minutes</div> </div> <div> <div> EXERCISE #1: 5-pc Batch n' Queue: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div>* 10 minutes</div> </div> <div> <div> Reset Table with event 2&3 placemats and re-kit materials </div> <div>5 minutes</div> </div> <div> <div> EXERCISE #2: 3-pc Batch n' Queue w/ Visual Systems: Second build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div>* 10 minutes</div> </div> </div>
Simulation Event 3 & 4 40 minutes	<div> <div> Rearrange tables with event 3 flow and re-kit materials </div> <div>5 minutes</div> </div> <div> <div> EXERCISE #3: 3-pc Batch n' Queue w/ Flexible Worker and Work Cell: Third build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [5 participants + observer team] </div> <div>* 10 minutes</div> </div> <div> <div> Rearrange tables with event 4 flow with KanBan and POU materials </div> <div>5 minutes</div> </div> <div> <div> EXERCISE #4: 1-piece Flow w/Pull: Fourth build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [3 participants + observer team] </div> <div>* 10 minutes</div> </div> <div> <div>Discuss observations and metrics at this point</div> <div>10 minutes</div> </div>
Simulation Event 5 & 6 40 minutes	<div> <div> Reset Table with event 5 flow and POU materials </div> <div>5 minutes</div> </div> <div> <div> EXERCISE #5: 1x1 Lean Flow: Fifth build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [3 participants + observer team] </div> <div>* 10 minutes</div> </div> <div> <div> Reset Table with event 6 flow and POU materials </div> <div>5 minutes</div> </div> <div> <div> EXERCISE #6: 1x1 Lean Flow w/2-bin Kanban and Kanban signal: Sixth build of product following instructions on participant placemats. Record metrics . [4 participants + observer team] </div> <div>* 10 minutes</div> </div> <div> <div>Discuss observations and metrics</div> <div>10 minutes</div> </div>

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* Time for exercise runs can be fixed, or variable as facilitator desires.

	Group Size	Time	Steps
TPS Simulation	8-12	110 minutes.	5

The Toyota Production System (TPS) simulation is a 5-step event which uses the training methods generally recognized as the Toyota method for introducing lean flow. This method focus more on flow and eliminating process waste and less on reducing the number of human elements in the process.

2023 Product Catalog

LeanMan Car Factory Simulation – VSMgt 3-Event Service Center Simulation					140 minutes
LM VSMgt Introduction 40 minutes	PowerPoint Service Repair Center 31 slides	Introduction to the organization of work as crafted by Frederic W Taylor in the early 20 th century and what that means to the typical process flow found in the service industry. Slides 1 - 7 10 minutes	Introduction to the concepts, terms and needs of the service return and repair center, and how we might apply Value Stream Mapping to the management side of the organization. (VSMgt). Events 1 thru 3 will be discussed in detail. Slides 13-31 15 minutes	PowerPoint Little's Law 16 slides	Discussion on applied metrics for a service center 15 minutes
	PowerPoint Facilitator Guide 35 Slides	Setup Table with placemats, forms, and kit of materials 15 minutes	EVENT 1: Independent Process Flow: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [9 participants + observer team] * 20 minutes	Reset table arrangement and kit materials 5 minutes	EVENT 2: Synchronized Process Flow: Second build of product following instructions on participant placemats. Record metrics. [8 participants + observer team] * 15 minutes
Simulation Event 3 45 minutes		Discuss observations and metrics considering the difference between independent and synchronized flow, and in particular the flow between operators and the use of the control forms. Consider improvements the team would like to see. 15 minutes	Rearrange tables with suggested changes. 5 minutes	EVENT 3: Lean Process Flow: Third build of product following instructions on participant placemats. Record metrics. [6 participants + observer team] * 15 minutes	Discuss observations and metrics 10 minutes

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	Group Size	Time	Steps
VSMgt Simulation	9-12	140 min / Continuous Loop	3
<p>Value Stream Management. This event focuses on the process of unpredictable input, demand and management of work when product variation meets customer demand variation. Managing the value chain from customer order to customer delivery requires the creation of a knowledge-based team capable of extreme flexibility. ROKA – Return on Knowledge Assets – is in play and creates a challenge for human resource rules and job descriptions.</p> <p>Value Steam Mapping (VSM) is normally associated with the flow of material in a manufacturing company. However, many of the tools and techniques can be applied, with just a little twist, to document the information flow necessary to perform office administration or service industry processes. Office Value Stream (OVS) is the term some practitioners have coined for the series of activities or processes performed while supporting the daily operation needs of the company, and is also known as VSMgt or Value Stream Management when applied to a mix of both office and shop activities.</p> <p>Roles include Customer, Administrator, Evaluator (1 or 2), Repair Tech (1 or 2), Inspector, Stock Keeper (1 or 2), Conveyance (1 or 2), and Accountant.</p> <p>Metrics: $\text{Earned Value} = \text{Sales\\$} - \text{Cost of Goods Sold\\$} - \text{Capital\\$}$</p>			



2023 Product Catalog

LeanMan Car Factory Simulation – VSM 9-Step Event									
280 minutes									
LM VSM Introduction 30 minutes	PowerPoint 5-Principles of Lean 34 slides	Introduction to Value and the Value Stream 5 minutes	Introduction to 10-Second Test and Observation methods 5 minutes	Introduction to Kaizen and continuous improvement 10 minutes	Introduction to the LeanMan VSM events and Kit components 5 minutes	Excell VSM Metrics	Introduction to metrics recording and EVA calculations 5 minutes		
Simulation Events 1 to 3 90 minutes	PowerPoint Facilitator Instructions 63 Slides	Setup Tables as shown in guide book 5 minutes	EXERCISE #1: 2-pc Batch n' Queue PUSH: Initial build of product following instructions on participant placemats. [11+ observer team] * 15 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #2: Work Cell: Continue building product with Kaizen changes. [10+ observer team] * 15 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #3: Kanban Signal: Third build of product with Kaizen changes. [10+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes	
Simulation Event 4 to 7 100 minutes		EXERCISE #4: 1-PC Flow PUSH: Build of product with Kaizen changes. [10+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #5: Point of Use: Build of product with Kaizen changes. [10+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #6: Flexible Worker: Build of product with Kaizen changes. [9+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #7: PULL to FGI: Build of product with Kaizen changes. [9+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes
Simulation Event 8 & 9 60 minutes		EXERCISE #8: PULL from Supplier: Build of product with Kaizen changes. [5+ observer team] * 10 minutes	STOP record metrics Kaizen 15 minutes	EXERCISE #9: Customer Demand PULL: Build of product with Kaizen changes. [9+ observer team] * 10 minutes	STOP record metrics 10 minutes	STOP Discuss the target goals and accomplishments of the Kaizen, the 10-Sec Tests and Financial metrics 15 minutes			

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	Group Size	Time	Steps
VSM Simulation	11-15	280 min / Continuous Loop	9
(Value Stream Map) This 9-step event focuses on each of the nine-point processes in the value chain from customer order to customer delivery, one process at a time. Each exercise introduces lean techniques such as Kanban material and visual signal devices, use of target tracking reports, kaizen forms, and continuous improvement metrics. This simulation exercise also provides an excellent basis of understanding for Value Stream Management training for the LEAN office.			



2023 Product Catalog

LeanMan Car Factory Simulation – Heijunka 3-Event Simulation

190 minutes

LM Heijunka Introduction 60 minutes	<div> <div> PowerPoint Leveling the Waves 49 slides </div> <div> Introduction to the Heijunka terms, definitions and methods of mixed-mode flow with random customer demand. Standard Work, Visual Management, Takt Time, 1-Pc flow, kanban, EPEI and planning will be presented with interactive discussion. Slides 1 - 28 </div> </div> <div> <div> 30 minutes </div> <div> Introduction to the LeanMan Heijunka simulation methods, tools, and organization for running the event. Event 1 is a fixed demand flow. Event 2 is a pseudo-random flow, and optional event 3 is a totally random demand based on the toss of a die. Slides 29-49 </div> <div> 30 minutes </div> </div>
Simulation Events 1 & 2 60 minutes	<div> <div> PowerPoint Simulation Placemat Set 20 Slides </div> <div> Setup Table with placemats, heijunka box and kit of materials </div> <div> 15 minutes </div> </div> <div> <div> EVENT 1: Stable-Demand: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [6 participants + observer team] </div> <div> * 20 minutes </div> </div> <div> <div> Reset Table materials </div> <div> 5 minutes </div> </div> <div> <div> EVENT 2: Random-Demand: Second build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [6 participants + observer team] </div> <div> * 20 minutes </div> </div>
Simulation Event 3 70 minutes	<div> <div> Discuss observations and metrics considering the difference between stable and random demand, and in particular the flow between operators and the use of the box. Consider improvements the team would like to see. </div> <div> 15 minutes </div> </div> <div> <div> Rearrange tables with suggested changes and customer rolls the die. </div> <div> 10 minutes </div> </div> <div> <div> EVENT 3: Random-Demand (roll of the die) Third build of product following instructions on participant placemats. Die determines the model to build. Record metrics using wet erase marker and stopwatch. [6 participants + observer team] </div> <div> * 30 minutes </div> </div> <div> <div> Discuss observations and metrics difference with true random demand </div> <div> 15 minutes </div> </div>

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	Group Size	Time	Steps
LM Heijunka Simulation	8-12	190 minutes	3
<p>The “Leveling the Waves” presentation presents an alternate way of approaching the function of master scheduling and planning for a lean manufacturing environment. This presentation event is part of the Deluxe Plus Heijunka Training Package.</p>			



2023 Product Catalog

LeanMan Car Factory Simulation – Kanban 4-Event Value Stream Simulation

260 minutes

LM Kanban Introduction 60 minutes	<div> <div> <div>PowerPoint Kanban Simulation Facilitator guide 80 slides</div> <div>Introduction to kanban concepts begins with a discussion on the supermarket concept with two-kanban card replenishment.</div> </div> <div> <div>PowerPoint Facilitator Presentation 23 slides</div> <div>Kaizen eno Yon Danki – improvement in 4 Steps. A bit of history in lean flow methods leading into a discussion on kanban. A 4-step approach to lean flow is depicted graphically for discussion. Tools for heijunka planning are reviewed.</div> </div> <div> <div>PowerPoint Little's Law Laundry Presentation 15 slides</div> <div>Discuss Little's Law</div> </div> </div> <div> <div>Facilitator training</div> <div>30 minutes</div> <div>30 minutes</div> </div>
Simulation Events 1 to 4 200 minutes	<div> <div> <div>Setup Table with placemats, heijunka box (if available) slideboard and kit of materials</div> <div>15 minutes</div> </div> <div> <div>EVENT 1: Single-Kanban Card System: Initial build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [8 participants + observer team]</div> <div>* 20 minutes</div> </div> <div> <div>Record metrics for Financial and Inventory. Discuss pros and cons of a single card</div> <div>10 minutes</div> </div> <div> <div>Refresh table arrangement and placemats for event two with Production and Move cards</div> <div>10 minutes</div> </div> <div> <div>EVENT 2: Dual Card System: Second build of product following instructions on participant placemats. Record metrics using wet erase marker and stopwatch. [8 participants + observer team]</div> <div>* 20 minutes</div> </div> </div>
	<div> <div>Record metrics for Financial and Inventory.</div> <div>10 minutes</div> </div> <div> <div>Discuss observations and metrics considering the difference between single and dual card system, and in particular the flow between salesroom and the factory,</div> <div>15 minutes</div> </div> <div> <div>Refresh table arrangement and placemats for event three</div> <div>10 minutes</div> </div> <div> <div>EVENT 3: Dual Card with Heijunka: Third build of product following instructions on participant placemats. Use Heijunka box if available. [8 participants + observer team]</div> <div>* 20 minutes</div> </div> <div> <div>Record metrics for Financial and Inventory.</div> <div>10 minutes</div> </div>

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	Group Size	Time	Steps
LM Kanban Simulation	8 to 12	260 minutes	4

This four-step Customer-Pull event explores the flow control differences between a single Kanban card and dual Kanban card replenishment system with random demand in a full value stream simulation.



2023 Product Catalog

Non-Car Factory Simulation

5S Game Set and Simulation Training					
7 hour event					
5S Game Set 90 Minutes	PowerPoint Interactive 5S Introduction 5 slides	Jeopardy like game with 20 questions 30 minutes	Who wants to be a millionaire game 50 minutes	Winner and Gift Award / 5S Wallet Card Distribution 10 minutes	
5S Presentation 60 Minutes	PowerPoint What Is 5S? Overview 40 Slides OPTIONAL	Discussion Opportunity 30 minutes	PowerPoint What Is Visual Control? Overview 13 Slides OPTIONAL	Discussion Opportunity 10 minutes	PowerPoint What Is Visual Communication? Overview 45 Slides OPTIONAL Discussion Opportunity 20 minutes
5S Simulation 4.5 Hours	Simulation Table Cover Preparation and layout [includes dirtying some materials with markers] 45 minutes	Initial build of product without organization. [1 or 2 teams] 15 minutes	PowerPoint S1 Review SORT 14 Slides	Perform SORT activities, use Red Tags, Red Tag Area, group like materials 30 minutes	PowerPoint S2 Review Set in Order 40 Slides Perform SET_IN_ORDER activities, use 5S Flow Map, Color-Code Strategy, Signboards, and Outlines 90 minutes
	PowerPoint S3 Review Sweep 8 Slides	Perform SWEEP activities, Clean up materials 15 minutes	Second build of product with new organization in place. [1 or 2 teams] 15 minutes	PowerPoint S4 Review Standardize 6 Slides	Perform STANDARDIZE activities, Job Cycle Chart 30 minutes
				PowerPoint S5 Review Sustain 6 Slides	Perform SUSTAIN activities, 5S Check List and audits 30 minutes

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	Group Size	Time	Steps
5S Game	Any size group	90 Minutes	3
<p>The 5S Game is an interactive presentation of the 5S theory, learning the terms and language of 5S, and then playing two games to firmly entrench the 5S definitions and use rules into long term memory. The presentation and games can be played with any size group of people, typically 5 to 20 make up a good size group.</p>			

	Group Size	Time	Steps
5S Simulation	8 to 10	Approx. 5.5 hours	3
<p>The 5S Simulation uses an interactive PowerPoint presentation to present each of the “S” steps in sequence with stops between to practice the step using the kit materials. There are two rounds of building the product, the first is a random build from an unorganized pile and the second is a build after full implementation of the 5S rules.</p>			

Non-Car Factory Simulation



2023 Product Catalog

OPT – Optimized Production Technology Factory Simulation Training					
Two Half-Day events total 8 hours					
1 st half day Part 1	PowerPoint Interactive OPT Introduction 10 minutes	Forecast methods 15 minutes	Game #1 Transfer Batch Size =4 30 minutes	Game #2 Transfer Batch Size = 1 30 minutes	Game #3 Overtime Allowed 60 minutes
					BREAK 15 minutes
1 st half day Part 2	Game #4 Bottleneck at Supplier 10 minutes	Game #5 Bottleneck at Final Inspection 10 minutes	Game #6 Inventory Control 10 minutes	Game #7 Bottleneck at Middle Op 10 minutes	Game #8 Material Move During Shift 20 minutes
					LUNCH 45 minutes
2 nd half day Part 1	Game #9 Process Variation 30 minutes	Discuss Process Variation 20 minutes	Game #10 Combine Move & Inventory = 4 20 minutes	Game #11 Combine Leadtime & Inventory = 4 30 minutes	BREAK 15 minutes
2 nd half day Part 2	Game #12 Combine Leadtime & Inventory = 1 20 minutes	Game #13 Overtime Allowed 60 minutes	Game #14 Combine OT & Capacity 30 minutes	Wrap-Up Discussion 10 minutes	HOME

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	Group Size	Time	Steps
OPT – Optimized Production Technology	12	8 Hours	14
<p>The idea behind the OPT Simulation Factory Kit is to provide a complete set of materials that can be used to explore the concepts of production flow. There are 14 steps to the game, in each we will change one or more production variables and test the results for analytical comparison. Variables such as capacity, bottleneck, overtime, batch transfer size, inventory levels and such will be tested and modified in an attempt to balance the line to produce Quality, Unit Cost, Inventory, Lead Time and Ship Performance metrics acceptable to the customer.</p> <p>The material s provided are optimized for 12 participants but can be adjusted by the facilitator to accommodate between 8 and 15 if necessary. The 8-hour event can be split into two 4-hour events.</p> <p>To aid the facilitator before the class, a train-the-trainer Excel file is provided to simulate each of the game steps. The facilitator will toss each type of die and learn how to flow the materials and experience the pitfalls the participants will encounter such that the facilitator will have first-hand knowledge about the situation and be able to answer questions and support the play.</p>			

2023 Product Catalog

Lean Concept Training Sequence	LeanMan Lean Presentation or Simulation Product	Learning Experience
OPT	Optimized Production Technology [USB Drive provided with the OPT Factory Simulation Game Kit]	<p>Learn the secrets of production flow in this 14 step – 8-hour presentation of each of the variables encountered in the design and flow of product. Using dice to simulate yield and poker chips to simulate product, the participants experience the trials and tribulations of material movement in production.</p> <p>There are 14 steps to the game, in each we will change one or more production variables and test the results for analytical comparison. Variables such as capacity, bottleneck, overtime, batch transfer size, inventory levels and such will be tested and modified in an attempt to balance the line to produce Quality, Unit Cost, Inventory, Lead Time and Ship Performance metrics acceptable to the customer.</p> <p>Metrics are based on the production cost breakdown using depreciation, material cost, total cost, unit cost, lead time and a “M” factor calculation. Inventory will be the initial number used to “wet” the line. The “M” factor will be based on forecast and calculated as Material Cost divided by forecast, and this number will be used for game steps where the outcome does not meet forecast. These metrics will be calculated after each game step and aligned in a side by side comparison chart to track effects and progress as we attempt to create the ultimate efficient production line.</p> <p>To aid the facilitator before the class, a train-the-trainer Excel file is provided to simulate each of the game steps. The facilitator will toss the die and learn how to flow the materials and experience the pitfalls the participants will encounter such that the facilitator will have first-hand knowledge about the situation and be able to answer questions and support the play.</p> <p>This course was developed under the guidance of Eli Goldratt and is an excellent base foundation for understanding the need for Lean Mfg.</p>
Basic communication	LeanMan Teaming with Success Presentation and Hands-On Exercise [Teaming with Success USB Drive and game package, or Developing Lean Eyes USB Drive]	<p>Since lean is all about flow, and rapid communication is the basis of flow, we need to create a level playing field for team members to communicate with each other. That includes overcoming the language, cultural and personal barriers that exist in the team.</p> <p>For lean to be successful, we need to push good decision making as far down into the organization as possible. That means the process operators need to see, hear and understand the aural and visual cues that occur dynamically all day long, and to react correctly and rapidly and instinctively.</p> <p>During the presentation, there are two participant games played to reinforce the communication methods and demonstrate how the barriers to success influence accuracy in communication.</p> <p>A 32 question Teamwork Survey and score sheet is provided to help assess the team’s current stage of development.</p> <p>Following the presentation, the participants perform one of three survival scenario games. These fun adventures teach teamwork and consensus problem solving, both bedrock of lean. They also act as a setting for team members to get to know each other a little better in a fun non-work atmosphere.</p>

2023 Product Catalog

Lean Concept Training Sequence	LeanMan Lean Presentation or Simulation Product	Learning Experience
Visual Communication	Visual Systems for Lean Presentation [Bonus files on the Deluxe Kit or Deluxe Plus Package USB Drive]	<p>Sights and sounds we experience every day can become commonplace to us and take on a background position. We often see and react to situations without even being aware we are doing it.</p> <p>Visual communication takes a closer look at the way everyday information is presented to us and how we interpret and act automatically. Participants gain insight into the mechanism of visual information, and how to create visual instructions that anyone of any language can see and understand.</p>
Visual Understanding	LeanMan Developing Lean Eyes Presentation and Hands-On Exercises [Developing Lean Eyes USB Drive]	<p>Once the verbal and visual communication channels are open, we need to start increasing the speed at which communication takes place. Visual communication is very rapid, and is essential to creating a lean enterprise. A person can instantly and correctly understand a need and an action by a simple look or glance, provided the information is presented adequately. Language becomes less a barrier and team member interaction becomes more intuitive.</p> <p>Sometimes we misinterpret what we see because of our own bias, so we need to understand the false meaning of certain visuals and to develop lean eyes to sort out the real information. This presentation uses the Gestalt theories to explore the tricks are brain plays and how we can improve communication accuracy.</p> <p>The USB Drive contains three alternate presentations which focus on various training needs all related to the ability of the learner to observe and disseminate information.</p>
Seven Eight Types of Waste	<p>LeanMan Learning to See the Waste [Presentation and simulation are included on the Developing Lean Eyes USB Drive, the Deluxe Kit USB Drive or Deluxe Plus Package USB Drive; and simulation only provided with the Companion Kit]</p> <p>Participants receive a wallet size double-sided card with the eight non-value-adding wastes listed and described as defined by the Toyota Production System. 20 cards pre-printed are included with each Deluxe or Deluxe Plus Kit, and files on the USB Drive allow additional cards to be printed.</p>	<p>Almost everyone learns to perform large tasks in batch mode. As individuals, we learn to be efficient by performing and completing one step of a "process" at a time before advancing to the next step. As team members, we tend to bring this batch-mode bias to the application of all work, and that is a big problem for lean implementation.</p> <p>The Learning to See the Waste Presentation presents the concept of waste that the batch mode creates when teams of people are performing tasks. A tool for finding waste is included with this presentation. Called The 10-Second Test, this handy method teaches the team to observe and see where possible waste may be occurring within any process, and works equally well in office areas, service operations and production shops.</p> <p>The two-step Learning to See the Waste Car Factory Simulation follows the presentation, and is intended to focus on the batch-mode bias problem. The hands-on simulation starts with a batch-mode operation in the toy car factory. As the factory produces cars, the tools we learned in the presentation are applied and we begin to see where waste is occurring in the flow. The factory is then redesigned for lean flow. The participants can see first-hand the differences and begin to see how waste affects flow.</p> <p>Included with the simulation is the LTS Financial Chart which teaches participants to calculate earned value by the formula $EVA = Sales - COGS - Capital Charges$. This financial metric adds emphasis to the need to eliminate waste in the flow process.</p>

2023 Product Catalog

Lean Concept Training Sequence	LeanMan Lean Presentation or Simulation Product	Learning Experience
Visual Control	Visual Control for Lean [Bonus file on the Deluxe Kit or Deluxe Plus Package USB Drive, or Deluxe Plus Heijunka Package, or the Deluxe Plus Kanban Package]	Now that we are aware of types of visual and aural signals reaching out to us, we need to put them to good use in creating a lean, clean information channel to rapidly convey just the right information and in just the right way throughout the value stream.
Lean Principles	LeanMan The Five Principles of Lean [Bonus file on the Deluxe Kit or Deluxe Plus Package USB Drive]	Before going too much further in our lean journey, it is time to establish some lean thinking with the team. The presentation of the five principles of lean provides some discussion time with the team to help them begin to formulate the big picture. Lean is poorly implemented if confined to only a few point process areas in your enterprise stream.
5S	5-S for Lean Presentation [Bonus file on the Deluxe Kit or Deluxe Plus Package USB Drive]	As stated earlier, lean is all about flow and rapid communication. We learned in Teaming with Success that barriers do exist and they attempt to defeat the daily good communication and decision making we need to succeed with lean. Many of these barriers to success are self-imposed by the way we have designed our workspace, what we have chosen to store there, and how well we have provided for the visual communication channels necessary to transmit and receive information cues between team members. This introductory to 5S presentation provides some fun ways to look at our work space and bring to our attention the clutter and debris that we step over every day and have become so accustomed to it that we don't even see it anymore.
5S Refresher presentation	5S Defined [Support file on the 5S Simulation Training Kit USB Drive and the 5S Game USB Drive]	This presentation presents the definitions contained in the LeanMan Jeopardy game opening slides, and uses verbal narration and sound. Intended as a prerequisite to the LeanMan Who Wants to Learn Lean-5S game. This presentation provides all of the information necessary to play and win the 5S game. This presentation when presented as a PowerPoint Slide Show provides a fun refresher of 5S knowledge when used as support for the 5 th S – Sustain.
5S Jeopardy Game	LeanMan 5S Jeopardy Game [Game file on the 5S Simulation Training Kit USB Drive and the 5S Game USB Drive]	This presentation specifically focuses on the 5S elements as identified by Taiichi Ono as part of the Toyota Production System. Each 5S step is defined and described in practical terms. Following this is a Jeopardy-like game board with 5 categories and 5 levels of points for each category. Participants select their category and points, and the "answer" is shown. The participant then states the "question." There are many ways to play the game. The typical method is to put all contestants' names into a box and as each name is drawn, he or she selects and answers the question to win a prize. Use your imagination to create a fun experience as participants see and associate the 5-S terms with their meaning. The take-away is a full understanding of the 5 S terms and the differences between them. Once the team can recite the terms, they are ready for the next level of 5S training.

2023 Product Catalog

Lean Concept Training Sequence	LeanMan Lean Presentation or Simulation Product	Learning Experience
Who Wants to Learn Lean – 5S	LeanMan Who Wants to Learn Lean – 5S [Game file on the 5S Simulation Training Kit USB Drive and the 5S Game USB Drive]	<p>This presentation takes the training provided in the 5S Defined refresher presentation puts the team through the paces as they test their knowledge. The Who Wants to Be a Millionaire-like game with 15 questions challenges the skills while reinforcing the underlying elements of 5S. Three versions of the game are included which present the questions in unique sequence so contestants can't memorize the pattern.</p> <p>This game makes a fun test of knowledge when used as support for the 5th S – Sustain.</p>
The 14 Philosophies of the Toyoda Family	LeanMan 14 Philosophies behind TPS [Bonus file on the Deluxe Kit or Deluxe Plus USB Drive]	<p>With full understanding comes acceptance. This presentation provides some ideas on how lean evolved with the Toyoda family and subsequent members of the Toyota Motor Company as the roots of lean began to shape what eventually became to be called Lean Mfg.</p>
The ToyodaWay Jeopardy Game	LeanMan ToyodaWay Jeopardy Game [Game file on the ToyodaWay Game Set USB Drive]	<p>This presentation specifically focuses on the 14 management principles that form the foundation of the Toyota Production System. Each principle is defined and described in practical terms. Following this is a Jeopardy-like game board with 5 categories and 5 levels of points for each category. Participants select their category and points, and the "answer" is shown. The participant then states the "question."</p> <p>There are many ways to play the game. The typical method is to put all contestants' names into a box and as each name is drawn, he or she selects and answers the question to win a prize. Use your imagination to create a fun experience as participants see and associate the TPS terms with their meaning.</p> <p>The take-away is a full understanding of the TPS terms and the differences between them. Once the team can recite the terms, they are ready for the next level of lean training.</p>
Who Wants to Learn Lean – The ToyodaWay	LeanMan Who Wants to Learn Lean – The ToyodaWay [Game file on the ToyodaWay Game Set USB Drive]	<p>This presentation takes the training provided in the TPS Defined refresher presentation and the ToyodaWay Jeopardy game and puts the team through the paces as they test their knowledge. The Who Wants to Be a Millionaire-like game with 15 questions challenges the skills while reinforcing the underlying elements of TPS. Three versions of the game are included which present the questions in unique sequence so contestants can't memorize the pattern.</p> <p>This game makes a fun test of knowledge when used as support for the TPS Car Factory Simulation.</p>
TPS Car Simulation	TPS Car Simulation [Presentation and simulation included on the Deluxe Kit or Deluxe Plus USB Drive]	<p>This implementation of the Toyota Production System training takes a slightly different focus to lean concepts than the Standard Car Factory simulation. In this exercise, attention is given to the support functions found in a factory, such as fixtures and totes, material kits, material conveyance, process and cross training, and workload balance.</p> <p>Lean flow is developed over five simulation steps, each applying attention to the process of trying continuous improvement, measuring results, and trying again. The simulation event is spaced over several tables and greater distances are used to simulate real factory communication conditions.</p> <p>Financial metrics for the simulation track progress as earned value steadily improves with each lean redesign.</p>

2023 Product Catalog

Lean Concept Training Sequence	LeanMan Lean Presentation or Simulation Product	Learning Experience
VSM Loop Simulation	VSM Loop Simulation Facilitator Guide [Presentation and simulation included on the Deluxe Plus VSM Package USB Drive and on the VSM Upgrade USB Drive]	<p>Implementing Lean Mfg. at random point processes does little to improve the bottom line financial metrics. You end up with islands of perfection surrounded by a sea of chaos.</p> <p>True lean enterprise focuses on the value stream from door-to-door and assures smooth flow of information and material all along the way. It does little to balance flow through an assembly process to only have finished goods build up waiting for paperwork from sales.</p> <p>The nine VSM exercises simulate a complete value stream from customer to order entry to supplied material to production build and to delivery to the customer. As each point along the stream is improved, bottom line metrics keep the true impact visible. Only when the entire stream has been redesigned with true customer-demand pull are production velocity, quality and efficiency maximized and waste eliminated.</p> <p>The value stream map for each of the nine flow methods is provided, along with additional lean tools used during the lean redesign events.</p> <p>The series of events are designed to run for extended lengths of time, with materials flowing in a complete loop from raw materials through the production process and delivery and back to raw materials. Thus, the event can be used in extended training sessions where the facilitator can focus on each lean concept and have enough time to experiment with the various influences on flow, the use of kaizen and continuous improvement tools, and bring in additional concepts of Heijunka planning, supply chain and customer pull Kanban signal techniques, and inventory management.</p>
VSMgt – Value Stream Management	VSMgt USB Drive	<p>This simulation exercise is an alternative to the larger and more complex VSM Loop simulation. It uses just one Car Factory kit of materials and presents a value stream for customer service using a door-to-door look at the paperwork forms, decision processes, and hands-on repair of customer returns.</p> <p>All materials for the simulation event are contained on the USB Drive. The forms and flow may be printed and used as is, or a variety of customizations may be edited to provide the trainer with realistic flow situations from their own experience.</p> <p>Plan on at least one hour of pre-event prep time to configure the “customer returns” and print the forms. The two step event requires at least two hours.</p>

2023 Product Catalog

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Kanban – Full Value Stream Simulation	Kanban Simulation [Presentation and simulation included on the Deluxe Plus Kanban Package USB Drive or on the Kanban Upgrade USB Drive]	<p>This full value stream simulation presents a car showroom to the random customer base, which as each car is selected the Kanban rules cause a replenishment pull from the car warehouse and ultimately from the factory and from the raw materials suppliers. Heijunka is presented as a method of leveling the factory in this random demand mixed model simulation exercise.</p> <p>All materials are presented in the Deluxe <i>Plus</i> Kanban package, or if you own a car factory kit – the Kanban Upgrade kit adds just the extra materials necessary for the full simulation experience.</p> <p>The simulation exercise is designed to provide the ability to focus on any aspect of the value stream – like train the planning and scheduling members of the team to deal with random demand, or teach work cell operators to understand the entire lean flow methods. The team set up is variable but works best with 10 people.</p> <p>The facilitator guide includes a printed and bound color guide book and PowerPoint presentation which provides a complete discussion of the Kanban control methods. The Facilitator guide lists things to observe and point out to the people, comments to add for clarity, and suggestions for improvement.</p>
Optional Training Event LM Large Group Simulation (5 to 39 hands-on participants) is a fast paced 4-step simulation that focuses on the 8-wastes.	LeanMan Large Group Simulation [file set on the LM Large Group Simulation USB Drive]	<p>This 4-step simulation is designed to train large, but variable sized, groups of participants in the four main flow methods. The Evolution of Lean presentation (available on the Deluxe USB Drive) begins the event and a few additional presentation materials, such as Learning to See the Waste, are recommended but require additional time.</p> <p>The team set up is variable between 5 and 13 people each with hands-on participation for each Car Factory Kit used. The 84-page facilitator guide allows up to three Car Factory Kits to be run simultaneously for a maximum of 39 participants with hands-on time accommodated.</p> <p>A single facilitator can easily control the teams, provided the participant placemats located on the USB Drive are printed and distributed. The simulation includes a printed and bound color 84-page facilitator guide which provides lists of things to observe and point out to the people, comments to add for clarity, and suggestions for improvement.</p> <p>Requires one Deluxe Kit minimum, and can support up to two additional Companion Kits, or one Deluxe Plus VSM Package and one Companion Kit. Event time 2.5 hours plus additional presentation time, if any. Room size should be large training room or conference center.</p> <p>This presentation event is available for purchase only to clients who also purchase (or have purchased in the past) the LeanMan Car Factory Kits. Materials include the color printed and bound Facilitator Guide, two 450 pc dispenser packs of detail components, and all supporting files on USB Drive.</p>

2023 Product Catalog

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LM Heijunka Simulation	<p>Heijunka Simulation Facilitator Guide [Presentation and simulation included on the Deluxe Plus Heijunka Package USB Drive, or the optional add on Heijunka Upgrade Package]</p> <p>NOTE: Heijunka training should follow the standard lean training on the five principles of lean using the car factory simulations. Heijunka will then enhance the understanding of flow by bringing into the simulation mixed model scheduling techniques.</p>	<p>This presentation event is part of the Deluxe <i>Plus</i> Heijunka Training Package, or it can be obtained as an optional purchase for use with the standard Deluxe and Deluxe <i>Plus</i> VSM Car Factory Kits. The "Leveling the Waves" presentation presents an alternate way of approaching the function of master scheduling and planning for a lean manufacturing environment.</p> <p>Creating a smooth level work flow out of the chaotic and random customer demand is a challenge in a lean shop, and requires a managed disconnect from the MRP push. The Heijunka simulation exercise develops a unique approach to visualization of work flow, allowing the planning function to gain control over capacity issues and assure on-time delivery in a mixed-mode production work cell.</p> <p>The simulation exercise is designed to train the planning and scheduling members of the team, but is also an excellent tool to teach work cell operators lean flow methods. The team set up is variable but works best with 10 people. The facilitator guide includes a printed and bound color 48-page guide book and PowerPoint presentation which provides a complete discussion of the Heijunka control methods and includes animated visual simulations of the Heijunka flow in the PowerPoint slideshow. The Facilitator guide lists things to observe and point out to the people, comments to add for clarity, and suggestions for improvement.</p> <p>Requires one Deluxe <i>Plus</i> Heijunka Package, or the Heijunka Upgrade Package.</p> <p>Event time is approximately 2 hours for the slideshow presentation and simulation, but allow additional time to experiment with alternate flows. Room size should be a training room or large conference room with at least three tables and room for 12 people.</p> <p>Materials include the color printed and bound Facilitator Guide, a 6x6 Heijunka Box, 16 Heijunka Kanban cards, 16 Job Ticket order cards, two 450 pc dispenser packs of detail components, and all supporting files on USB Drive, plus all of the standard simulation materials included with the standard Deluxe Kit. All materials are packaged in a single double deep container for easy transport and setup.</p>



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You will be in good company with these team members from around the world who have chosen **The LeanMan** lean simulation products for their training needs:

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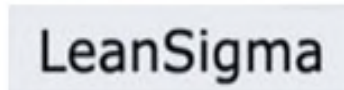




The LeanMan

Lean Factory Simulation Kits

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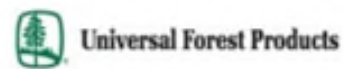
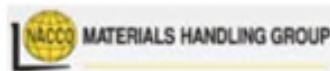




The LeanMan

Lean Factory Simulation Kits

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...empowering people



... and many more. Since 2004, The LeanMan LLC has sold to Colleges, Consultants, Manufacturing, Health Care Centers, and many other customers who just wish to control a process, in over 27 countries around the world!



About The LeanMan

The LeanMan Car Factory Simulation Training Kits are designed to help teach the principles of Lean Manufacturing to executives, managers, engineers, schedulers, supervisors and shop workers. They will provide your Continuous Improvement Training Coordinator with a simple kit of reusable parts easily configured to simulate various production-flow models. While some flow models are included with the kit to get you started, the intent is to provide a kit easily configured to simulate your actual product flow, making your training exercises more meaningful to your employees.

Each kit design has been carefully crafted to include elements of skill, manual dexterity, a positive learning curve, a focus on the learn-do-teach adult learning methods, and above all, an emotional element of fun that makes the lean principles stick.

The combination of realism in the simulation, repeatable metrics, and a touch of behavioral science all packaged in a simple easy to transport package makes the LeanMan simulations the natural choice for colleges, consultants, and lean practitioners everywhere. The LeanMan Products are sold in over 27 countries around the world and have been praised for their simplicity of design yet highly detailed lean flow scenarios that flow from beginner to the experienced lean practitioner.

The LeanMan, LLC offices are located near Grand Rapids, MI. To contact The LeanMan, LLC, please use the form on the [Contact](#) page, or send correspondence to:

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The LeanMan LLC is a woman owned small business.



Contact The LeanMan

Use the contact form on the web site at www.TheLeanMan.com under the “About” tab and follow the instructions as shown below, or send the equivalent information to Sales@TheLeanMan.com or call 616-644-9646 to request additional information.

Instructions: To contact The LeanMan, please fill out the form below, then click the **Send Message** button. Required fields are marked with a red asterisk.

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