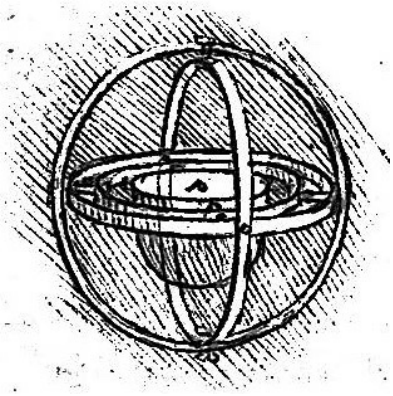
Hoshin Kanri for the Lean Enterprise, 1st Edition

Companion CD
Volume 1



Volume 1 contains PDFs of templates, tools and instructions for Chapters 1-7 of *Hoshin Kanri for the Lean Enterprise.* Templates and instructions for Chapter 8 will be found in Volume 2. All of these documents originally shipped with the 1st edition on a CD-ROM.

The table of contents on page 1 contains links to each of the documents.

CD Companion Contents

CD Companion Contents

Tip on Printing Forms from the CD Companion:

The documents included on the CD Companion have been formatted as Adobe pdf (portable document format) files so that they may be printed from practically any computer on practically any printer. We recommend that you print the documents using Adobe Reader, which is available in as a free download on the web at http:\\www.adobe.com. Once you have installed Adobe Reader, you can easily print all of the documents on the CD Companion. Please note, however, that the documents have been formatted for various sizes of paper, including US letter (8½" x 11"), US legal (11" x 14"), and in some cases tabloid size paper (11" x 17"). When you print, use Adobe Reader's "page setup" function (available from the pull-down "file" menu) to *verify* the size for which the document you are printing has been formatted. Also check that your printer is capable of printing that paper size and is loaded with the correct paper. *Note:* If your printer is not capable of printing tabloid size paper, you must do two things to shrink tabloid-size documents to letter-size: 1) change the paper size setting in the Adobe Reader "page setup" window to "US letter" and 2) choose "Reduce to Printer Margins" in the Adobe Reader "page scaling" function, which appears halfway down the "print" window. Note that letter- and tabloid-size pages are proportional to one another, but not to legal-size pages.

Files in Excel format:

In addition to pdfs of all forms, there are Excel files available for the following CD Forms:

- CD Form 1-2 A3-X (X-matrix)
- CD Form 3-1 Prioritization Matrix
- CD Form 6-1 Catchball Verification Sheet

You may enter data directly into these Excel files.

A3-i

Competitive information report	**Theme:**

OBSERVATION

ANALYSIS

IMPLICATIONS FOR THE BUSINESS

Date:	**Reporting unit:**

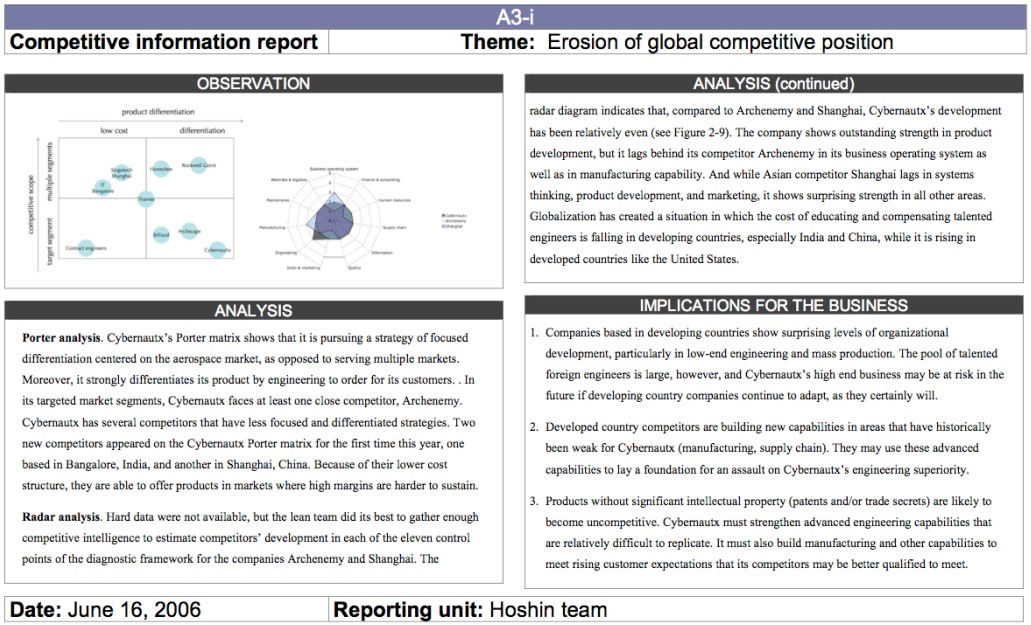
A3-i Instructions

Designed to build consensus about changes in the conditions of demand and supply before building the A3-X. Used in the "scan" phase of the hoshin process. In building an intelligence you may rely on your Porter Matrix, Market / Technology Matrix, Product / Market Matrix, Value Stream Maps, Value Stream Profit and Loss Statements. President's Diagnosis, personal journal, and any other planning documents you may use to gather competitive intelligence. The point to the intelligence report it to integrate all of the information you have and draw conclusions, and then to share your point of view with others.

Observation. In this area visually summarize your observation(s) about changes in conditions of supply and demand or shifts in the context of business that may require you to adjust your strategy.

Demand conditions include any trends in your markets or broader social trends that would indicate your customers have new problems to solve that your products or services may not address.

Supply conditions include changes in the prices of materials, advances in technology, innovations in management methods or organization structure, as well as new investments or new product introductions by your competitors, that may require you to develop new competitive capabilities.



A3-i

Competitive information report | **Theme:** Erosion of global competitive position

OBSERVATION

ANALYSIS

Porter analysis. Cybernautx's Porter matrix shows that it is pursuing a strategy of focused differentiation centered on the aerospace market, as opposed to serving multiple markets. Moreover, it strongly differentiates its product by engineering to order for its customers. . In its targeted market segments, Cybernautx faces at least one close competitor, Archenemy. Cybernautx has several competitors that have less focused and differentiated strategies. Two new competitors appeared on the Cybernautx Porter matrix for the first time this year, one based in Bangalore, India, and another in Shanghai, China. Because of their lower cost structure, they are able to offer products in markets where high margins are harder to sustain.

Radar analysis. Hard data were not available, but the lean team did its best to gather enough competitive intelligence to estimate competitors' development in each of the eleven control points of the diagnostic framework for the companies Archenemy and Shanghai. The

ANALYSIS (continued)

radar diagram indicates that, compared to Archenemy and Shanghai, Cybernautx's development has been relatively even (see Figure 2-9). The company shows outstanding strength in product development, but it lags behind its competitor Archenemy in its business operating system as well as in manufacturing capability. And while Asian competitor Shanghai lags in systems thinking, product development, and marketing, it shows surprising strength in all other areas. Globalization has created a situation in which the cost of educating and compensating talented engineers is falling in developing countries, especially India and China, while it is rising in developed countries like the United States.

IMPLICATIONS FOR THE BUSINESS

1. Companies based in developing countries show surprising levels of organizational development, particularly in low-end engineering and mass production. The pool of talented foreign engineers is large, however, and Cybernautx's high end business may be at risk in the future if developing country companies continue to adapt, as they certainly will.
2. Developed country competitors are building new capabilities in areas that have historically been weak for Cybernautx (manufacturing, supply chain). They may use these advanced capabilities to lay a foundation for an assault on Cybernautx's engineering superiority.
3. Products without significant intellectual property (patents and/or trade secrets) are likely to become uncompetitive. Cybernautx must strengthen advanced engineering capabilities that are relatively difficult to replicate. It must also build manufacturing and other capabilities to meet rising customer expectations that its competitors may be better qualified to meet.

Date: June 16, 2006 | **Reporting unit:** Hoshin team

Analysis. In this area, very explain your observations, for example:

Porter analysis reveals the logic and forces behind shifting market positions.

Market/technology analysis reveals shifts and potential shifts in customer requirements, technologies and methods.

Product / market analysis analyzes the relative profitability of market segments.

Value stream profit and loss analysis analyzes the capability of value streams to generate cash.

The president's diagnosis reveals the progress of you and your competitors in the journey to lean enterprise.

Implications for the business. Having explained and visually summarized important changes in demand and supply, you must now draw out specific implications for your business.

Explain how any changes in market trends or broader demand conditions will affect the short or long term demand for your products or services.

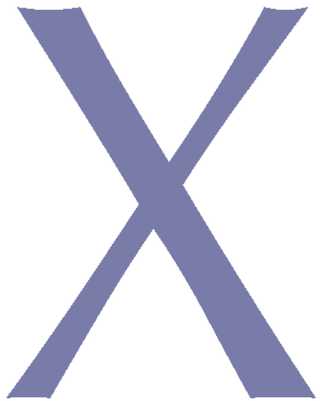
Explain how any changes in prices, technology, methods, or structure will affect your cost structure and flexibility vis a vis that of your competitors or new entrants in the competitive game.

A3-X

correlation		correlation / contribution	accountability

tactics

strategies



process

results

Revenue	$0
Development costs	$0
Material costs	$0
Conversion costs	$0
Value stream profit	$0

team members

Legend

- ⊙ = strong correlation or team leader
- ○ = important correlation or core team member
- △ = weak correlation or rotating team member

correlation | correlation / contribution

A3-X Instructions

CORRELATION

Analyze each pair of strategies or policies on the one hand and improvement initiatives or projects on the other hand. Use the symbols in the center field to indicate the level of correlation or contribution. Enter the appropriate symbols in each of the cells that mark the intersections of the relevant policy columns and initiative rows.

In the columns provided please enter separate statements of two to five of your company's most important strategic goals. Typically, such statements pertain to the cost, functionality, and/or quality of your product or service. For example, "Become the low cost producer of family automobiles;" or "Be the most innovative audio equipment company;" or "Lead the market for luxury hand-bags."

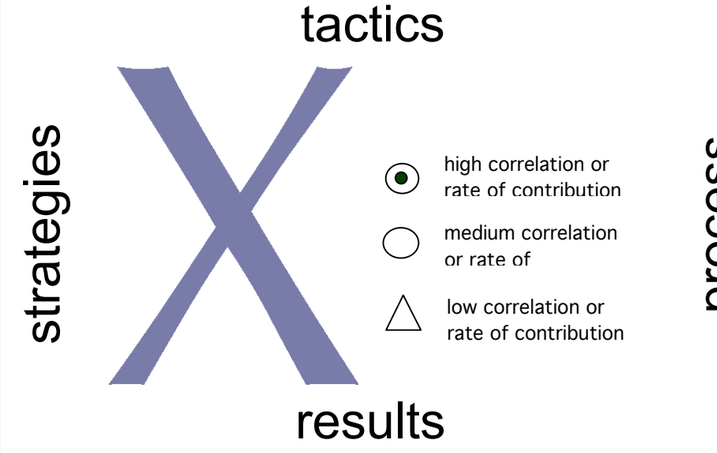
Optional: Assign and record index number for each strategy or policy here.

Analyze each pair of strategies and financial indicators to determine the level of importance, contribution, or correlation between strategy and financial performance. Use the symbols in the center field to indicate the level of correlation or contribution. Enter the appropriate symbols in each of the cells that mark the intersections of the relevant policy columns and financial rows.

CORRELATION

Optional: Assign and record index number for each initiative or project here.

In the rows provided please enter separate statements of up to ten of your company's most important tactical improvement initiatives or projects. Typically initiatives or projects are led or implemented by a team of individuals, often from different business functions within your company. In addition, these initiatives frequently involve the introduction of new technologies or work methods, such a lean production, total quality management, six sigma, and their respective toolkits. For example, "Implement lean production at all manufacturing plants;" or "Initiate six sigma in our engineering function." Projects will normally be more specific than initiatives. For example, "Implement quick changeover in our stamping plants;" or "Apply quality functional deployment in the next new product launch." These initiatives or projects will later be *deployed* to the teams you describe in the "Team Member" matrix on the right hand side of this document.



Optional: Assign and record an index number for each financial indicator here.

In this section, please enter key data for a value stream profit and loss statement for the business unit for which you are preparing the X-matrix. Build the actual value stream P&L with full details on a separate worksheet or in a separate workbook.

CORRELATION / CONTRIBUTION

Analyze each pair of initiatives or projects on the one hand and performance measures on the other hand to determine how strongly the initiative or project in question may affect the measurable in question. Use the symbols in the center field to indicate the level of correlation or contribution, entering the appropriate symbols in each of the cells that mark the intersections of the relevant initiative rows and target columns.

In the columns provided please enter your company's *critical* process improvement targets, stated in terms of performance improvement measurables and indicating the date by which the target is to be achieved. Improvement measurables are normally leading indicators of a company's fitness and are frequently connected to the development of competitive resources, such as brand identity, intellectual property, business processes, and human skills. Examples of performance targets include: "Improve customer satisfaction as measured by a 50% reduction in customer returns per month by December 31, 2004;" or "Reduce changeovers at all plants to less than 10 minutes by June 30, 2003;" or "Cross-train all members of production cell workgroups on all cell equipment on the Ford line before October 1, 2002."

Optional: Assign and record an index number for each improvement measure here.

Analyze *each pair* of leading performance measures and financial indicators to determine the contribution level of each performance measure to each financial indicator. Use the symbols in the center field to indicate the level of correlation or contribution, entering the appropriate symbols in each of the cells that mark the intersections of the relevant target columns and financial rows.

CORRELATION / CONTRIBUTION

ACCOUNTABILITY

- ◉ team leader
- ◯ core team member
- △ participating team member

Use this space to analyze the relationships between the accountable parties listed below to the improvement initiatives or projects listed to the left. Using the symbols above, record the level of accountability by entering the relevant symbols in the cells marking the intersection of team member columns and initiative rows.

TEAM MEMBERS

In the columns provided on the reverse side of this document, list up to twelve parties who must work together or coordinate their activities to achieve the performance improvement and financial targets.

USE PENCIL

to remain open to feedback and improvement ideas during the catchball process.

Also,
strictly limit the number of policies, initiatives, targets, and financials.
If 3 policies give rise to only 3 initiatives, and 3 initiatives give rise to only 3 projects, and 3 projects give rise to only 3 team activities, you will have a total of 819 team activities and innumerable targets to schedule, track, and manage!

A3-T

Proposed team charter	**Theme:**

PROBLEM STATEMENT

PROPOSED ACTION

TARGET STATEMENT

IMPLEMENTATION PLAN

Action	Responsibility	Date

ANALYSIS

CHECK AND ACT (verification and follow up)

Date:	**Reporting Unit:**

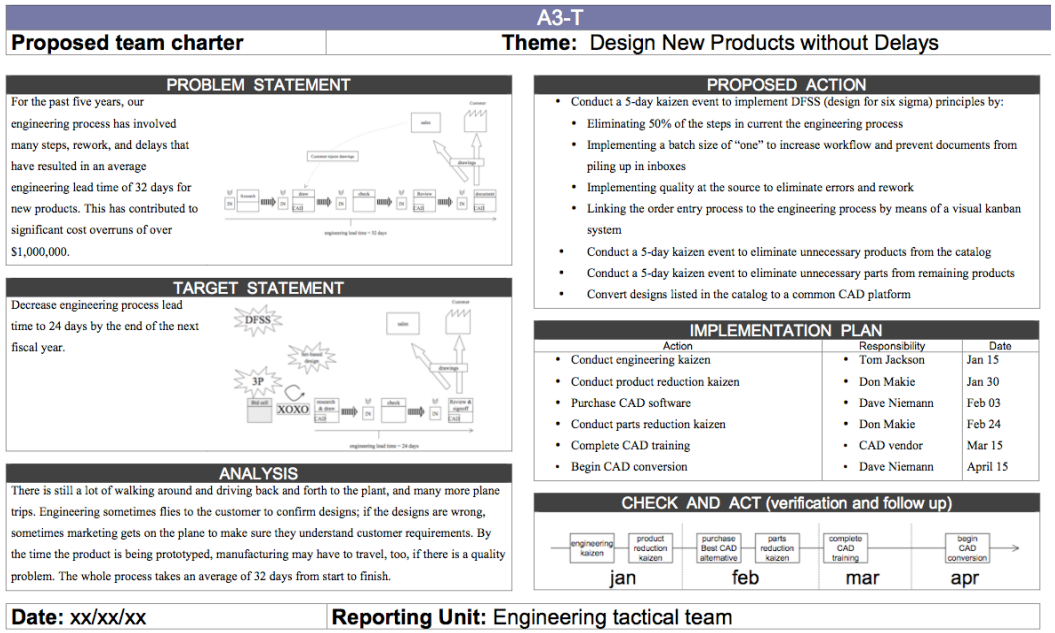
A3-T Instructions

The A3-T is designed to build consensus around strategies and tactics in the mid-term strategy and annual hoshin. These are team charters that will eventually be validated during the catchball process. Afterwards, they guide implementation of the actions proposed. The A3 technical writing format incorporates PDCA problem-solving methodology.

- **Plan.** Completing the A3-T requires the author to create a problem statement that defines the problem, a target statement that defines the scope of improvement, and an analysis that articulates the root cause of the problem.
- **Do.** The A3-T articulates proposed actions and specifies an implementation plan that addresses the root cause of the problem.
- **Check and Act.** The A3-T establishes a timeline for verifying implementation and ensuring follow up to ensure adherence to new standards.

Problem statement: Include a problem or gap statement that describes the reason why improvement is required. The problem statement includes an exact timeframe and one or more measures of the gap.

***Target Statement*:** Enter a complete sentence or short paragraph that incorporates the team's main targets. You may want to summarize your targets by listing your value stream profit target.



***Theme*:** List the team's improvement theme and area to reference criteria from the transformation ruler or other developmental system, e.g., Shingo Prize, 20 Keys, Baldrige Award….

Proposed Action: Enter suggested tactics for achieving the targets you've set in the target statement. You may already have listed these on the problem statements you developed for your mid-term strategies.

Implementation plan: Specify actions, parties responsible for implementation, and projected completion dates.

Analysis: Succinctly describe the root cause analysis that supports your proposed action.

***Check and Act*:** Create a visual timeline to facilitate verification of implementation and follow up to ensure adherence to new standards. A3 documents are part of your visual management system for self-managed team activity (see Chapter 7 on the "check" phase of the hoshin process). For example, you may establish a project management board and post your A3-T. The board should also contain charts for each of your major target values as well as a draft schedule or Gantt chart. The management board will be a focal point of the deployment process, as well as for reviewing and taking corrective action that is needed to execute the hoshin. As part of your visual management system, you can also create a web page on your company's web site to mirror the information on your management board.

A3-SR

Status report	**Theme:**

BACKGROUND

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TARGET STATEMENT

IMPLEMENTATION STATUS

Action	Responsibility	*Due*	*Complete*

IMPACT

UNRESOLVED ISSUES

Date:	**Reporting unit:**

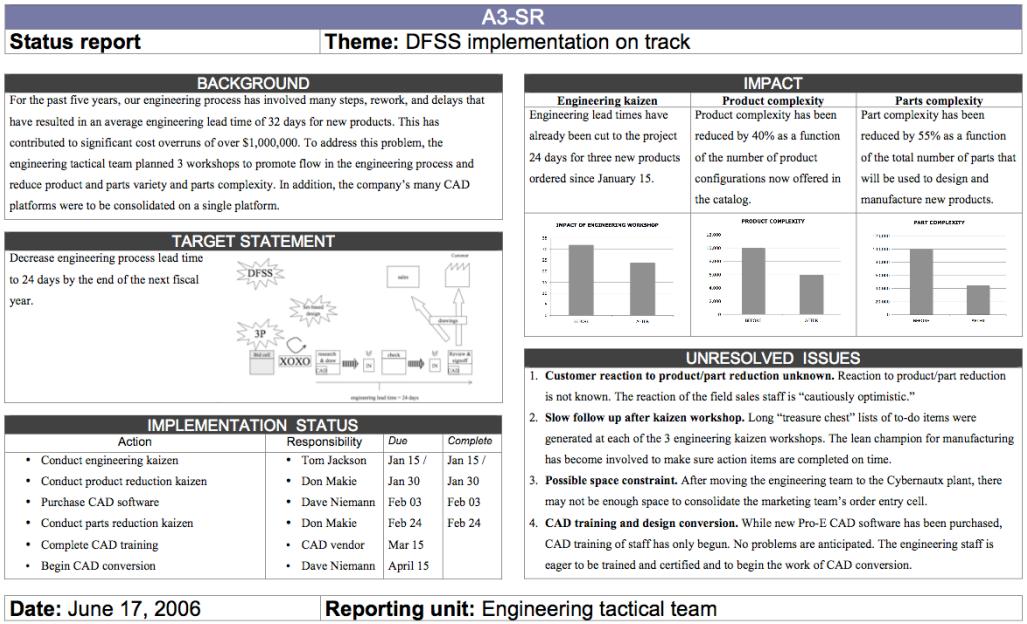
A3-SR Instructions

The A3-SR is a periodic, quantitative progress report on a PDCA investigation linked to specific A3-Ts and A3-Ps. It is used in the "check" phase of the hoshin process. A3-SRs are used during monthly and in some cases weekly meetings designed to track the progress towards strategic goals or progress in solving unanticipated problems. They are designed to focus discussion on key indicators and critical details of process improvement, and to economize on scarce management resources by preventing unproductive, disruptive micromanagement.

Background: Include a problem or gap statement that describes the reason why improvement is required. The problem statement includes an exact timeframe and one or more measures of the gap.

***Target Statement*:** Enter a complete sentence or short paragraph that incorporates the team's main targets. The target statement may be found on the original A3-T or A3-P to which the A3-SR pertains. Revise the original statement if necessary.

Implementation status: Update the original action plan information found on the related A3-T or A3-P to indicate how far implementation has actually progressed.



A3-SR

Status report | **Theme:** DFSS implementation on track

BACKGROUND

For the past five years, our engineering process has involved many steps, rework, and delays that have resulted in an average engineering lead time of 32 days for new products. This has contributed to significant cost overruns of over $1,000,000. To address this problem, the engineering tactical team planned 3 workshops to promote flow in the engineering process and reduce product and parts variety and parts complexity. In addition, the company's many CAD platforms were to be consolidated on a single platform.

TARGET STATEMENT

Decrease engineering process lead time to 24 days by the end of the next fiscal year.

IMPLEMENTATION STATUS

Action	Responsibility	*Due*	*Complete*
• Conduct engineering kaizen	• Tom Jackson	Jan 15 /	Jan 15 /
• Conduct product reduction kaizen	• Don Makie	Jan 30	Jan 30
• Purchase CAD software	• Dave Niemann	Feb 03	Feb 03
• Conduct parts reduction kaizen	• Don Makie	Feb 24	Feb 24
• Complete CAD training	• CAD vendor	Mar 15	
• Begin CAD conversion	• Dave Niemann	April 15	

IMPACT

Engineering kaizen	Product complexity	Parts complexity
Engineering lead times have already been cut to the project 24 days for three new products ordered since January 15.	Product complexity has been reduced by 40% as a function of the number of product configurations now offered in the catalog.	Part complexity has been reduced by 55% as a function of the total number of parts that will be used to design and manufacture new products.

UNRESOLVED ISSUES

1. **Customer reaction to product/part reduction unknown.** Reaction to product/part reduction is not known. The reaction of the field sales staff is "cautiously optimistic."
2. **Slow follow up after kaizen workshop.** Long "treasure chest" lists of to-do items were generated at each of the 3 engineering kaizen workshops. The lean champion for manufacturing has become involved to make sure action items are completed on time.
3. **Possible space constraint.** After moving the engineering team to the Cybernautx plant, there may not be enough space to consolidate the marketing team's order entry cell.
4. **CAD training and design conversion.** While new Pro-E CAD software has been purchased, CAD training of staff has only begun. No problems are anticipated. The engineering staff is eager to be trained and certified and to begin the work of CAD conversion.

Date: June 17, 2006 | **Reporting unit:** Engineering tactical team

***Theme*:** List the team's improvement theme, which will often be derived from the annual hoshin.

Impact: Summarize the impact of the actions completed to achieve the original targets. Provide graphs or other visual information to promote quick comprehension.

Unresolved issues: List the main issues pertaining to the project or problem that are still unresolved, including (among other things)

- data that must still be gathered or information that must be created
- inability to obtain resources, including human resources, planned and budgeted for the project
- new resource requirements not planned or budgeted for the project

Unresolved issues do not include the straightforward execution of the plan with budgeted resources, unless those resources are for some reason unavailable.

A3-SSR

Summary Status Report	**Theme:**

CATEGORY	STEPS TAKEN

RESULTS 3-year record (yearly average

measure	3 years ago	2 years ago	Last year

THIS PERIOD

measure	target	performance	comments

PRESENT CONDITION

OUTLOOK FOR NEXT PERIOD

Review period:	**Reporting Unit:**

A3-SSR Instructions

The A3-SSR is a periodic summary status report (based on A3-Rs) of progress on A3-Ts bundled in an A3-X (plus related A3-Ps). It is used during quarterly review meetings in the "check" phase of the hoshin process. Like the A3-SR, the A3-SSR is designed to focus discussion on key indicators and critical details of process improvement, and to economize on scarce management resources by preventing unproductive, disruptive micromanagement. As described under "Category" below, items on a summary status report should be limited to items already in the annual hoshin or unanticipated problems or changes in the competitive environment that affect the annual hoshin.

***Theme*:** List the team's improvement theme, which will often be derived from the annual hoshin or transformation ruler.

Category: Refers to three types of issues discussed in quarterly review meetings:

A3-T. The progress towards targets reported on A3-Ts and confirmed through the hoshin catchball process.

A3-P. The progress towards solving unanticipated reported on A3-Ps.

New intelligence. Critical new information on an A3-i that may require a midterm correction to business unit tactics or companywide strategy as defined by an A3-X.

A3-SSR

Summary Status Report | **Theme:** Engineering tactical team implementation on track:

CATEGORY	STEPS TAKEN
1) Design Process	1) Design process value stream mapped with the participation of marketing and production. 2) Standard procedures written and deployed. 3) Engineering team co-located with marketing personnel in Cybernautx production facility.
2) Technical Risk Management	1) All engineering trained in Failure Modes and Effects Analysis (FMEA). 2) FMEA applied to first new product. 3) Risk Probability Numbers (RPNs) established and control plans developed for high risk items.
3) Preproduction Pioneering (3P)	1) Marketing, engineering, and production trained in 3P tools, including the 7 alternatives. 2) 3P tools applied in marketing and design phases of new product development process. 3)

RESULTS 3-year record (yearly average

measure	3 years ago	2 years ago	Last year
Time to market	4 months	3 months	2 months
Adherence to target cost	Not measured	Not measured	15%
Cost of delay	Not measured	Not measured	$200,000
Engineering changes per launch	100	80	75
# kaizen events	0	0	1
Poka yoke devices per launch	0	0	3
Project control boards	0	0	0

THIS PERIOD

measure	target	performance	comments
Time to market	11 days	30 days	New process
Adherence to target cost	75%	50%	New process
Cost of delay	$10,000	$25,000	New process
Engineering changes/product	20	15	They listened!
# kaizen events	3	4	Hard work
Poka yoke devices	10	11	Good training

PRESENT CONDITION

The implementation of a design for six sigma (DFSS) concurrent engineering process is on track.

OUTLOOK FOR NEXT PERIOD

1) Design changes will be made to ensure both ease of assembly and manufacture.
2) The preproduction pioneering process will be applied again in laying out the new production process, and again during launch, to ensure that target quality, target cost, and takt time can be met.
3) Engineering and manufacturing personnel will be trained in poka yoke (mistake proofing).

Review period: 3rd quarter | **Reporting Unit:** Engineering tactical team

Results: Enter historical results for all targets on the reporting unit's A3-X.

This period: For each target on the reporting unit's A3-X, enter the original target, the current level of performance or achievement, and a brief comment explaining any discrepancy (positive or negative).

Steps taken: Succinctly describe specific steps taken in the category reported: A3-T, A3-P, or A3-i.

***Present condition*:** State whether the implementation is on track. If possible, describe the relative magnitude by which the present condition either exceeds or fails to achieve the targets in the annual hoshin.

***Outlook for next period*:** Explain what the team expects to achieve in the next period. Identify anticipated problems and any extra resources required to adhere to the annual. If projects are ahead of schedule, may resources be released to apply elsewhere in the company?

A3-P

Proposed team charter	**Theme:**

PROBLEM STATEMENT

TARGET STATEMENT

ANALYSIS

COUNTERMEASURES

IMPLEMENTATION PLAN

Action	Responsibility	Date

CHECK AND ACT (verification and follow up)

Date:	**Reporting Unit:**

A3-P Instructions

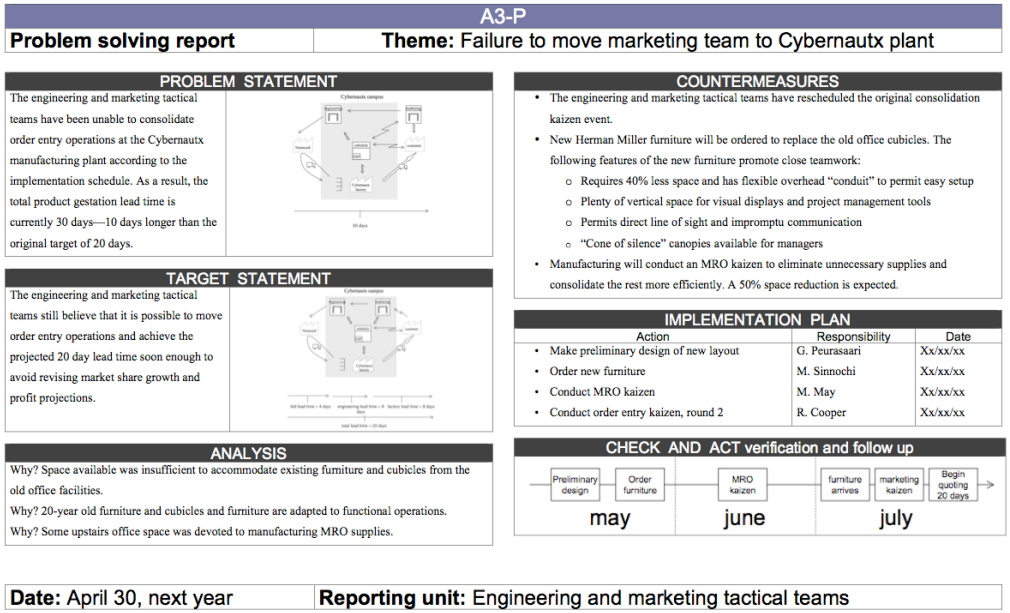
Use the A3-P team charter only for "chronic" problems not addressed by exiting A3-Ts (confirmed through catchball) that cannot be resolved within a week, problems for which multiple solutions may be required, or problems with solutions that require significant capital investment. A3-Ps are useful in managing problems in the supply chain. Like A3-Ts, they incorporate PDCA methodology:

- **Plan.** Completing the A3-P requires the author to create a problem statement that defines the problem, a target statement that defines the scope of improvement, and an analysis that articulates the root cause of the problem.
- **Do.** The A3-P articulates proposed actions and specifies an implementation plan that addresses the root cause of the problem.
- **Check and Act.** The A3-P establishes a timeline for verifying implementation and ensuring follow up to ensure adherence to new standards

***Theme*:** List the team's improvement theme and area to reference criteria from the transformation ruler or other developmental system, e.g., Shingo Prize, 20 Keys, Baldrige Award….

Problem statement: Include a problem or gap statement that describes the reason why improvement is required. The problem statement includes an exact timeframe and one or more measures of the gap.

***Target Statement*:** Enter a complete sentence or short paragraph that incorporates the team's main targets. This target statement will normally be found on a corresponding A3-T.



A3-P

Problem solving report | **Theme:** Failure to move marketing team to Cybernautx plant

PROBLEM STATEMENT

The engineering and marketing tactical teams have been unable to consolidate order entry operations at the Cybernautx manufacturing plant according to the implementation schedule. As a result, the total product gestation lead time is currently 30 days—10 days longer than the original target of 20 days.

TARGET STATEMENT

The engineering and marketing tactical teams still believe that it is possible to move order entry operations and achieve the projected 20 day lead time soon enough to avoid revising market share growth and profit projections.

ANALYSIS

Why? Space available was insufficient to accommodate existing furniture and cubicles from the old office facilities.

Why? 20-year old furniture and cubicles and furniture are adapted to functional operations.

Why? Some upstairs office space was devoted to manufacturing MRO supplies.

COUNTERMEASURES

- The engineering and marketing tactical teams have rescheduled the original consolidation kaizen event.
- New Herman Miller furniture will be ordered to replace the old office cubicles. The following features of the new furniture promote close teamwork:
  - Requires 40% less space and has flexible overhead "conduit" to permit easy setup
  - Plenty of vertical space for visual displays and project management tools
  - Permits direct line of sight and impromptu communication
  - "Cone of silence" canopies available for managers
- Manufacturing will conduct an MRO kaizen to eliminate unnecessary supplies and consolidate the rest more efficiently. A 50% space reduction is expected.

IMPLEMENTATION PLAN

Action	Responsibility	Date
• Make preliminary design of new layout	G. Peurasaari	Xx/xx/xx
• Order new furniture	M. Sinnochi	Xx/xx/xx
• Conduct MRO kaizen	M. May	Xx/xx/xx
• Conduct order entry kaizen, round 2	R. Cooper	Xx/xx/xx

CHECK AND ACT verification and follow up

Preliminary design | Order furniture | MRO kaizen | furniture arrives | marketing kaizen | Begin quoting 20 days

may | june | july

Date: April 30, next year | **Reporting unit:** Engineering and marketing tactical teams

Countermeasures: Enter suggested tactics for adhering to targets set previously in the annual hoshin.

Implementation plan: Specify actions, parties responsible for implementation, and projected completion dates.

Analysis: Succinctly describe the root cause analysis that supports your proposed action.

***Check and Act*:** Create a visual timeline to facilitate verification of implementation and follow up to ensure adherence to new standards. A3 documents are part of your visual management system for self-managed team activity (see Chapter 7 on the "check" phase of the hoshin process). For example, you may establish a project management board and post your A3-T. The board should also contain charts for each of your major target values as well as a draft schedule or Gantt chart. The management board will be a focal point of the deployment process, as well as for reviewing and taking corrective action that is needed to execute the hoshin. As part of your visual management system, you can also create a web page on your company's web site to mirror the information on your management board.

Porter (Generic Strategies) Matrix Instructions

Competitive advantage grows out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.

-- Michael Porter, *Competitive Advantage*, 1985, p.3

According to Prof. Porter, a firm's relative position within an industry is given by its choice of two things: *competitive advantage* and *competitive scope*. Competitive advantage can flow from a lower cost on the one hand, or higher differentiation on the other hand. Competitive scope is defined by the breadth of your market.

		COMPETITIVE ADVANTAGE	
		Lower Cost	Differentiation
COMPETITIVE SCOPE	Broad Target	1. Cost Leadership	2. Differentiation
	Narrow Target	3A. Cost Focus	3B. Differentiation Focus

Thus a Porter matrix describes four quadrants, which Porter describes as "generic strategies," namely, four combinations of the two basic types of competitive advantage and scope. The aim of all four generic strategies is to be viewed as valuable by the customer. According to Porter corporations should try harder to be different from, instead of better than, their competitors.

1. **Cost leadership.** A cost leadership strategy aims at creating a relatively undifferentiated product at the best price for a broad or mass market. The foundation of this strategy is a low cost structure, usually based upon a low cost of capital, raw materials, labor, and/or distribution.

2. **Differentiation.** The differentiation strategy aims at creating a product or service that is unique for a broad market. The foundation of this strategy is unique combinations of production factors that are difficult for competitors to replicate.

3A. **Cost Focus**. A cost focus strategy is similar to a cost leadership strategy, but it is focused on narrow market segments. Such a strategy may be based, for example, on a unique location or access to raw materials that are expensive to transport.

3B. **Differentiation focus**. A differentiation focus strategy is similar to a differentiation strategy, but like the cost focus strategy, it is focused on narrow market segments.

Porter Matrix Instructions

Build your own Porter matrix by doing the following:

1. Place the name of each your competitors on a pink sticky-note (one competitor per sticky note) and place it on a flip chart.
2. Locate low-cost producers with a wide market segment in the upper left-hand cell of the matrix.
3. Locate low-cost producers in a targeted market segment in the lower left-hand cell of the matrix. *Examples:* Local lemonade stand, Proton/Saga (small Malaysian-built car), Mabe (maker of small refrigerators for the Mexican market).
4. Locate differentiated producer with a wide market segment in the upper right-hand cell of the matrix. *Examples:* Johnnie Walker Black Label (blended scotch), Mercedes E-class.
5. Locate differentiated producers in a targeted market segment in the lower right-hand side of the market. *Examples:* Laphroig (single malt scotch), Bentley, Subzero.

On yellow sticky notes, record the reasons (one reason per yellow sticky) why each company has been positioned the way that it has. Be sure to identify the competitive resources that you might need to change your position. One way to go about this analysis is to use Porter's five forces model, which analyses sources of competitive advantage using basic concepts from microeconomics. Porter's five forces of competition include one internal to the industry (rivalry among existing firms) and four external forces. The five forces are:

- **threat of substitute products,** i.e., the risk that your competitors will introduce a product with similar fit and function as yours, winning business from your existing customers.
- **threat of new entrants,** i.e., the risk that new competitors will enter your markets and win business from your customers.
- **bargaining power of buyers**, i.e., the power of a few buyers to drive prices of the goods and services you sell down, perhaps to a point at which you will not earn an adequate profit.
- **bargaining power of suppliers,** i.e., the power of a few suppliers to drive prices of the goods and services you buy up, perhaps to a point at which you will not earn an adequate profit.
- **rivalry among existing companies,** i.e., the risk that competitors competing for the same customers will erode profits in the industry either by entering a price war or by competing by simultaneously overinvesting in capacity or similar new products or capabilities.

On blue sticky notes, brainstorm ideas (one idea per sticky) to improve your company's competitive position. Make your ideas very specific as to customer requirements and the technologies and methodologies you plan to employ.

Porter analysis has its detractors, notably Henry Mintzberg, who favors a more, intuitive, entrepreneurial approach to strategy. But as a basic framework for sorting out some of the basic dynamics in your business, Porter analysis is a good place to begin. It is also a good way to support the deployment process of hoshin kanri, because it can be taught easily to middle managers who are being asked to participate for the first time in the strategy process.

For more guidance on Porter's matrix and analysis see:

- Porter, Michael, *Competitive Advantage*, The Free Press, NY, 1985.
- Porter, Michael, *The Competitive Advantage of Nations*, The Free Press, NY, 1990.
- Porter, Michael, "What is strategy?" *Harvard Business Review* v74, n6 (Nov-Dec, 1996):61 (18 pages).

Product / Market Matrix

product \ market																																						

product/market matrix instructions

Use the product/market matrix to prioritize market opportunities for your current and future products and services.

Each cell in the product/market matrix defines a distinct market segment of product and customer groups. The question is: Which segments should your company do business in? Typically companies produce too many product types and serve too many customers *just because they can*. Frequently companies produce products that actually *lose* money, a fact obscured by obsolete overhead absorption accounting methods. Letting go of market segments is difficult because it results in a loss of customers and (perhaps) goodwill. But when those segments make no profit and do not otherwise contribute to the future, the choice should not be a hard one. Then you can concentrate on producing world-class products and services for the customers that really matter.

To fill out the product market matrix, follow these steps:

1. Identify all *major types* of marketable products, services, or product/service bundles that the company currently produces or plans to produce. (Product types will be similar to the “product groups” used to implement lean manufacturing.) These items become the headings for the rows of the matrix.
2. Identify all customers or customer groups for each segment in which the company currently competes or plans to compete. These items become the headings for columns of the matrix.
3. For decision-making purposes, establish annual dollar values in terms of net margin for low-end, mid-range, and high-end market segments. Although these are subjective determinations, they will have an important impact on strategy. Business economics is all about making intelligent trade-offs under uncertain conditions.
4. Enter the symbol for the relative value (L, M, or H) of each market segment in the cells of the matrix. It is important for this exercise to have an accurate understanding of the actual cost of your products in each segment. So far as possible you should eliminate from these estimates any indirect costs that cannot be traced clearly to the product, service, or *customer*.

Market importance			
relative value			net margin
L	=	low-end	$
M	=	mid-range	$
H	=	high-end	$

5. Establish market priorities by applying L, M, and H values to indicate which *combinations* of product and market segments are most important to the future. Your decision will depend in large part on how you view your competitive advantage. For example, a Chinese manufacturer may see a competitive advantage in producing low end products with low cost labor; while an American manufacturer may see a competitive advantage in high end products with relative high labor cost. Your decision may also depend upon your relationship with important customers, some of whom may value combinations of low-end, mid-range, and high-end products.
6. In cases where products and/or markets are too numerous to sort effectively for decision-making, this matrix may easily be transferred to an excel spreadsheet. Advanced weighting and sorting methods may then be applied.

Market / Technology Matrix

market \ technology		existing hard and soft technologies	related hard and soft technologies	new hard and soft technologies
existing market	1a	1b	1c	1d
related market	2a	2b	2c	2d
new market	3a	3b	3c	3d

Market/Technology Matrix Instructions

Use the market/technology matrix in conjunction with the product/market matrix and X-matrix smarttools to help establish policy for the next 3 to 5 years.

Businesses get stuck in their thinking about markets and technology. Most graduates of schools of engineering and business don't even know what technology is. It isn't always "hard." There are two sides –hard and soft—to the technology coin, as illustrated in the matrix at the right. In our global economy where hard technologies can be bought and sold easily, competitive advantage depends more and more on soft or management technologies, which must be homegrown as part of a business culture.

Even when businesses appreciate both hard and soft technologies, they may have difficulty imagining how either technology *changes*. Technology changes in two basic ways: 1) through straightforward applications of existing technology to new problems; and 2) through unexpected combinations of existing technology and entirely new technological ideas. By investigating opportunities for both types of innovation in existing, related, and new market segments, the market/technology matrix ensures that businesses systematically chart opportunities to develop competitive advantage.

	hard technology	soft technology
existing technology	Hard technologies are the mechanical, hydraulic, pneumatic, electronic, chemical, biological, and computer methods and systems that are intrinsic to product design, fabrication, and delivery in your business or industry.	Soft technologies are management methods that standardize know-how about controlling the quality or efficiency of tasks and process (e.g., TQM, lean manufacturing, concurrent engineering, balanced scorecard, etc.). These methods govern how effectively an organization utilizes hard technologies.
related technology	Existing technology is technology currently by you or others to design, fabricate, and deliver products and services for your customers.	
new technology	Related technology consists new but straightforward applications of existing hard or soft technologies.	
	New technology consists of nonlinear developments. It is unexpected new *combinations* of existing technology or entirely new technologies in themselves.	

To complete the market/technology matrix, follow these steps:

1. Analyze existing markets. An existing market is a market segment that you currently serve.
   a. Describe customer trends in existing markets. What do existing customers want from you in terms of VALUE (see "The VALUE framework" below)?
   b. Describe trends in innovation and identify technologies that you currently possess that you use to serve existing market segments.
   c. Describe trends in innovation and identify technologies that are related to those, which you currently possess that you might use to serve existing market segments more effectively.
   d. Describe trends in innovation and identify technologies that are new or "on the horizon" that you might acquire or develop to serve exiting market segments more effectively.
2. Analyze related markets.
   a. Describe customer trends in related markets. What would customer in these markets want in terms of VALUE?
   b. Describe innovative trends and identify technologies that you currently possess that you might use to serve related market segments.
   c. Describe innovative trends and identify technologies that are related to those, which you currently possess that you might use to serve related market segments more effectively.
   d. Describe innovative trends and identify technologies that are new or "on the horizon" that you might acquire or develop to serve related market segments more effectively.
3. Analyze new markets
   a. Describe customer trends in new markets. What would customers in new segments want from you in terms of VALUE?
   b. Describe trends and identify technologies that you currently possess that you use to serve existing market segments.
   c. Describe trends and identify technologies that are related to those that you currently possess, which you might use to serve existing market segments more effectively.
   d. Describe trends and identify technologies that are new or "on the horizon" that you might acquire or develop to serve exiting market segments more effectively.

Note: Use the product/market matrix to evaluate the potential ***profitability*** *of the innovations you envision.*

The VALUE framework.

The true market perspective looks at creating new value from the *customer's* viewpoint. In other words, it is a matter of ***V A L U E***.

a. *Varied needs satisfaction:* Fundamental customer value is provided when a product satisfies the true reasons why each customer buys it. The producer's viewpoint becomes a shift toward the production of different models. From the customer's side, only one model meets his/her needs.
b. *Amenity:* In addition to the practical functions of a product, features that appeal to the customer's senses add value. For example, consider the self-esteem a product with a personalized design delivers, or the feeling a customer gets when getting hold of the latest technology.
c. *Low risk:* These product features provide great value and free the customer from worry about failure or trouble. Such features also include after-sale services in case the product fails and requires immediate and complete repair.
d. *User costs minimum:* Producers often think of a product in terms of its initial cost to the customer, or price. However, the purchase price is often only a partial cost for the customer, the tip of the iceberg. Companies should aim for a low life cycle cost to the customer.
e. *Effective availability:* Value means customers can use the product when they need it, with no waiting. Often, people talk about shortening delivery time, a producer-oriented concept. The customer is concerned not with shortening delivery time, but with having the product available on time.

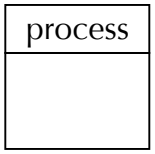
producer's viewpoint	customer's viewpoint
• Quality: zero defects • Cost: product price • Delivery: lead time	• *Varied needs satisfaction* • *Amenity* • *Low risk* • *User costs minimum* • *Effective Availability*

Source: Adapted from Ryuji Fukuda, Building Organizational Fitness (Productivity Press).

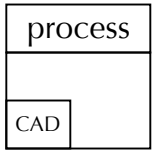
Value Stream Mapping Icons

Process icons

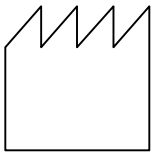
Process box



Process box w/ IT system

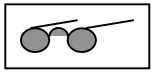


Customer / supplier



"Go see" scheduling

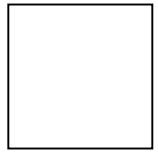
Inspection



Data icons

Data box

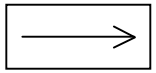
Observations



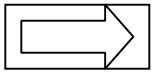
Signal icons

Schedule box (heijunka)

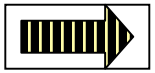
Manual information flow



Deliveries

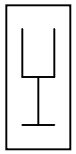


Push arrow

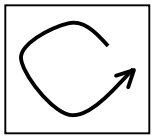


Pull signal

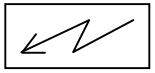
Kanban board



Milkrun

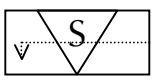


Electronic information flow

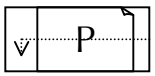


Telephone call

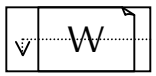
Signal kanban



Production kanban

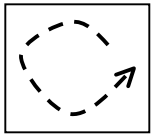


Withdrawal kanban



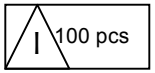
Other information

Expedited delivery

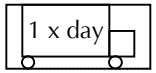


Inventory icons

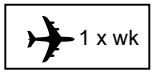
Inventory



Shipment: truck

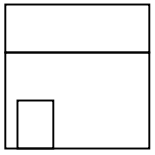


Shipment: air

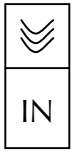


Fifo lane

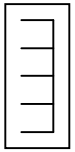
Warehouse



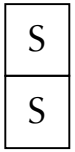
In-box



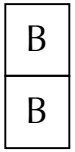
Supermarket



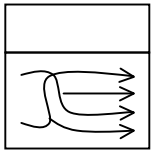
Safety stock



Buffer stock

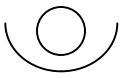


Crossdock

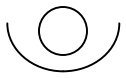


Miscellaneous icons

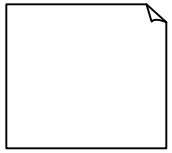
Operator / staff



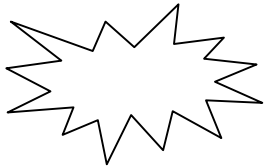
Multiple operators / staff



Document



Improvement idea



Prioritization Matrix

Identified Breakthrough Opportunities	Criteria for Breakthrough Opportunities: Competitive gap index	Customer satisfaction	Technological innovation	Lean business processes	Employee satisfaction	Environmental impact	Total; cost reduction	Total scores
CRITERIA WEIGHTS (optional)	0	0	0	0	0	0	0	
								0
								0
								0
								0
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								0
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								0

Scoring	
	To calculate a score for each item, simply multiply all the scores in that row and enter the product at the end of the row in the column "total score".
0 = no impact	
1 = minor impact	
2 = medium impact	
3 = major impact	

Prioritization Matrix Instructions

Print out the prioritization matrix and instructions from the companion CD, Form 3-1. On flip charts, list breakthrough opportunities the team has identified either as kaizen bursts on their value stream maps or other ideas. Then list these opportunities on the left-hand side of a prioritization matrix. Across the top of the matrix, evaluate and list the criteria for your breakthrough opportunities. On the right-hand side of the matrix, calculate a total score. Sort the matrix to highlight opportunities with the highest scores.

In choosing evaluative criteria, keep your company's mission and vision clearly in mind. Above all, stay focused on what adds value for the customer. We suggest using the seven criteria in Table 2-2, which appear again in Figure 3-2, modified to meet Cybernautx's planning requirements. If you have used the six environmental scanning tools in Chapter 2 and updated your scan as recommended at the beginning of this chapter, you will have excellent information about most of these criteria. Weighting the criteria is optional, but recommended idea if you have generated many potential breakthroughs to prioritize. If you choose to weight the criteria, try using the "paired comparison" technique outlined on CD Form 3-2

In applying the criteria, ask yourself how well (relatively speaking) each potential breakthrough that you have identified might address the challenges presented by changes in each criterion: changes in what your competitors are doing, changes in what customers want, changes in what Wall Street expects from you, and so forth. Always remember that the point of the hoshin exercise is to develop capabilities that directly add value to products and services, or that support adding value. All other capabilities, however attractive, are purely waste. The point of prioritization is to "deselect" non-value-adding initiatives and projects. In the process, you are likely to euthanize a number of sacred cows and pet projects. Be understanding and politically savvy, by all means, but encourage the team to be as ruthless as necessary. Pay particular attention to the Porter matrix the hoshin team constructed during its environmental scan. Have you identified breakthroughs that will support your market position or move you into a more competitive position?

Paired Comparison Matrix

Choice		Pair														Totals
Item	description	A or B	A or C	A or D	A or E	A or F	B or C	B or D	B or E	B or F	C or D	C or E	C or F	D or E	D or F	E or F	
A																	
B																	
C																	
D																	
E																	
F																	
Check totals: The number of voted under each pair of options should equal the number of participants voting.																	

Paired Comparison Matrix

The paired comparison matrix is a quantitative decision tool used to simplify the often messy process of prioritization. It requires team to prioritize by asking each team member to choose between pairs of options, including choices among different problems to work on or solutions to test. The tool is easiest to use when there are relatively few options, because if N = the number of options, the number of comparisons = $\frac{N(N-1)}{2}$. *For example:*

# options	# comparisons
2	1
3	3
4	6
5	10
6	15
7	21
8	28
9	36
10	45

Step by step method:

1. List the available options on the left-hand side of the printed matrix, or draw the matrix on a flip chart or white board.
2. List every possible pair of options across the top of the matrix.
3. Ask each participant to consider every pair of options one pair at a time and be ready to vote on which option of each pair is the best.
4. Poll participants *option by option* (going *down* the matrix).
5. Track "votes" *pair by pair* (going *across* the matrix) for the option concerned.
    - For example, when polling participants for option A, start with the pair "A or B" and ask participants the following question: "If you had to choose between A or B, how many of you would choose option A?" Record the votes for option A, then move to pair "A or C" and ask: "If you had to choose between A or C, how many would choose option C?" When you have finished with all pairs containing option A, repeat the voting process for options B, C, D, and E. *Note:* Not every pair listed across the top of the matrix will contain the option that participants are voting on, so leave that cell in the matrix blank or drawn an X through it.
6. Double check the voting by adding all the votes cast *under* each *pair.* This subtotal should be equal to the number of team members participating in the exercise.
7. Once the votes have been cast and recorded for each option, total the numbers for each option and list its total in the column at the right-hand side of the matrix. The highest total points to an option that the team should consider as its choice. *Caveat:* Unlike the interrelation diagram, the paired comparison technique does not consider the systemic interactions among three or more alternatives.

Catchball Process Verification Sheet

level 1 deliverables	level 2 deliverables	level 3 deliverables	level 4 deliverables	level 5 deliverables	level 6 deliverables

Catchball Verification Instructions

Planning is essential for a successful catchball process. CD Form 6-1 is essentially a tree diagram designed to define the scope of the deployment process and keep track of the many teams involved. Draw the planning diagram on a large whiteboard first, and then transfer the information to a tabloid size planning sheet. See CD Form 6-1. You may wish to post the planning sheet on your hoshin management board. *The instructions given below are written for a deployment process with four levels of detail, like the process in the workbook.* If there will be more than four levels or less than four levels of deployment you may still use these instructions; but please read the special instructions after step 7 below before you begin.

1. At the top of column 1, briefly list the deliverables of the planning process for which the hoshin team will be responsible: hoshin team charter, hoshin project plan, mid-term strategy, annual hoshin, and so forth. Next, record the name of your hoshin team on the left-hand side of a whiteboard or large sheet of paper. This is the first level of detail.
2. At the top of column 2, briefly list the deliverables of the planning process for which the tactical teams are responsible. Next, identify the tactical teams whose team leaders will be members of the hoshin team. Indicate the tactical team names as branch headings in column 2 for the second level of detail.
3. At the top of column 3, list operational team deliverables. Next, for each tactical team in your diagram, identify the operational teams whose team leaders will be members of that tactical team. Indicate the operational team names as branch headings linked to that tactical team in column 3 for the third level of detail. Repeat this branching process for each tactical team.
4. At the top of column 4, list action team deliverables. Next, for each operational team in your diagram, identify the action teams whose team leaders will be members of that operational team. Indicate the operational team names as branch headings linked to that tactical team in column 4 for the fourth level of detail. Repeat this branching process for each operational team.
5. Verify the diagram by retracing the branches to the lowest level. Reverify the diagram by retracing the diagram backwards, from the action team level through operational teams and tactical teams all the way to the hoshin team.
6. When the number of teams involved is very large, it is a good idea to assign each team a number or alphanumeric code. For example, the hoshin team series might be designated as H.0. The tactical team series might be designated as H.1, H.2, H.3, … The operational team series might be designated as H.1.1, H.1.2, H.1.3, ... H.2.1, H.2.2, etc. And the action team series might be H1.1.1, H1.1.2, H.1.1.3, …, H.2.1.1, H.2.1.2, etc.

Special instruction for companies with more than four levels of deployment: For each additional level of deployment, repeat the branching process that appears in steps 2, 3, and 4 above. CD Form 6-1 includes two additional columns for this purpose. Note that the hoshin team leader will need to assign a name to each additional level.

Special instruction for companies with less than four levels of deployment: For companies just beginning the deployment process, it is not unusual to have only two or three levels of deployment. In this case, simply delete step 3, or steps 3 and 4.

Special instruction for interorganizational planning: If you plan to use hoshin in planning strategy jointly with another company, you may simply include your planning partner's teams as tactical, operational, or action teams on your own diagram. You may also note your partner's hoshin team on your diagram, as in Figure 6-1. For this purpose, you may need to print more than one copy of CD Form 6-1.

CD Form 7-1: Hoshin Review Meetings

meeting		time	purpose	responsibilities
Action teams	Operators; project team members	In real time	• Review own performance and conditions of production by means of andon cords and buttons	• Feedback to supervisors, action team members • Activate andon • Resolve problem
	Workgroups; project teams	daily	• Review own performance by means of operator process and team project control boards	• Feedback to action team members; • exception reporting; • problem resolution
Operations teams	Supervisors and area team leaders	daily	• Review own performance by means of operator process and team project control boards	• Feedback to action team leaders; • exception reporting; • problem resolution
	Supervisors and area team leaders	weekly / daily	• Review local performance; • interpret SBU priorities; • evaluate activities; • early warning signals	• Feedback to action team leaders; • exception reporting; • problem resolution
Tactical teams	Project team leaders, functional department heads, and cross-functional team leaders	monthly / weekly / daily	• Review SBU scorecards, evaluate programs; support resource decisions; explain performance outliers	• Feedback to operations teams; • exception reporting; • problem identification
Hoshin team	Functional department heads, cross-functional team leaders, value stream managers, product managers	quarterly / monthly	• Review SBU scorecards; evaluate strategy execution; support resource decisions; identify cross-functional issues • Theme • Overall goals &targets	• Feedback to tactical teams. • Exception reporting. • Commitment process.
		annually	• Review vision, strategies, tactics, process measures, results	• Define and deploy annual/semiannual vision

Daily Standup Meeting Agenda

Purpose of meeting		To keep the workgroup or team focused on adhering to standard work and meeting requirements and expectations of daily work.
Outcomes of meeting		An energized workgroup or team. The communication of new information about conditions of quality on-time production or performance. Initiatives to correct nonstandard conditions.
8:00 am	Orders of the day	Supervisor or team leader communicates daily production requirements or other expectations of team performance that day.
8:05 am	Review of problems	The team reviews problems encountered on the preceding day or shift. Team members communicate awareness of abnormal conditions or other problems not previously documented. Schedule extended meetings for problem solving teams.
8:10 am	Related matters	Corrective action is planned for new problems (reference any relevant A3-Ps). Other team matters, including vacations, birthdays, etc. may be discussed.
8:15 am	Adjourn	Execute, monitor, and study standardized work; improve continuously.

Periodic Review Meeting Agenda

Purpose of meeting		To review mid-term progress toward implementing the annual hoshin. Review is focused on A3-SRs and (in quarterly meetings) A3-SSRs, as well as new A3-Ps and urgent A3-I's.
Outcomes of meeting		Documented analysis and short-term corrective action ideas to adhere or make small adjustments to current implementation plans.
8:00 am	Introduction	Introduce meeting participants to the meeting process and the A3 system of documentation.
8:15	Plan phase review	Each team leader gives a short report on the status of implementation. *Note:* In weekly and monthly meetings, the A3-SR is preferred. The A3-SSR should be used in quarterly meetings. Introduce new A3-Ps and, if applicable, A3-i's.
9:30	Break	
9:45	Brainstorm	Generate and document ideas for corrective action.
10:45	Prioritize	Prioritize ideas for corrective action and assign responsibility for implementing the best ideas.
12:00 pm	Lunch	
1:00	Pilot phase review	In breakout sessions chaired by tactical and/or operational team leaders, review pilot phase of implementation roadmap and document facts, opinions, and questions for further research.
2:30	Break	
2:45	Brainstorm	In breakout sessions, generate and document ideas for corrective action.
3:30	Prioritize	In breakout sessions, prioritize ideas for corrective action and assign responsibility for implementing the best ideas.
4:00	Report	With all meeting attendees present, each team leader gives an overview of corrective action to be taken and resources required.
5:00	Adjourn	