Policy Deployment: “Hoshin Kanri” process

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CONTENTS

- Introduction
- Hoshin Kanri
- KPI and Targetsetting
- Summary
Problem: Gap between current target and current performance

Improvement: Lifting (and then achieving) target

First achieve Target (Standard) with Gemba Kanri and then improve Target with Hoshin Kanri
CONTENTS

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Hoshin Kanri literally means “managing the direction” (of the company)…

Hoshin Kanri

Hoshin = Compass Needle
Ho = Direction

Kanri = Management
Kan = Control
ri = Logic

Shin = Needle

Marketing
Purchasing
Operations
Sales
R&D
Finance

方向 管理
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.

- Vision
- Strategy
- Blue Sky
- Objectives & Key Performance Indicators
- BPS – Business Problem Solving
- Business Problem Solving “A3”
- Value-stream Analysis
- TIP – Tactical Implementation Plan
- Tactical Implementation Plans
- KPI – Key Performance Indicator
- Plan
- Do
- Check
- Adjust

Hoshin Kanri’s core process: Vision cascades down through Strategy, Blue Sky, Objectives & Key Performance Indicators, Business Problem Solving “A3”, Value-stream Analysis, TIP – Tactical Implementation Plan, and finally to Tactical Implementation Plans. This process is supported by the PDCA feedback cycles: Plan, Do, Check, Adjust.
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.
Toyota Motor Manufacturing North America Mission:

1. As an American company, contribute to the economic growth of the community and the United States.

2. As an independent company, contribute to the stability and well-being of team members.

3. As a Toyota group company, contribute to the overall growth of Toyota by adding value to our customers.

\[1\text{ The Toyota Way, by Jeffery K. Liker, page 80.}\]
Blue Sky

Process: Blue Sky Workshop

Result: Blue Sky
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.

- **Vision**
- **Strategy**
- **Blue Sky**
- **Objectives & Key Performance Indicators**
- **Business Problem Solving “A3”**
- **Value-stream Analysis**
- **Tactical Implementation Plans**

The PDCA feedback cycles are:
- **Plan**
- **Do**
- **Check**
- **Adjust**
A common problem is translating the financial metrics of the ROCE tree into Process KPIs.
From each “Blue Sky”, KPIs define what needs to be measured, and specific targets can be cascaded to all levels.

<table>
<thead>
<tr>
<th>Business Objectives</th>
<th>Factory Targets</th>
<th>Department* Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development</td>
<td>Production Costs</td>
<td>Product A</td>
</tr>
<tr>
<td></td>
<td>Product A</td>
<td>Std. Time Product A</td>
</tr>
<tr>
<td></td>
<td>Product B</td>
<td>Downtime</td>
</tr>
<tr>
<td></td>
<td>Product C</td>
<td>Overhead Costs</td>
</tr>
<tr>
<td>Quality Improvement</td>
<td>Material Costs</td>
<td>Product B</td>
</tr>
<tr>
<td></td>
<td>Product A</td>
<td>Std. Time Product B</td>
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<td></td>
<td>Product B</td>
<td>Downtime</td>
</tr>
<tr>
<td></td>
<td>Product C</td>
<td>Overhead Costs</td>
</tr>
<tr>
<td>Lead Time Reduction</td>
<td></td>
<td>Product C</td>
</tr>
<tr>
<td></td>
<td>Product A</td>
<td>Std. Time Product C</td>
</tr>
<tr>
<td></td>
<td>Downtime</td>
<td>-17%</td>
</tr>
<tr>
<td></td>
<td>Overhead Costs</td>
<td>-11%</td>
</tr>
<tr>
<td>Cost Reduction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Area/Line Targets**

<table>
<thead>
<tr>
<th>Machining</th>
<th>Sub Assembly</th>
<th>Final Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. Time Part A14</td>
<td>Std. Time Part A16</td>
<td>Std. Assembly Time</td>
</tr>
<tr>
<td>-7%</td>
<td>-9%</td>
<td>-18%</td>
</tr>
<tr>
<td>Line Availability</td>
<td>Energy Costs</td>
<td>Line Availability</td>
</tr>
<tr>
<td>+25%</td>
<td>-14%</td>
<td>+14%</td>
</tr>
<tr>
<td>Overhead Costs</td>
<td>OEE Assembly Eqpt</td>
<td>Labor Costs</td>
</tr>
<tr>
<td>-12%</td>
<td>-15%</td>
<td>-12%</td>
</tr>
<tr>
<td>Transport Costs</td>
<td></td>
<td></td>
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<tr>
<td>-14%</td>
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</tbody>
</table>

* Organised by Value stream
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.
**Business Problem Solving A3’s analyse objectives to develop a high level action plan for each unit or area**

### Performance, Gaps & Targets

**Key metric and current target:**
- Dealer quote turnaround within 48 hours should consistently be at 95% or higher.

**Reason:**
- Competitor response: 100% within 48 hours, 95% within 24 hours.
- Municipal fleets bids are time critical for dealer to respond to Gov’t RFP.

### Business Objectives and Goals

**What? How much and by when?**
- Dealer Quote turnaround time: Consistent 95% within 48 hours by YE 2010 (this year).
- Dealer Quote turnaround time: Consistent 95% within 24 hours by YE 2011 (next year).

### Reflection

**Past Activities – Results and Lessons Learned**
- Reduced SP21 compatibility discrepancies.
- Short Order Board.
- Surveyed Sterling dealers on time expectations.
- Tried to increase applicability of standard mode.

**Analysis & Rationale**

- Saw improvement in # of quotes requiring research; minimal impact on time.
- Current process creates shortages and errors.
- 95% response; 24 hours turnaround expected by majority of dealers.
- Fewer requests required evaluation time but dealers didn’t like limits.

### Action Plan

<table>
<thead>
<tr>
<th>Theme</th>
<th>Activity</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>Clarify delegated authority limits</td>
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<tr>
<td>Policy</td>
<td>Publish decision tree for approved product options</td>
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<tr>
<td>Metric</td>
<td>Verify current turnaround data accuracy</td>
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<tr>
<td>Process</td>
<td>Identify and address barriers to PreQuote</td>
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<tr>
<td>Process</td>
<td>Complete appropriate segment process maps</td>
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<tr>
<td>Process</td>
<td>Develop capacity plans and resource allocation</td>
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<td></td>
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<tr>
<td>Process</td>
<td>Improve ability to quickly detect request for quote</td>
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<tr>
<td>People</td>
<td>Get appropriate resources to work</td>
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</table>

### Check

- War room visual display of individual TIP plans and progress; key metrics and supporting metrics.
- Weekly project reviews and monthly steering committee reviews initiated by Bob.
- Include monthly turnaround time in monthly Scorecard reviews.
- Bob send Market issues to Jane, Product Issues to Christoph.
- Engage in best practice review with Sales and Trucks.

### Unresolved Issues

- Unclear on who has authority to decide the allowed options.
- Resources needed for training teams on TOS tools may not be easy to schedule.
- IT solution on synchronization may depend on test systems vs. production systems.
- How to identify and resolve contention for critical experts among competing initiatives.
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.
Value Stream Analysis forms the backbone for assessing the process capability and potential.

- Analyse Current State
  - Identify Process Drivers
  - Quantify Potential
  - Define Lean Levers
  - Company
  - Factory
  - Line / Cell
  - Loss
  - Lever

- Design Future State
  - 5S
  - Standard Work
  - Line balance
  - Pull
  - OEE...
Hoshin Kanri’s core process cascades vision to KPIs and then actions using rigorous PDCA feedback cycles.

1. Vision
2. Strategy
3. Blue Sky
4. Objectives & Key Performance Indicators
5. Business Problem Solving “A3“
6. Value-stream Analysis
7. Tactical Implementation Plans
### Use of TIPs in the project

- **High level project TIP created early in project**
- **High level TIP (Plant) broken down into specific Area TIP’s**
- **Area TIP cascaded to and Supervisor TIP’s**
- **Area TIP’s and LPL TIP’s displayed in the information centre**
- **TIPs designed to introduce tools in a structured way after a 'need' has been created**

#### Early development, agreement and signing of TIP crucial to setting clear direction
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A common problem is translating the financial metrics of the ROCE tree into Process KPIs.
Building a ROCE tree will help develop a full understanding of company financials

**ROCE TREES**

<table>
<thead>
<tr>
<th>Example</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue – Cost Revenue</td>
<td>• The tree creates financial linkage for production improvements to performance of the organisation</td>
</tr>
<tr>
<td>Operating Expenses Revenue</td>
<td>• It highlights which levers need to pulled</td>
</tr>
<tr>
<td>Depreciation Revenue</td>
<td>• It can be used to show a before and after effect.</td>
</tr>
<tr>
<td>Net P.P. &amp; E. Revenue</td>
<td>• It helps to prioritise implementation actions</td>
</tr>
<tr>
<td>Net Working Capital Revenue per day</td>
<td></td>
</tr>
<tr>
<td>Other net assets Revenue</td>
<td></td>
</tr>
</tbody>
</table>

*sometimes called ROIC (Return on Invested Capital), when using a financing approach*
Actually, the problem is linking operational KPIs to improvement levers

Financial KPI

- RoCE
  - Gross Profit
    - Revenue
    - Costs
      - Labor
        - Materials
          - Property & Eqpt
            - Eqpt.
          - Working Capital
            - Inventory
          - Working Capital
          - Property & Eqpt
          - Costs
          - Gross Profit

Operational KPI

- Manpower Productivity (min/pc)
- Lead time (hrs)
- Defects (dpm)
- OEE (%)

Lean Levers

- Workplace Organization
- Standardized Work
- Line / Cell Layout
- Flow and Leveling
- “Pull” Production
- Root Cause Problem Solving
- Team organization
- Statistical Process Control
- Quick changeover

... & many more
KPI targets will be ineffective unless determined with an understanding of process limits and improvement potential

Arbitrary improvement targets

Specific improvement targets

20%  20%  20%  20%

40%  15%  36%  33%
KPI's have a Half-Life typically of 1 to 2 years, hence 50% of the gap between the current situation and limit can be closed in, on average 1-2 years.

Typically:
50% of the potential can be achieved in 1-2 years

<table>
<thead>
<tr>
<th>Current</th>
<th>Potential</th>
<th>Achievable Limit</th>
<th>Physical / Hard limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current performance</td>
<td>Current - limit imposed by continuous improvement</td>
<td>Only improvements with short payback (3-5 years*) are taken into account No technological or organizational breakthroughs</td>
<td>- eg 100% Value Added - no Losses / 0 Defects</td>
</tr>
</tbody>
</table>
First, the potential of each lever is evaluated in one of three ways – loss, value added or benchmark.
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Hoshin Kanri will allow you to set and manage the strategic direction with aligned KPIs and SMART targets

<table>
<thead>
<tr>
<th>Classic planning weaknesses</th>
<th>Hoshin Kanri countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy = analysis</td>
<td>Strategy = a process of hypothesis, analysis, feedback and adjustment</td>
</tr>
<tr>
<td>Process:</td>
<td>Process</td>
</tr>
<tr>
<td>- Event-driven</td>
<td>- Process-driven</td>
</tr>
<tr>
<td>- Single process</td>
<td>- Iterative cycles</td>
</tr>
<tr>
<td>- Analysis / decision making focus</td>
<td>- Consensus focus</td>
</tr>
<tr>
<td>- Interim reviews often weak, missing or punitive</td>
<td>- Interim reviews repeat the iterative cycle</td>
</tr>
<tr>
<td>Breadth of application</td>
<td>Breadth of application</td>
</tr>
<tr>
<td>- Time-horizons often unsynchronized between levels</td>
<td>- Clear time-horizons between levels</td>
</tr>
<tr>
<td>- Limited cross-functional integration</td>
<td>- Cross-functional workshops</td>
</tr>
<tr>
<td>- Horizontal and vertical disconnects</td>
<td>- Extensive horizontal and vertical communications and linked plans to align organization</td>
</tr>
<tr>
<td>Target setting</td>
<td>Target setting</td>
</tr>
<tr>
<td>- Too many objectives</td>
<td>- Objectives and priorities derived from strategy</td>
</tr>
<tr>
<td>- Unrealistic targets</td>
<td>- Targets based on capability</td>
</tr>
<tr>
<td>- Hidden assumptions and safety buffers at each level</td>
<td>- Assumptions clarified</td>
</tr>
</tbody>
</table>

*Catch ball = exchange of information about best means to accomplish goal until consensus is reached*
Timely, rigorous feedback cycles are hypothesis driven, using cross-functional workshops to ensure consensus.
BACK UP