

*Lean for Leaders:  
Toyota Management System  
in the Executive Office*

Takashi Tanaka  
Toshio Horikiri  
Craig Flynn

Toyota Engineering Co.  
QV System, Inc.

Presented at the **New Horizons for Lean Thinking Summit**,  
2<sup>nd</sup> & 3<sup>rd</sup> November 2010, Chesford Grange Hotel, Kenilworth, UK  
An electronic version of this paper is available to download at [www.leanuk.org](http://www.leanuk.org)



## Lean for Leaders: Toyota Management System in the Executive Office

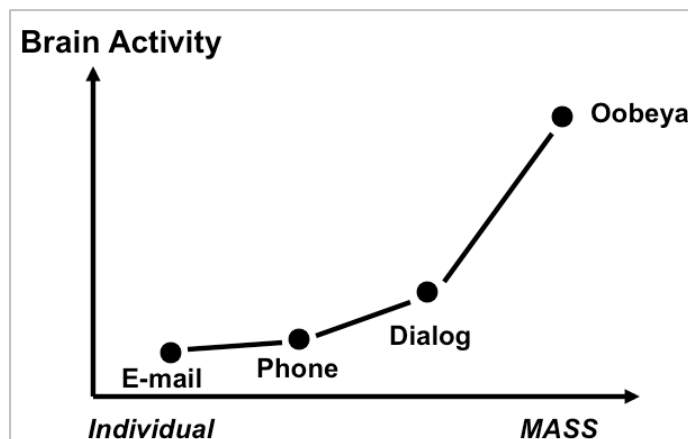
By Takashi Tanaka, Toshio Horikiri and Craig Flynn

Executive visitors to Toyota Development System (TDS) visualizations often remark on the intense energy and the high rate of information transfer in these very technical product development meetings. They are amazed by the number of decisions, large and small, made in the course of a single hour. They also remark on the spontaneous and interactive nature of problem-solving between members.

Toyota's oobeya<sup>1</sup> process for project management has proven very useful in the product development environment—automotive, of course, but also IT, construction, electronics, aerospace and other industry sectors. In a previous white paper<sup>2</sup> we outline the process we call Quickening Visualization (QV), incorporating oobeya, which can reduce cycle time by half, reduce product life cycle cost significantly, and improve on-time quality.

What explains the powerful activities that visiting executives observe?

These are some factors: meetings include all related members of product development, including marketing, service/maintenance and human resources. With all related members involved, it's easier to gain agreement that the action plan is aligned with the targets. If off-target, it's easier to create countermeasures with the resources and creativity of the whole team. Team culture



encourages finding problems early—and finding a problem is praise-worthy, not blame-worthy.

And it's also because the communications modalities are face-to-face. In the chart to the left, one can see the power-law increase of creativity and effectiveness as transmit-receive technologies give way to individual and then group interaction.

Having seen an oobeya meeting, many executives voice frustrations about their own work:

- I hate my meetings! Too much time, too little output.
- Our metrics are confusing—sometimes contradictory—and there are too many of them (sometimes a hundred or more).
- I get complaints and problems in the middle of the night, because we don't deliver the right quality on time.
- We are fire-fighting, I wish we could solve problems proactively, and sooner.
- My management team needs to free up time for coaching and mentoring their own staff.

With a little reflection, executives tend to agree that the challenge, in large part, is to strike a better balance between improvement initiatives, routine and repeating daily work, and the inevitable need

<sup>1</sup> Oobeya (oh-bay-uh) means 'big conference room' in Japanese.

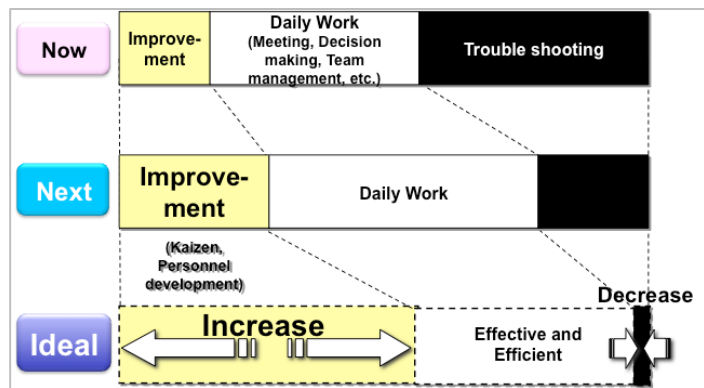
<sup>2</sup> Quickening the pace of new product development, © 2007, QV System, Inc..  
<http://www.qv-system.com/whitepaper.html>

for troubleshooting. By visualizing their work and taking immediate countermeasures, executives can increase the proportion of improvement activity.

More time comes free for improvement as the daily work is made smoother and more routine. Troubleshooting is reduced by creating new work routines. This enables more than 50% of the executive's time to be devoted to improvement.

What sort of impact or macro target should executives have in their minds as they contemplate applying Toyota principles?

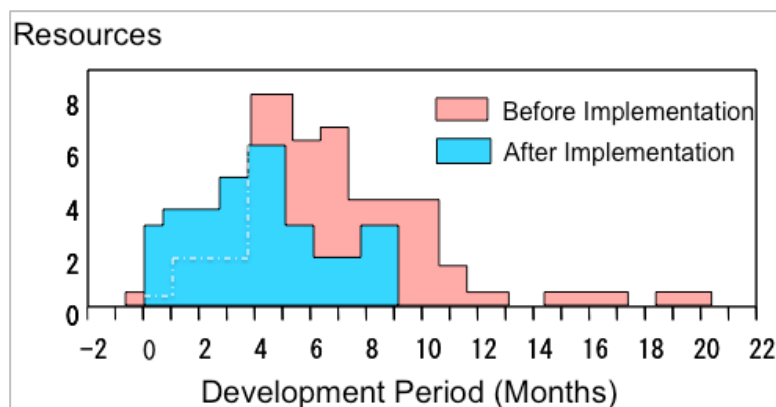
The chart below illustrates improvement of quality, cost and delivery for one product development implementation. In addition to the time savings, total expenditures have been reduced considerably. Cost savings come from activities such as front-loading of effort, energetic problem-solving, robust feedback, and getting more test results from fewer prototypes.



Quality improves by eliminating rework—and rework elimination is the most significant factor in time savings. This chart indicates that executives should set very aggressive targets for themselves and their teams.

Executives, managers and contributors have a great deal of tacit knowledge about the work that they do. Quickening Visualization is all about making the tacit explicit.

Specifically, executives and managers should look for results and behaviors like these:



- Faster execution of work
- Better decision making
- More improvement activity
- Clarity through the organization about organization goals and targets
- Broad agreement and alignment in the organization
- “Right on time, right first time”
- “Commitment made = commitment kept.”

Last, executives should anticipate better quality of work life from an improved flow of work with fewer interruptions and more time for creativity and strategic thinking. When work is fully visualized, delegation becomes easier—both authority and responsibility become clearer. New, spontaneous efforts of staff members help balance the work load across the whole team. Coaching and mentoring become more clear and more effective.

Some executives report working fewer hours, and many feel that the hours worked are, professionally and personally, more rewarding and satisfying.

### An architecture for enterprise-wide improvement

Toyota Management System (TMS) is the directing and guiding hierarchy over Toyota’s production, sales/marketing and design systems. The wheel below shows these relationships, and unfolds one of the key aspects of each system element: coordinated phases of concept, preparation and execution.

TMS has much in common with the Toyota Development System (TDS)—the oobeya architecture is only slightly modified for executive work. Feedback, checklist and checksheet processes are very similar.

Both TMS and TDS rely on the principles of front-loading of activity; gathering all related members to create oobeya and Quickening Visualization; a hierarchy of three boards from the contributor to the executive level; and the meeting behaviors such as report-out approach, honoring milestones and issue processing and problem solving.

Of course, all aspects of TMS find their foundation in the principles articulated in physical work, the Toyota Production System. It is one of the reasons that clients most often choose TPS-experienced members for internal consulting roles to partner with the external consultants.

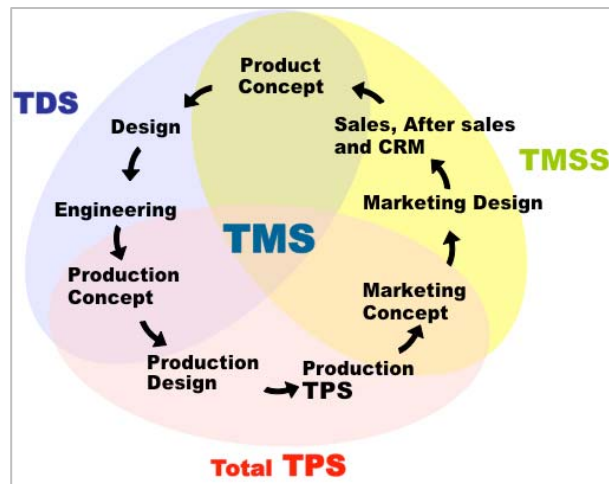
After a review of the ‘how’ of Quickening Visualization and oobeya, we will return to discuss the concept, design and execution phases of Toyota Management System.

### How does Quickening Visualization work?<sup>3</sup>

Visual control boards in the factory, value stream maps for process improvement and Ishikawa fishbone diagrams for problem solving are methods of visualizing what once was captured only in the written word, often in long detailed reports.

Bringing visualization to product development (or other knowledge work, for that matter) is new. The visual tools used in the oobeya, along with the structure and discipline required to use them effectively have enabled a few companies to dramatically shorten project cycle time and improve quality.

The word “quickening” is a deliberate choice. “Quick” might seem like a better word to use. Yet quickening has a deeper meaning than simply making something happen faster. Quickening, as to make alive or to cause growth and development, adds an important dimension to this innovative process.<sup>i</sup>



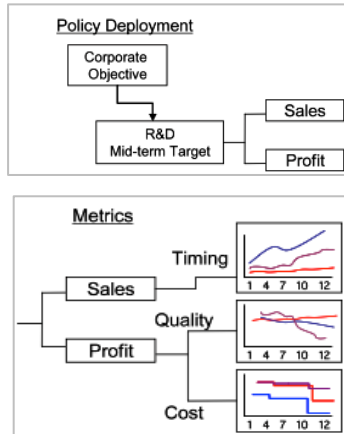
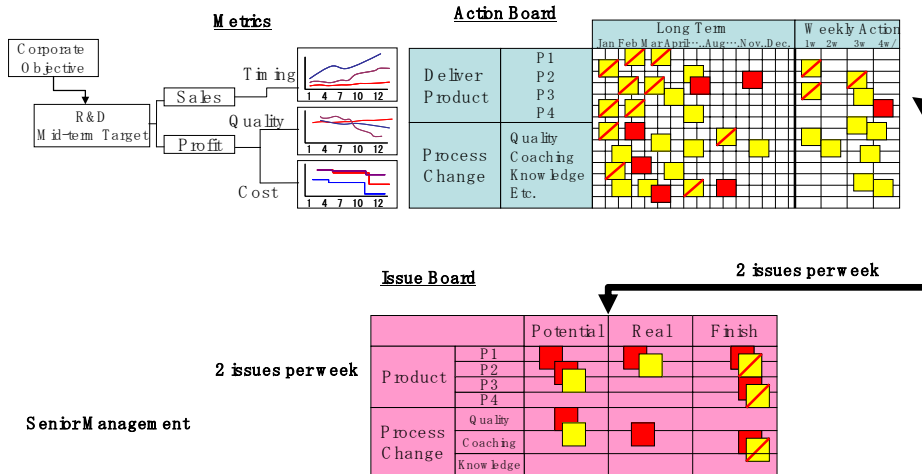
TMS: Toyota Management System  
 TDS: Toyota Development System  
 Total TPS: Modern Toyota Production System  
 TMSS: Toyota Marketing and Sales System

<sup>3</sup> An excerpt from “Quickening the Pace of New Product Development,” ibid.

The visualized project lives, grows and develops because of the people and human relationships that allow it to move forward. The people bring widely varying experience from all parts of the company. When they learn to work together concurrently in a new way, they solve problems more quickly and find better solutions. The visual tools brought together in the oobeya nurture teams and help individuals interact with respect and commitment.

### Linked Objectives throughout the Company

Senior management establishes the corporate objectives. The objectives include targets, the starting point for the R&D main board<sup>4</sup>:

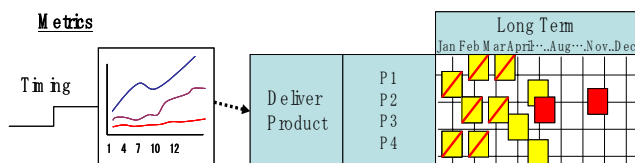


This board visualizes its mid-term target, broken out into sales and profit targets. Metrics important to achieving the targets are displayed. Making the metrics visual means that progress can be easily tracked.

Timing is determined to be the most important metric for achieving target sales. Quality and cost will be managed to achieve the profit target. Quality metrics may include not only durability and reliability but also attractiveness and performance.

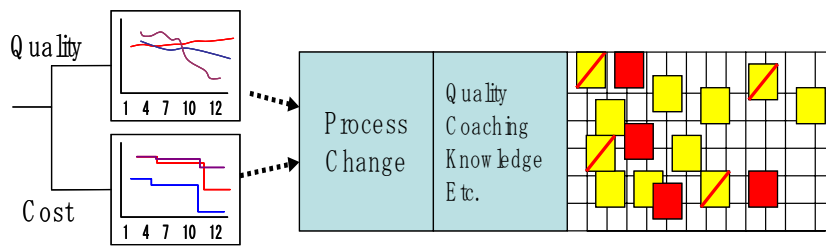
Visually monitoring the cost metrics helps to display the cost impact of specification changes. The impact on the schedule is also shown.

The action board shows how actual values match up with the target. Integrated problems show up right away, and corrective action will be visible. The upper level of the action board shows delivery milestones and action items for each project (P1, P2, etc.) being deployed.



<sup>4</sup> This board structure is similar to the TMS executive board.

The lower level action board integrates process improvement activity. Process improvements are thus fully connected to the existing project, and the work of support functions (quality, IT, training, HR) is displayed and monitored on the schedule.



The issue board is a special tool to speed up decision-making. On the issue board, the “Potential” column allows the team to identify future problems and proactively focus the project.

		Potential	Real	Finish
Product	P1	Red square	Red square	Red square with diagonal line
	P2	Red square	Yellow square	Red square with diagonal line
	P3	Yellow square		Red square with diagonal line
	P4			Red square with diagonal line
Process Change	Quality	Red square		Red square with diagonal line
	Coaching	Yellow square	Red square	Red square with diagonal line
	Knowledge			Red square with diagonal line

Oobeya, which simply means “big room” in Japanese, is where project coordination and decision-making takes place. The oobeya is team-oriented, taking into account the needs and strengths of the people on the project. It helps teams visualize the entire project situation. The display boards in the room form a highly structured, but simple system<sup>5</sup>.

It starts with the project objectives, as defined by the current R&D strategy and plan. This creates alignment with R&D objectives, which in turn, were carefully aligned with corporate objectives using the main board, discussed above. Project objectives, expected outputs, metrics, action plans, and reporting mechanisms become aligned perfectly with the company’s intent and market assessment, serving as an effective policy deployment process.

No functional area is left out of the product development process. Marketing, sales, design, engineering, manufacturing engineering, production and logistics people work in the project room together. The structured action in the oobeya makes their meetings short and productive. Meetings don’t end in postponed issues, confusion about decisions, and frustration.

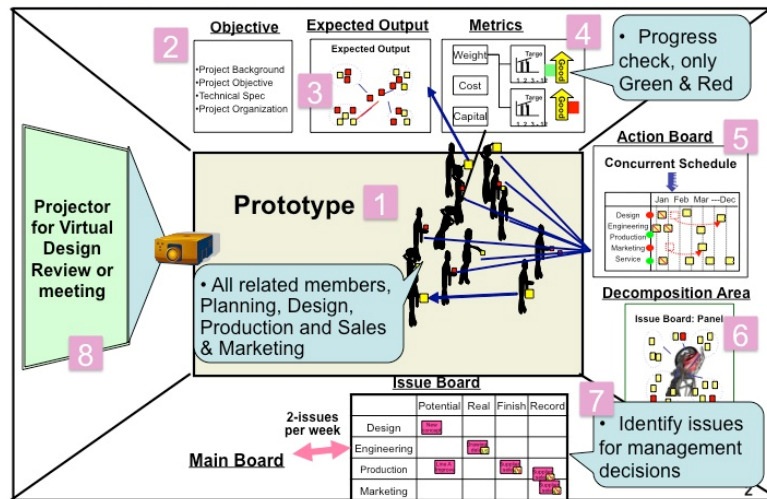
The oobeya and its visual controls allowed the chief engineer’s team on the hybrid vehicle project to dramatically cut product development time, and the quickly resolve problems, late design changes practically unnecessary.

## The Oobeya's Structure<sup>6</sup>

The oobeya helps the design and development team visualize the entire project situation. The illustration above shows an example of a project room.

At the center (1) is a model, mock-up, drawing, or some other visual representation of the output the team is responsible for. Project objectives (2) appear in the top left of the first wall. They typically are determined at the corporate or department level before the product development team is formed.

To the right of the objectives is the expected output (3) of the project. The red squares indicate urgent issues. The metrics board (4) shows current project performance. Again, red squares show hot issues that need quick attention, while the green ones show where current targets are being met.



On the next wall, (5) the concurrent schedule board, or action board, shows the activity of project members or teams (marketing, design, engineering, production, logistics and sales, sometimes suppliers). Where milestones may be in trouble, red squares are posted. The decomposition board (6) on the third wall shows sub-projects from the expected output board (3), and the hot issues needing attention. Different decomposition boards will be used throughout the stages of the project—some dominated by style issues, some by cost, quality or performance.

The issue board (7) displays critical problems. Potential risks are identified in one column, and those that have become real in the next. The board also shows the type of issue that needs to be referred to a higher-level manager. In any given meeting, no more than two high-priority issues may go to the company's higher-level main board. Although visual tools in the oobeya are the most important part of the process to master, companies with a lot of experience with them may add carefully chosen online project control tools (8) to support global collaboration.

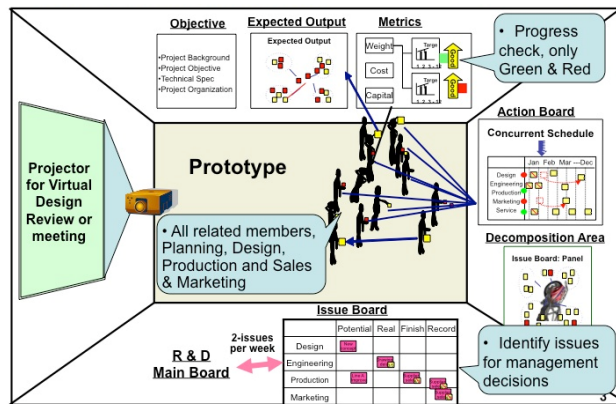
This room should be simple to manage. The layout and flow of the boards are very important for efficient and effective project meetings. Teams use Plan-Do-Check-Act (PDCA) cycles to organize activity, stay on schedule, and make adjustments as needed.

### Focused Meetings

Weekly meetings are conducted in the oobeya, which include the chief engineer and all project leaders plus important staff function representatives, and—on a monthly basis—senior management.

<sup>6</sup> This board structure, second in the Quickening Visualization hierarchy, is similar to manager or department boards in TMS implementations.

Visualizing the project helps meeting participants point out current hot issues. In the project room meeting, communication becomes more focused. If “A” is on the agenda for the meeting, all members are concentrating only on “A” to create a solution and decide on the next steps.



While in the room, someone may notice something missing at point “B.” Without interrupting the meeting, he attaches a sticky note on the visualization board. Someone sees the need for an additional action item and assigns a task to another member of the team (“C”).

The project control room is where contentious priorities are resolved and harmonized. In a multinational auto company’s project, American, German, Swedish and

Italian teams each advocated their own design needs. Italian team members wanted higher performance, Swedes stressed improved reliability and the American team members insisted on lower cost. The visualization process enabled optimal, balanced trade-offs.

At the meeting wrap-up, issues that can only be resolved by higher-level management must be prioritized. As with the R&D main board, no more than two issues that could not be solved at the meeting may be brought to R&D management. Although there are often a tremendous number of issues, only the two with the highest priority can be chosen.

As work habits change, meetings become short, regular, vital and productive. They have a rapid, exciting cadence. Before each meeting, project members update all charts and action items. Agendas are very detailed and pertinent, with strict control over time. Individual accountability includes a weekly report of the current situation, and as issues are raised, the meeting generates clear decisions and agreements. Cutting waste from meeting time is a relief to everyone.

### Changes that Make Everyone Happy

Most people feel they receive too many emails. Some are not read right away. Then the sender e-mails to ask, “Did you get my email?” An unwanted e-mail may be forwarded to someone else, temporarily suspending the obligation to answer. Because the root cause of e-mail proliferation is a lack of clear objectives and responsibilities, the clarity achieved in the structured oobeya meetings reduces the problem greatly.

Oobeya and Quickening Visualization make everyone realistic about heavy workloads. If 150% of a person’s time will be required, managers find it difficult to say, “Work harder!” Tasks must be prioritized or resources added. If there is a capacity problem, it becomes an issue to be presented to senior management. People leave project meetings confident they can complete their work, not overwhelmed by impossible deadlines. Managers are confident that work will be completed when promised. Team leaders are confident that concurrency will be maintained, so they won’t lose time because another team was unable to do its work well.

### Quickening Visualization Depends on People

Don’t make the mistake of viewing the oobeya and Quickening Visualization boards as methods or tools that can bring great product development results by themselves. It’s the human side that

makes the visual product development system work. The human-side approach allowed one automobile firm to cut lead-time by 40% in a single design cycle. It has become a competitive advantage.

In attempts to shorten project lead-time, traditional method-based approaches look to such things as new IT systems, employee training or organizational changes. Changed methods may achieve lead-time reductions of 10-20%. In the products being designed, the focus may be on technology breakthroughs at the expense of process excellence.

What managers in such firms don't realize is that project objectives may be unclear or not broken down into specific tasks. Objectives and plans may not be shared widely enough. Employees may work without effective coordination.

In a traditionally managed firm, people working a project running past its due date have learned to expect managers to order them to work longer hours to make up lost time. People are blamed, even for matters outside their control. In the absence of trust, fear can make people reluctant to bring up problems. Management is based on fear and, as Dr. Deming warned, the results are disappointing.

The human side includes close attention to communication, the basis for knowledge management. It fosters an atmosphere of cooperation and intellectual stimulation.

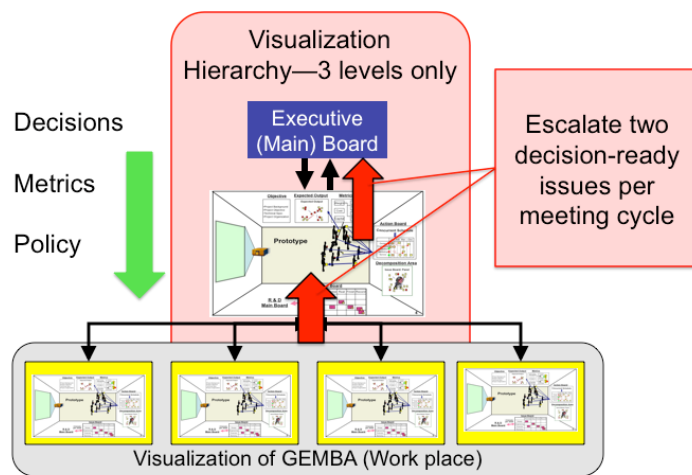
An open atmosphere both in the oobeya and throughout the company is essential. All parties will need honestly to share their current situations. With team members coming from all parts of the organization, they need to understand each other's concerns and goals if they are to come to an optimal result.

With the human-side approach, any problem is readily identified. The team, perhaps with the help of a higher-level manager, agrees on a solution, and moves forward to implement it. Fear is replaced by the satisfaction of solving a difficult problem.

**The Hierarchy of Quickening Visualization**

In no more than three hierarchical layers, the enterprise can visualize all of its work. The detailed implementation in highly matrixed organizations is beyond the scope of this paper—even so, three and only three layers will work.

The 'glue' of oobeya and Quickening Visualization is a Plan-Do-Check-Act cycle, and the graphic below shows several macro PDCA's. The red arrows and right-hand text box show the PDCA of decision-ready issues:



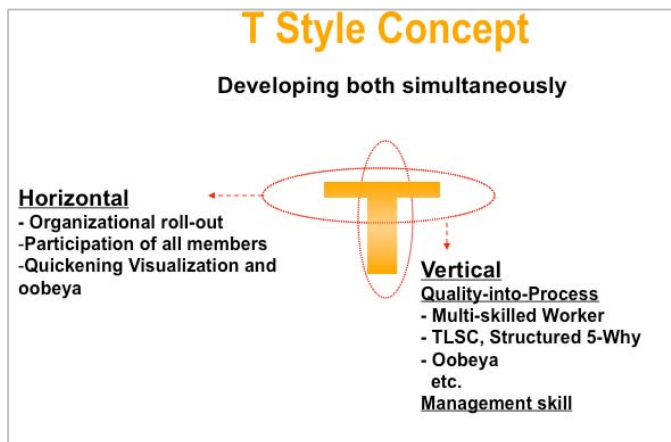
Plan—write and escalate a decision-ready issue to the next level; Do—make a rapid managerial disposition of resources; Check—rework the issue if it's judged unclear; and Act—implement the decision to go ahead, or find another countermeasure to solve the problem.

Management’s policy cycle is like this (green arrow on the left):

Plan policy initiatives; Do—communicate through the organization; Check—for understanding and feasibility; Act—implement and keep updated.

Also: Plan—three targets (Quality, Cost, Delivery); Do—communicate them and help lower level boards break down the metrics for their work; Check—ensure fairness and accuracy; and Act—monitor targets, hold milestones, help with countermeasures, praise and value the discovery and disposition of problems.

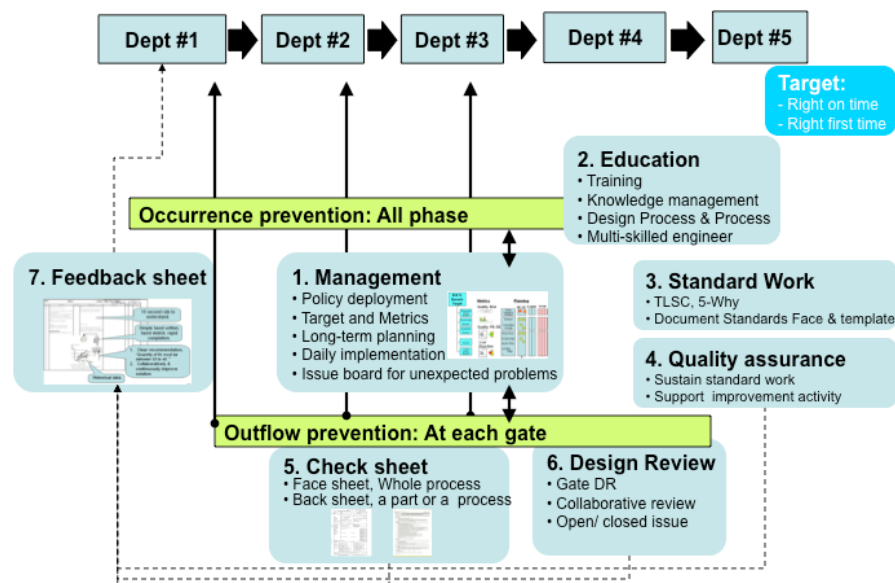
Tackling an enterprise-wide implementation requires enterprise-grade strategies. A “T-style” approach results in rapid behavior change and habit formation from pilot programs, and then rapid growth and culture change across departments and functions. Quickening Visualization/oobeya is the horizontal foundation.



Vertical activities are the ‘design’ portion of TMS. The following graphic, Quality-into-Process, shows how several deep processes are inter-related. They rely on the horizontal implementation of Quickening Visualization/oobeya (text box #1, Management) to anchor, measure and coordinate improvements.

An educational component (#2) is designed around the internal consultancy which will sustain TMS over time. Internal consultants will also ensure consistent quality of the fundamental meeting behaviors and habits. They are a cultural core of the new enterprise.

Executive education and development is also necessary to provide leadership and an orientation to the quality-of-work-life improvements that become available. Executives have a unique modeling and mentoring role in TMS—to show people how to work, to help them begin the work and to praise them for their progress and results.



The standardization of work (#3)—or, making routine and regular work truly consistent and rapid in its accomplishment—frees up a surprising quantity of executive resource. The freed time is

reinvested in the improvement and shaping of the new organization. So, executives welcome standard work once they see its potential.

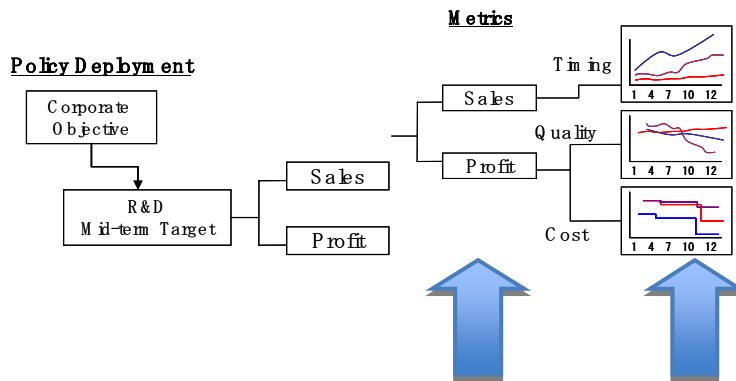
Quality assurance activity (#4) determines how to fit the Toyota principles of design review, check sheet, check list and feedback sheet into the enterprise. Some QIP design effort is required because of differences between businesses—there is no universal form. Adaptation is required and the assistance of a ‘sensei,’ an experienced expert, is very productive. In turn, the regimens arising from the QIP effort can be applied across departments for significant improvement in the enterprise.

### Revisiting the Oobeya Meeting in an Executive Setting

What kind of evidence will executives observe in their own organizations as the T-style concept rolls out? It is meeting evidence, and the seeing and hearing of it will reinforce the executive’s initial impressions of the product development oobeya.

Members make this PDCA report–out in three minutes or less if they represent a group or a department. Contributors make the report in two minutes or less. This habit is what will reassure the executive that the enterprise is on the right track, and that improvement activities will be anchored to daily work and robust countermeasures.

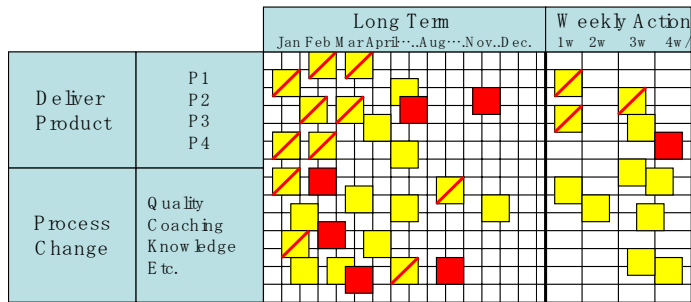
Using the left-hand or qualitative side of the Visualization, members report on the PLAN:



<p>PLAN</p>	<p>My target is...</p>	<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: green; border: 1px solid gray; margin-right: 5px;"></div> <p>I am ahead, or</p> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: red; border: 1px solid gray; margin-right: 5px;"></div> <p>I am behind, and my counter-measure is...</p> </div> </div> <p>(Countermeasures are activities that preserve milestones or keep targets)</p>
-------------	------------------------	--

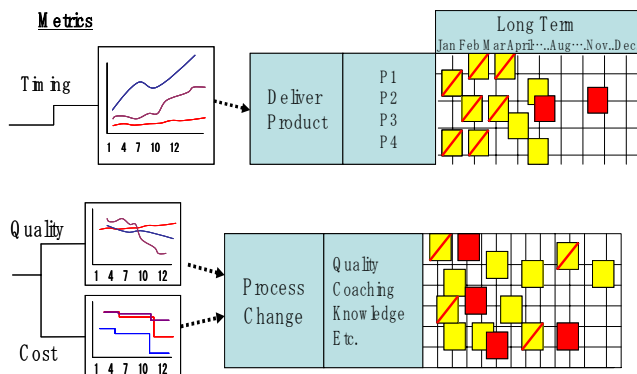
Next, members refer to the quantitative side of the board, the long-term schedule, for DO:

**Action Board**



<p>DO</p>	<p>Since our last meeting, I have accomplished.....towards the target.</p> <p>(These are results, not activities).</p>
-----------	--

CHECK and ACT refer to the entire board, and give the member and group an opportunity to gain deeper insight into their collective work:

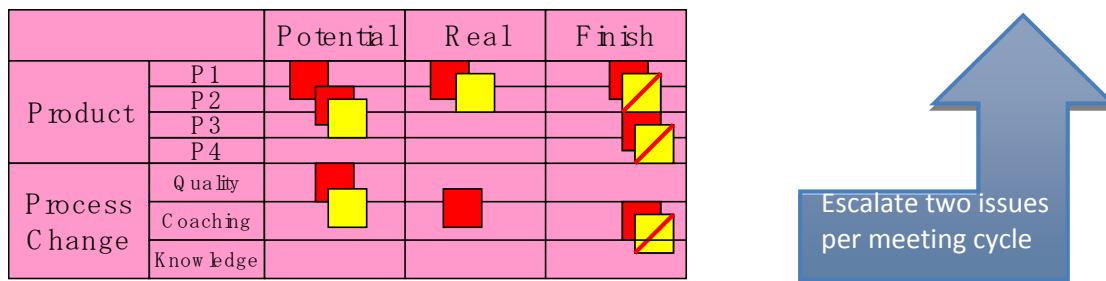


<p>Check</p>	<p>Here's what I have learned (or, 'here is my AHA!) about our work....</p>
<p>ACT</p>	<p>And, because of that learning, Here's what I will now do.</p>
<p>Insight and action are the most vital parts of oobeya and Quickening Visualization, because they represent the point of the spear in continuous improvement.</p>	

After all members deliver the report-out PDCA, the final stage of the meeting is issue processing. In this unique PDCA, driven by managerial leaders, members identify potential problems—an aspect of front-loading the work. Also, they propose countermeasures to stay on target and on milestone—and this is the best use of the issue board because it focuses on the preventers of target achievement or milestone timeliness.

The issue process is also part of the ‘glue’ that binds oobeya in the Quickening Visualization hierarchy. It’s expected that groups use internal resources to solve most problems, and this is generally the case. When problems cross group boundaries, or are extraordinarily difficult, or require unbudgeted resources, the group can choose up to two of them per meeting cycle to escalate to the next hierarchical level. By practicing ‘decision-ready’ behavior when writing an issue, the group can expect rapid and crisp decisions.

Issue Board



In conclusion, executives can observe many of the behaviors and habits developing into a new culture of continuous improvement by visiting the meetings of oobeya and Quickening Visualization. In this white paper, we have linked the proven product development approaches to new applications in the work of executives and managers. For background detail, we also republished the ‘how and why’ of oobeya.

These human-side approaches depend on the involvement of a passionate executive in a human side, aggressive enterprise. It is possible radically to improve work throughput and make better, faster decisions. Improvement initiatives can proceed simultaneously across the organization because they are grounded in target-driven, milestone-honoring culture where ‘a promise made is a promise kept.’

Executives and their staff will experience a higher level of job satisfaction as well, by turning away from fire-fighting mode to an improved flow of work. The enterprise can deploy its policies with great confidence. Departments, teams and individual contributors become adept at breaking down the policy and attendant targets into real daily activity. And the entire enterprise can make significant advances in the agreed direction.

About the Authors.



**Takashi Tanaka** has implemented Visual Management for more than 33 Western corporations in Europe and North America. He began his career with a major Japanese consultancy, where he worked on 'oobeya' implementations at Toyota, Canon and other well-known Japanese corporations. He was graduated with a BSME from Osaka Industrial University, and holds an MBA from Oklahoma City University. He is the founder and principal consultant of QV System, Inc.



**Toshio Horikiri**, CEO of Toyota Engineering Corporation (TEC), worked for Toyota Motor Corporation for 36 years. He served as Global Production Department, Far East Division General Manager; and prior to that, General Manager of Toyota's Motomachi plant. His specialties are Total Toyota Production System and Toyota Management System. He founded TEC as an independent corporate entity in Nagoya, Japan. He was graduated from Kyushu University with a degree in Aeronautics Engineering



**Craig Flynn** is CEO of QV System, Inc., his seventh entrepreneurial venture. He holds an MBA from The University of Rochester Simon School of Business.

QV System, Inc.  
 2190 E. Henrietta Rd., Rochester, NY, USA 14623  
 +1 585 330 3262  
[craig@qv-system.com](mailto:craig@qv-system.com)  
[www.qv-system.com](http://www.qv-system.com)  
[www.toyota-engineering.co.jp/english/index-eng.html](http://www.toyota-engineering.co.jp/english/index-eng.html)  
 Blog with us! <http://qvsystem.wordpress.com>