

# THE APPLICATION OF POLICY DEPLOYMENT IN INDIAN COMPANIES

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**Abstract:** Policy Deployment (PD), also known as Hoshin Kanri, originated in Japan in the 1960s. It is a core component of TQM with Cross-Functional Management, Daily Management, and Small Group Activities. India is a leading emerging markets (BRICS) country. Many Indian companies have developed an advanced quality management system. Twenty Indian organizations have been awarded the Deming Application Prize since 2001. This paper presents the findings of a study on the application of PD in Indian companies. Four Indian Deming Application Prize winners served as insight-stimulating case studies. The findings reveal that the PD practices of the four organizations are consistent with Japanese practices, but differences were found. This study provides insight into current Indian PD practices and offers emergent ideas on how PD practices can be improved. The findings can help increase the effective spread of PD. Also, the concept of Flexible PD is discussed.

**Key Words:** Policy Deployment, Hoshin Kanri, Deming Prize, India, Flexible Policy Deployment

## 1. Introduction

### 1.1 Policy Deployment

Policy Deployment (PD), also known as Hoshin Kanri and Policy Management, is a strategic improvement system that originated in Japan in the 1960s (Akao (1991)). It has been implemented in numerous organizations worldwide and is one of the four core components of TQM along with Cross-Functional Management, Daily Management, and Small Group Activities (Ando and Kumar (2011)).

Strategic Management activities typically precede PD activities each year leading to widespread organizational actions. Chandler (1962) offered one of the first definitions of *strategy*: “*Strategy* can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.” Osada (1998) advocated integrating Strategic Management activities with PD activities resulting in Strategic Management by Policy (SMBP).

Some of the PD roots can be traced to the “Specification > Production > Inspection” control cycle described by Shewhart (1939). The work on objectives by Drucker (1954), which led to the popularity of Management by Objectives (MBO), also influenced the shaping of PD: “Objectives are needed in every area where performance and results directly and vitally affect the survival and prosperity of the business.” Schleh (1955) suggested a five-point method for accomplishing goals: “1. Define the goals. 2. Define the rules or limits to be followed in meeting these goals. 3. Develop the policy or method to meet these goals. 4. Install the policy or method. 5. Follow up, check on, and improve the policy or method.” Schleh (1961) also described a way for a superior (boss) to deploy work to his/her subordinates (vertical deployment). One way PD differs from MBO is that a *policy* in PD is composed of an *objective* (target) and the *strategies* (means) to accomplish the objective. Both objectives and strategies are deployed throughout the organization in PD.

One of the most commonly used control cycles in PD is the Plan-Do-Check-Act (PDCA) cycle. Kano (2008) traced the history of the PDCA cycle and identified the many influences in shaping its current form (Shewhart, Deming, Ishikawa, Juran, and Mizuno). Ishikawa (1990) described a six step control cycle as an enhancement of the PDCA cycle: “1) Decide on an objective, 2) Decide on the methods to be used for achieving the objective, 3) Carry out training and education, 4) Do the work, 5) Check the results, 6) Take corrective action.” Deming (1994) re-named the “Check” step in PDCA as the “Study” step (PDSA) in order to encourage a more in-depth study versus a “go and see” activity.

Descriptions of Hoshin Kanri (Mizuno (1988), Ishikawa (1990), Akao (1991), Hosotani (1992), Kurogane (1993), Osada (1998), Kume (2009), Kano and Sainamthip (2010), Liker and Convis (2012)) suggest several expected PD characteristics such as *led by senior executives, formal annual process, deployment of objectives and strategies, use of a catchball process*, etc. (see Table 2). A PD

system is thus a formal system to improve organizational performance which is consistent with the *rational system* perspective on organizations described by Scott and Davis (2007): “*organizations are collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures.*”

PD has been practiced extensively outside Japan. Hudiburg (1991) described the PD activities at Florida Power & Light (USA), the first non-Japanese organization to be awarded the Deming Application Prize in 1989. The GOAL/QPC Research Committee (1989) identified some of the other early practitioners of PD in the USA as Hewlett-Packard and Procter and Gamble. Philips Taiwan, Ltd. was the second non-Japanese organization to be awarded the Deming Application Prize in 1991 and AT&T Power Systems (USA) was the third in 1994. Thirty-seven non-Japanese organizations have been awarded the Deming Application Prize (Overseas Category) since 1989.

## ***1.2 TQM in India***

The Indian economy has experienced relatively large real GDP growth. India is considered one of the leading *emerging markets* countries along with Brazil, Russia, China, and South Africa (BRICS). India has become a major global player in manufacturing and information technology.

Many Indian companies have embraced TQM and have developed an advanced quality management system as evidenced by the fact that twenty Indian organizations have been awarded the Deming Application Prize (now *The Deming Prize*) since 2001 and three of those have been awarded the Japan Quality Medal (now *The Deming Grand Prize*). The first organization to be awarded the Deming Application Prize with an explicit link to India was Sundaram-Clayton Limited, Brakes Division in 1998. The first Deming Application Prize winner (Overseas Category) from India was Sundaram Brake Linings, Ltd. in 2001. Ando and Kumar (2011) described the Daily Management practices at Tata Steel and noted that PD was part of their *integrated improvement framework*. The adoption of PD in India is not surprising since it is a core component of TQM. Some Indian companies have implemented Western improvement approaches such as the Balanced Scorecard and Six Sigma.

## ***1.3 Phenomenon of Interest***

The phenomenon of interest is *the application of Policy Deployment in Indian companies*. The label *Policy Deployment* is used instead of *Hoshin Kanri* because it is the most popular name used for Hoshin Kanri in the participating companies. The purpose of the study is to investigate current Indian PD practices and create emergent ideas for how PD practices can be improved.

The study attempted to answer several research questions: What are the differences between PD practices in India and Japan? How has PD changed over time in Indian companies? What tools are used? What role does PDCA play? What have been the benefits? What have been the implementation difficulties? What type of culture is necessary for success? What advice would you give a company that is just beginning? What would an organization do in PD if a catastrophe occurred? Have there been any innovations? How can Indian PD practices be improved?

## **2. Research Methodology**

### ***2.1 Case Study Approach & Recruitment***

Four Indian Deming Application Prize winners agreed to participate in the study. All four are manufacturing organizations headquartered in India with international operations. They served as insight-stimulating case studies in order to maximize acquired knowledge about PD. Yin (2009) suggested that the case study method is useful for gaining insights about a phenomenon of interest.

A PD system is a potential source of competitive advantage and so the companies were offered anonymity and assurances that company information would be protected. The four organizations (cases) will be referred to as Falcon, Eagle, Hawk, and Osprey. The *birds of prey* theme was chosen because PD involves senior leaders (1) adopting a *bird's-eye view of the world*, as Dr. Kano might say, and (2) aggressively attacking problems and seizing opportunities.

### ***2.2 Data Collection***

Data was obtained from four sources which are depicted in Table 1: a structured survey, company websites, company documents, and a follow-up survey.

Table 1. Sources of Data

Company	Structured Survey Respondents	Respondent Tenure Range	Website Analysis	Document Analysis	Follow-Up Survey
Falcon	15	14 to 24 Years	Yes	Yes	Yes
Eagle	8	3 to 38 Years	Yes	Yes	Yes
Hawk	8	3 to 26 Years	Yes	Yes	Yes
Osprey	4	5 to 19 Years	Yes	Yes	Yes

### 2.3 Analyses

Within and cross-case analyses were conducted leading to an emergent definition of PD; similarities and differences across the cases; and emergent ideas on how PD practices can be improved.

### 2.4 Limitations of the Study

The study has two major limitations that are inherent in case study research. First, the findings cannot be automatically generalized broadly to other Indian companies because they were derived from a small, judgment sample. However, some of the findings were consistent across a diverse set of four organizations in terms of size, organizational structure, industries, and products which strengthens those findings. Second, the survey data consists largely of the perceptions of senior executives, although the diverse mix of respondents from each company helped in the triangulation of the findings and the detection of discrepancies. The limitations are not significant given the purpose of the study.

## 3. Findings

### 3.1 Comparison with Japanese Practices

The PD practices of the four organizations were very consistent with Japanese practices at a macro level (see Table 2). However, there was extensive variation in practices at a micro level (more later).

Table 2. Consistency with Japanese Practices

Expected Policy Deployment Characteristics	Falcon	Eagle	Hawk	Osprey
Led by Senior Executives	Yes	Yes	Yes	Yes
Formal Annual Process	Yes	Yes	Yes	Yes
Long-Term Horizon	Yes	Yes	Yes	Yes
Linked to Strategic Management Activities	Yes	Yes	Yes	Yes
Focused on Improving Quality/Cost/Delivery/Safety/Morale	Yes	X	Yes	Yes
Deployment of Objectives and Strategies	Yes	Yes	Yes	Yes
Rigorous Application of the PDCA Cycle	Yes	Yes	Yes	Yes
Widespread Involvement	Yes	Yes	Yes	Yes
Assignment of Responsibilities	Yes	Yes	Yes	Yes
Extensive Cross-Functional Activities	Yes	Yes	Yes	Yes
Intentional Alignment of Activities	Yes	Yes	Yes	Yes
Use of a Catchball Process	Yes	Yes	Yes	Yes
Use of Statistical Methods	Yes	Yes	Yes	Yes
Leads to Widespread Organizational Actions	Yes	Yes	Yes	Yes
Linked to Daily Management Activities	Yes	Yes	Yes	Yes
Formal Periodic Reviews	Yes	Yes	Yes	Yes

One macro level difference is related to Eagle where the Balanced Scorecard (BSC) framework (Financial, Customer, Business Process, Innovation & Growth) is used for performance categories instead of QCDSM. Eagle integrated the BSC framework (Kaplan and Norton (1992)) with its PD system in 2005. An Eagle executive commented: "Policy Deployment is strong on the process, but weak on the results focus, therefore the Balanced Scorecard was introduced in the Policy Deployment format to bring a more results-orientation and rewards linked with various levels of achievement."

### 3.2 Synthesis of Findings

#### 3.2.1 Emergent Definition of Policy Deployment in India

An emergent definition was created by synthesizing themes from the cases: “*Policy Deployment in India* is a systematic annual process led by senior executives—and preceded by Strategic Management activities—for developing, deploying, and accomplishing objectives (ends) and strategies (means) through coordinated organization-wide activities and the rigorous application of the PDCA cycle.”

#### 3.2.2 PDCA, Benefits, Advice for Beginners, Culture Keys, and Implementation Difficulties

An affinity diagram process (KJ Method®) was used to analyze and synthesize the responses to some of the structured survey questions. The results are shown in Figure 1.

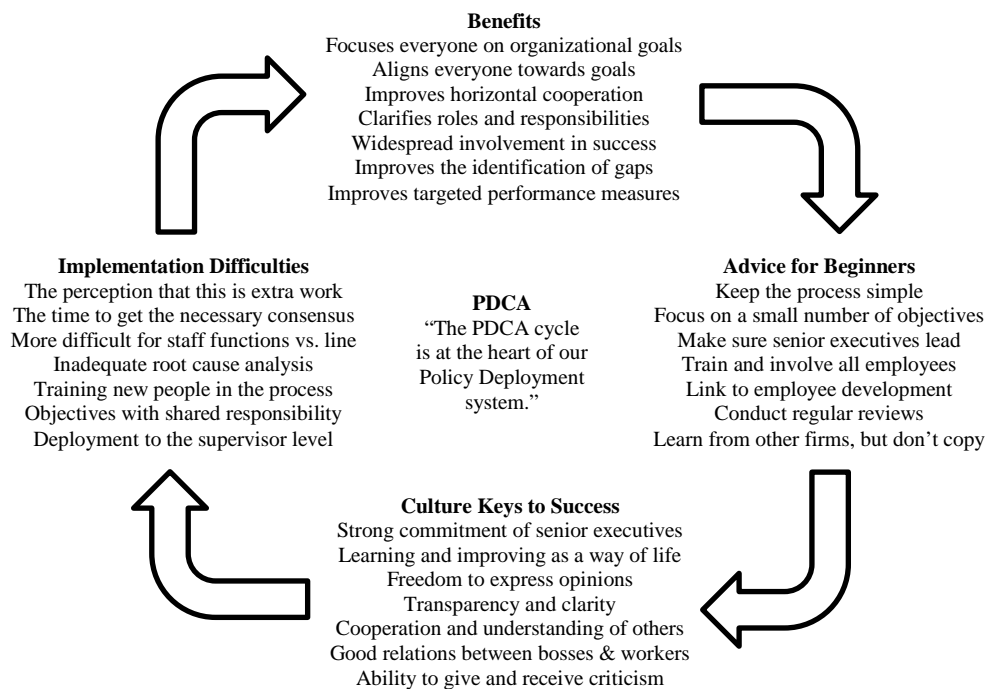


Figure 1. Synthesis of Policy Deployment Findings

Survey respondents emphasized the importance of the PDCA cycle to their PD systems. PDCA is used at macro and micro levels. It appears that PD will have a greater likelihood of success if there is an in-depth understanding of *control* and the effective use of a control cycle such as PDCA.

The survey respondents felt that culture was important. One interesting emergent cultural theme was *the ability to give and receive criticism*. Employees are assigned responsibilities for objectives, strategies, and/or actions plans and then later progress is reviewed. The review conversation can be difficult if progress is not satisfactory because it suggests a performance gap. Three aspects of the PD review conversation appear important: (1) clarifying the aim of the review—such as *to learn as much as we can and reach consensus on a positive way forward*, (2) having the superior (boss) provide constructive criticism to the subordinate, and (3) having the subordinate be open to suggestions for improvement. Ideally, the nature of the review should reflect a *respect for people* and be conducted in the spirit of improvement and employee development—not to judge a subordinate as *good or bad*. Organizations could benefit by training managers on how review conversations should be conducted.

### 3.3 Differences Across the Cases

#### 3.3.1 General Differences

Although the PD practices of the four organizations were very consistent with Japanese practices at a macro level, there were considerable differences at the micro level. For example, the four organizations had different PD process steps, terminology, and templates. They also differed in how

catchball occurs; how strategies are developed for objectives; how cross-functional activities occur; how PD interfaces with employee performance reviews; how information systems are used; and which tools are used when. This *freedom* at the micro level suggests that an organization has the *opportunity* to customize its PD system and process and evolve them over time. PD innovations can be encouraged.

### 3.3.2 Falcon

Falcon is the flagship company of a group of companies. The group, established in the 1980s, strives to be *number one* in every business line and have at least fifty percent of its sales from outside India. Falcon manufactures a diverse set of components for large consumer products. Falcon has experienced sales and earnings growth and has been successful with its globalization strategy.

PD at Falcon started in 2000. One of its stated purposes is, “*to align the activities of people throughout the company so the company can achieve key goals and react quickly to a changing environment.*” The PD system is designed to solve *profound* problems—not *normal* problems. There are four major PD phases: Setting the Objectives, Deploying the Objectives, Monitoring Progress, and Diagnosing. Several PD guidelines have been developed to help employees. For example, “*Make exhaustive plans based on facts and a realistic view.*” Falcon has embedded PD in the annual performance appraisal process. The contribution of the “(PD) Objectives” section to a unit head’s overall performance rating is 60% and it is 50% for division heads.

Falcon creates a number of items for each high-level objective: statement of desired outcome, metrics to measure progress, target value, deadline date, and focused means (strategies). The QC Story is systematically used to develop the focused means for each desired outcome. This discipline enables Falcon to be data-based in developing means (strategies). Falcon has evolved its PD system through experience and learning. One key change after 2006 was a shift from using an X Matrix to using a Tree Diagram structure. Falcon’s use of the X Matrix resulted in guidelines for company objectives that were too generic and weakly linked to specific objectives and action plans *below*. The higher-level action plans are deployed now instead of the higher-level objectives using a Tree Diagram structure.

**Emergent Idea:** The QC Story (or DMAIC) can be an effective method for developing PD strategies.

**Emergent Idea:** Evaluate the effectiveness of your PD tools based on experience and learning.

### 3.3.3 Eagle

Eagle is a sector of divisions in a conglomerate based in India. The company started in the 1940s and has *Quality Focus* as one of its core values. Eagle designs, manufactures, and sells large machines to consumers. Eagle has been the market leader in India for decades and is one of the top leaders in global sales in one of its product categories. Eagle has plants and sales networks in India and other countries. Eagle is led by the Executive Leadership Council which meets weekly to discuss operations, important projects, strategic initiatives, and progress against the plan.

The current PD system has evolved since its inception in 2000. Strategic Management activities (e.g., environmental and SWOT analyses) start the process leading to long-term planning, strategic building blocks, and strategic priorities. PD follows in three major phases: Formulation, Deployment, and Review. There are 7-8 CEO policies created annually. Eagle has formal PD training for new employees, but one executive commented: “The basics of Policy Deployment are shared during the [new employee] induction process, but the real learning takes place only on the job.”

Eagle integrated the Balanced Scorecard (BSC) framework with its PD system in 2005. PD objectives are positioned within the BSC perspectives (Financial, Customer, Business Process, Innovation & Growth). Each objective is assigned an owner and it is measurable with three target levels: budget level, intermediate level, and aspirational level. Achievement levels can factor into an employee’s compensation. The communication of PD progress occurs during *Reach Out* sessions. One executive explained: “In the *Reach Out*, actual achievement versus the plan against each policy is shared in a transparent manner with all the participants, who in turn, disseminate this information at their respective ends. Every six months, the same process is repeated with all the workers, thereby everyone in the organization is aware of the level of performance of the organization.”

**Emergent Idea:** Other frameworks (e.g., BSC) can be successfully integrated with PD.

**Emergent Idea:** Periodic events can be held to communicate PD progress to employees.

### 3.3.4 Hawk

Hawk was formed in the 1960s and it designs, develops, manufactures, and supplies a diverse set of components for many consumer product segments. Hawk, an Indian market leader, has multiple plants

and does business internationally. Hawk has been on a *journey towards excellence* for over a decade.

Hawk began PD in 2002 and uses it to realize breakthrough improvement. Strategic Management activities start the cycle each year including a review of the mission and vision and the development of the long-term, mid-term, and annual business plans. Hawk's PD process has four major steps: Annual Policy Setting; Deployment of Policy and Action Plan; Action Plan Implementation and Periodic Monitoring of Results; and Annual Performance Review. Standard templates are used throughout the PD process. X Matrix forms are used to establish clear linkages between company-wide targets and major measures (means) with department targets and major measures. Hawk has been successful linking PD and Daily Management (DM) activities in part through measures of performance (MOP) at the section head level. Every employee is trained on PD through standard training packages. Hawk has now integrated PD with the employee performance review process.

The PD process is integrated with the Competitiveness Achievement Planning (CAP) process where strategic objectives, manufacturing objectives, and business issues are identified. The first step of PD, Annual Policy Setting, uses CAP deliverables as inputs into the development of business and QCDSME objectives. Hawk has created an improvement system over several years that consists of several components including TPM, QFD, Cellular (Lean) Manufacturing, JIT, Zero Defect Quality, Daily Management, Six Sigma, Poka Yoke, and PD. The PD system complements—and interfaces with—the other components of the improvement system. PD does not function as an “add on” activity.

**Emergent Idea:** A PD system can be designed to help improve the competitiveness of the company.

**Emergent Idea:** PD can function as an interdependent component of a larger improvement system.

### 3.3.5 Osprey

Osprey was founded in the 1970s and since then has evolved into a company consisting of several diverse business units that primarily produce industrial intermediates. Osprey has an international presence with the aim of achieving global leadership by 2020. *Excellence* is one of the core values of Osprey. The senior executives studied TQM in Japan in the 1990s before launching TQM. The company is known for running one of the most successful *continuous improvement* programs in India.

PD was implemented on a pilot basis in 2000 prior to a company-wide implementation in 2001. The PD process identifies two types of themes: problem-solving and execution. Problem-solving themes stimulate improvement projects whereas execution themes stimulate organizational actions since the solution is typically known. A standardized problem-solving process (similar to the QC Story) is used to address the themes. Osprey has created a unique 3-Frame (window) template to review progress on each control point. The *first window* shows the three year performance history for the metric. The *second window* shows the current year monthly actual vs. plan numbers for the metric, and the *third window* shows the current year-to-date numbers for the actuals, plan, and prior year.

The organization charts differ for each business unit. One executive commented, “In one business, there is a fairly complex matrix structure with cross-functional responsibilities . . . Cross-Functional Management is carried out by these permanent QCDSM structures, which horizontally deploy the CEO directions as well as their own directions to the business lines. These are in a sense the policy making, implementing, and reviewing bodies, which are the weft [weaving reference] to the business lines [warp].” PD is customized for each business unit and how the policies are deployed is dependent upon the organizational structure. On another note—the PD catchball process at Osprey occurs both vertically and horizontally. Parallel departments discuss PD *requests* and *responses* during a series of meetings in order to make sure each department gets the necessary help and resources.

**Emergent Idea:** The PD system must be designed with organization structure in mind.

**Emergent Idea:** Catchball can occur vertically and horizontally during the PD process.

### 3.4 Flexible Policy Deployment (FPD)

D'Aveni, Dagnino, and Smith (2010) suggested that a sustained competitive advantage is difficult in the global economy today because of the rapid pace of change. Leaders are sometimes confronted with unanticipated events such as the Lehman Brothers collapse, Arab Spring events, hacker attacks (Sony), and flooding in Thailand. Mintzberg and Waters (1985) stated that an organization can have both *deliberate* and *emergent* strategies. PD is a structured system leading to objectives, strategies, and action plans. However, *things change!* One executive stated: “Even though the planning is quite detailed, sudden and unanticipated changes in the business environment call for sudden changes which are not necessarily in line with the plans envisaged at the start of the year.”

Akio Toyoda (2011), President of Toyota Motor Corporation, announced the *Toyota Global Vision* on March 9, 2011. An earthquake occurred off the northeast coast of Japan on March 11, 2011

which created a tsunami. The effects on Japan were devastating and the future plans of Toyota were immediately suspect. Liker and Convis (2012) described how Toyota still practices Hoshin Kanri. Did Toyota's policies need to be re-evaluated, re-prioritized, and revised? What must be done with respect to PD if such an event occurs? What capabilities will help an organization successfully respond?

Some events can be imagined such as an oil price hike or an exchange rate fluctuation. Scenario planning can be useful for preparing an organization for imaginable events. However, some events are unimaginable and we are limited by our imagination. Ansoff (1984) described weak and strong signals and suggested that we should look for these because they might affect performance. The classification system of Scott and Davis (2007) might help re-orient our thinking on PD—from a purely *rational system* perspective to also include an *open system* perspective: “*organizations are congeries [collection] of interdependent flows and activities linking shifting coalitions of participants embedded in wider material-resource and institutional environments.*” The integration of *rational system* and *open system* perspectives can help provide an organization with a Flexible Policy Deployment (FPD) mindset. Wayne M. Fortun (2012), President and CEO of Hutchinson Technology Inc., commented: “A leader has to be right. Of course a leader cannot be right all the time, but the greater the risk the more certain the leader must be that he/she is right. If there is uncertainty in the strategy chosen, then one needs to develop contingency plans should the decision turn out to be wrong and an identification and careful observation of the early signs that the decision may not be right.”

Senior executives often need to act quickly in order to successfully respond to an unimaginable event. They must understand the current situation; think through the implications; and re-evaluate, re-prioritize, and revise PD items. There are seven capabilities that might be useful as part of an FPD system: (1) Be prepared for imaginable and unimaginable events, (2) Be aware of what is happening in the world, (3) Be able to detect emergent events, (4) Be able to diagnose the situation quickly and take immediate action (Check-Act), (5) Be able to communicate quickly, (6) Be able to make PD changes quickly, and (7) Be able to rapidly conduct PDCA cycles throughout the company.

The development of organizational skills on *rapid* environmental scanning, event detection, analysis, synthesis, decision-making, communication, and coordination will be necessary. Information technology advances (e.g., smart phones, tablets, pads, social media, cloud, etc.) can potentially enhance success. Also, the integration of the Risk Management System with PD will be useful.

## **4. Conclusions and Future Directions**

### **4.1 Conclusions**

PD is being successfully applied in India resulting in significant benefits. The four Indian PD systems studied were originally designed and implemented based on Japanese Hoshin Kanri practices. However, the organizations evolved their PD systems based on experience and learning and in some cases integrated their PD systems with Western approaches such as the BSC and Six Sigma. *There is no one way to do PD*—you can start and then improve your system using the PDCA cycle.

The PD system should be the *vital link* between Strategic Management (SM) activities and widespread organizational actions. PD does not determine if the mission, vision, organizational structure, target markets, product portfolios, and strategic priorities make sense. Osada (1998) stated: “Even when employing MBP [Management by Policy] . . . the question of whether or not a given policy is appropriate will remain. It is thus possible for an inappropriate strategic policy to be effectively deployed—to counter-productive effect. The problem in such a case has nothing to do with any shortcoming of the policy deployment mechanism, but illustrates the lack of a simple tool to aid in the formulation of strategic policy.” The four organizations integrated SM and PD effectively.

There will be difficulties when implementing PD, but cultural differences don't appear to be a barrier in India. PD can spread further in India, but it should be introduced as one component of a larger system. PD systems can be made *flexible* (FPD) by developing additional capabilities.

### **4.2 Future Directions**

More research is needed to shed additional light on the application of PD in India and to explore the eight emergent ideas in more depth. Additional case studies would be useful especially if the companies are identified. Structured surveys with larger sample sizes can be conducted to test theories, which is becoming more feasible due to the number of Indian Deming Application Prize winners. A broader cross-country study to compare PD practices would also be insightful. I would like to thank the executives who participated in the study—their gift of time and ideas made this paper possible.

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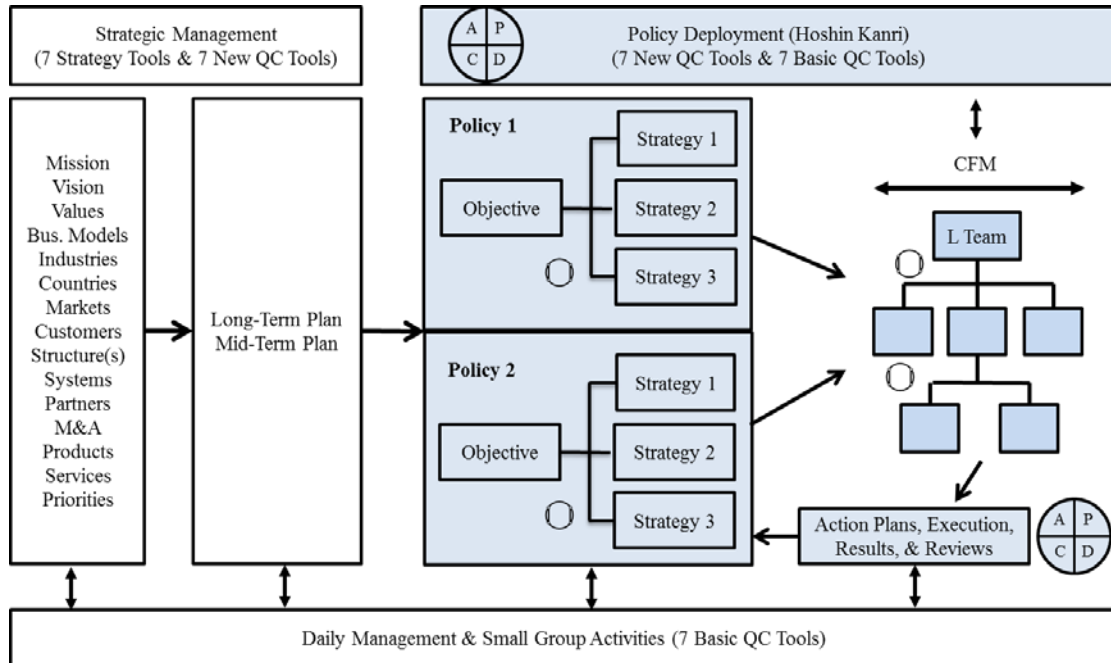
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## Author's Biographical Note

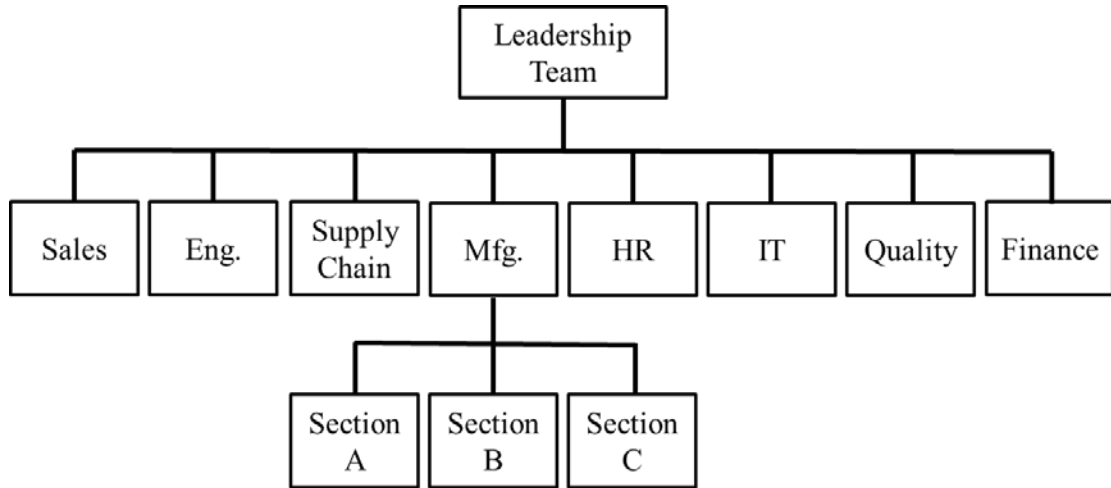
Dr. Charles A. Liedtke is the owner of Strategic Improvement Systems, LLC. He is a Senior Member of the American Society for Quality. He conducts research, trains, and consults in the field of strategic improvement and has worked with world class organizations in the USA and internationally. He earned a B.S. degree in economics from South Dakota State University; an M.S. degree in statistics from Iowa State University; and an M.B.A. and business doctorate from the University of Wisconsin—Madison.



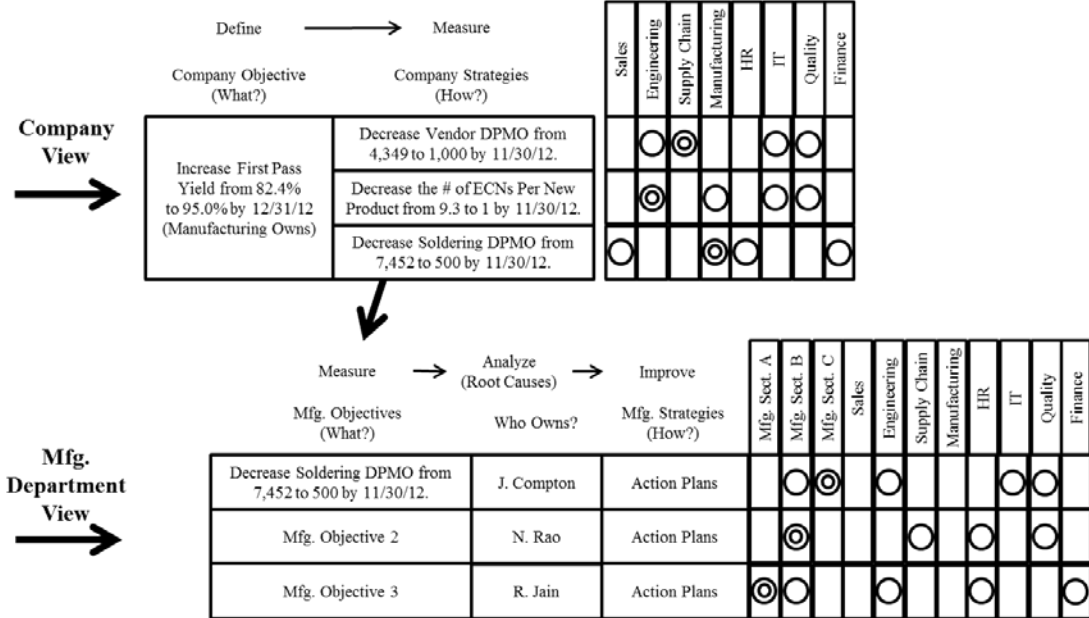
### Appendix Item A: Bird's-Eye View



## Appendix Item B: Organization Chart Example



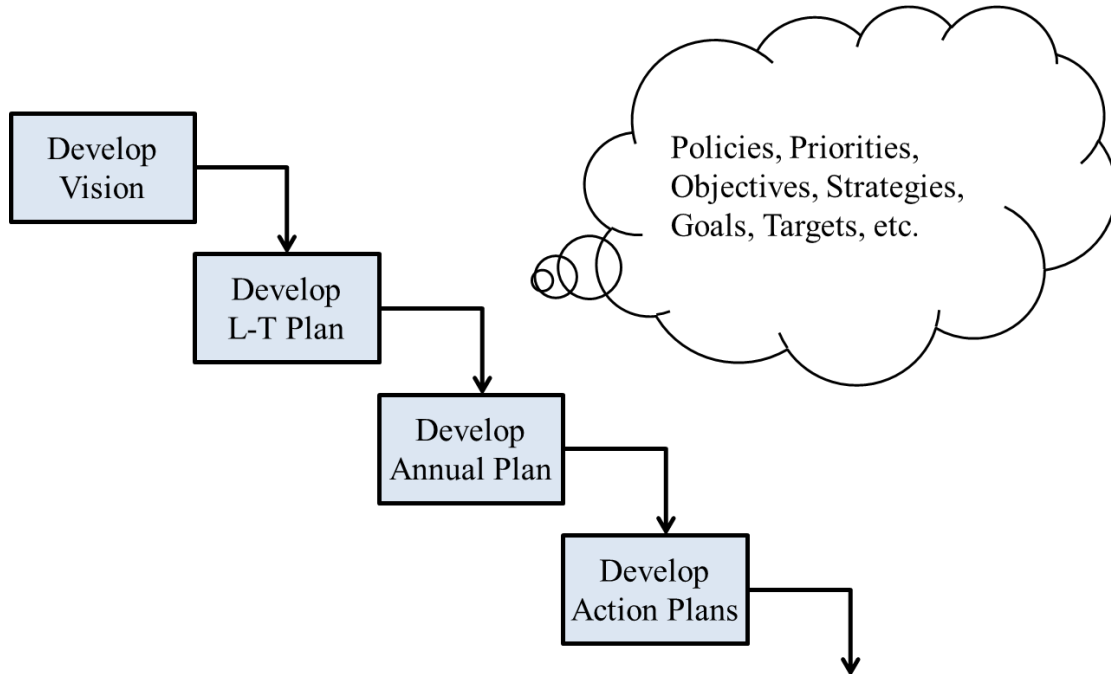
### Appendix Item C: Deployment Example



**Appendix Item D: Balanced Scorecard Framework for Objectives**

<b>Perspectives</b>	<b>Objectives</b>	<b>Owners</b>	<b>Strategies</b>	<b>Owners</b>
Financial	Objective F1	Finance	Strategy	J. Ward
			Strategy	K. Renz
	Objective F2	Sales	Strategy	A. Ramirez
			Strategy	H. Nelson
Customers	Objective C1	Sales	Strategy	K. Rao
			Strategy	C. Burton
	Objective C2	R&D	Strategy	A. Rand
			Strategy	S. Chakravarthy
Business Processes	Objective BP1	Manufacturing	Strategy	P. Tan
			Strategy	T. Andrews
	Objective BP2	Quality	Strategy	H. Kim
			Strategy	F. Hsia
Innovation & Growth	Objective IG1	HR	Strategy	L. Otis
			Strategy	C. Bishop
	Objective IG2	R&D	Strategy	M. Hilbert
			Strategy	H. Singh

### Appendix Item E: Deliberate Planning



## Appendix Item F: “Stream Jumping” Theory

