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# Exploring an innovative model of corporate reform using the system dynamics approach

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**This present study conducted a systematic thinking-based qualitative analysis, using simulation-oriented quantitative method to examine the causal loops of corporate reform. A reform strategy shall incorporate innovative value proposals to create extra revenues while expanding the potential of profit growth. The essential part of such a strategy, nevertheless, is to deliver as soon as possible the features and capacities of products/services that are emphasized and willingly paid for by customers. A business leader should consider the reform's overall impact on the relationship/interdependency among the ecology, resources, and institution of the organization; to control its success (or not) is affected by the events, behaviours and structure; builds sustainable feedback performance-wise, and subsequently ensures continuous competitiveness. The reform-induced competitiveness is effective enough to tackle the competition from rivals.**

**Key words:** System dynamics, system thinking, innovation, leading product, corporate reform, corporate change, strategy.

## INTRODUCTION

Competing in a globalizing world, most businesses seeking sustainable operations manage to reduce costs or provide differentiated products/services. It is therefore imperative that business leaders bolster competitiveness with appropriately adjusted strategies to tackle a fast-changing environment where operations are more and more difficult. Few studies, nevertheless, mentioned how companies losing in the fierce battle should adjust their pace of reform and create business opportunities as the industry moves toward a market for inexpensive, high-quality consumption products.

To understand corporate reform is to scrutinize the forces resulted from business leaders' decision-making, actions and the interactive relationships that ensue some of those forces form a growth cycle and some a cycle that inhibits growth. A chronological examination of the causal relations under this operating structure gives us a loser

look into the process and development of corporate reform.

Business leaders devise coping measures and the ensuing projects by means of strategic thinking, based on their understanding of the company's internal resources and external environment. Using the system dynamics (SD) approach, this present study conducted a systematic thinking-based qualitative analysis and simulation-oriented quantitative method to examine the causal loops of corporate reform. A dynamic model was then presented to yield quantitative data, figures and tables that enable managers to connect appropriate elements/processes for strategic thinking.

## LITERATURE REVIEW

### Corporate reform and statements concerning innovation value

According to Levy and Merry (1988), an organizational reform is a multi-aspect, multi-layer, qualitative,

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discontinuous and quantum-leap transformation that involves a company's missions, objectives, structure and culture. Business leaders scrutinize the past and present before contemplating necessary changes for the future (Kilmann and Covin, 1988). The potential reforms in core system resulted from a change process involve how employees perceive the organization's structure, strategies, as well as the existing work patterns/values (Rafferty and Griffin, 2006). It is imperative that such reforms be implemented in both a constructionist-based and a deficit-based manner (Keller and Aiken, 2008).

Organizational reform is a comprehensive, in-depth change implemented by an organization to tackle the evolving external environment as well as the needs generated from the organization's internal aspects (Narayana and Nath, 1993; Self et al., 2007; Markovic', 2008), with a massive impact on corporate performance (Mohrman et al., 1989; Zhou et al., 2006; Markovic', 2008). Such a reform takes place either as an adaptation effort or as a choice (Narayana and Nath, 1993; Daft, 2004).

The theoretical basis of organizational reform involves an organization's life cycle (Kimberly and Miles, 1980; Quinn and Cameron, 1983; Gupta and Chin, 1994), organization ecology (Hanan and Freeman, 1989; Carroll et al., 1993; Dessler, 2005), the resource dependence theory (Pfeffer and Salanick, 1987), institutional theory (DiMaggio and Powell, 1983; Jepperson, 1991; Baum and Oliver, 1996; Erakovic and Powell, 2006), and innovation theory (Kimberly and Evanisko, 1981; Daft, 2004). An excellent leader practices what he/she preaches with adequate experience to win trust and support of organization members. By clearing doubts and uncertainty concerning the change process, the members' resistance provides an impetus for a successful organizational change, with the members convinced that such a change is necessary and urgent (Harris, et al., 2007). While the newly established system is reinforced using these measures, organization members are offered the required training as a motivating incentive (Cummings and Worley, 2005; Holt et al., 2007; Bruckman, 2008; Ford et al., 2008; Keller and Aiken, 2008). When facing emergencies, a business should ponder over the evolving environment and change itself in a faster-than-ever manner (Jonathan, 2000), or break entirely with the tradition to maintain its income level, or create revenue growth through value innovation (Kim and Mauborgne, 1997). Kaplan and Norton (2004) urged companies to apply innovative value proposals to new products/services that give them an edge over competitors, and rapidly deliver those products/services into the hands of customers.

Based on the literature review, this study proposed:

Proposition 1: a corporate reform is a fundamental, large-scale transformation an existing company engages in when facing a change in environment, competitions or

requirements for business operations. Such a reform is intended to introduce a series of "guidelines for action" by strategic means, reshape the corporate culture, adjust the operating model or organizational framework, and eventually bolster the company's competitiveness and achieve sustainable growth.

Proposition 2: A reform strategy shall incorporate innovative value proposals to create extra revenues while expanding the potential of profit growth. The essential part of such a strategy, nevertheless, is to deliver as soon as possible the features and capacities of products/services that are emphasized and willingly paid for by customers. That explains why a great importance shall be attached to customers' needs as well as the opportunities of delivering distinguished products/services.

Proposition 3: During the corporate reform, a business leader should consider the reform's overall impact on the relationship/interdependency among the ecology, resources, and institution of the organization before phasing in appropriate coping measures.

### **Considering the context of corporate reform from the SD perspective**

The SD approach is able to cope with non-linearity, information feedback, time delay and dynamic complexity. Because issues concerning corporate operations (for example, global politics, industrial competitions, and internal factors such as finance, personnel, marketing, research and development, and manufacturing) affect one another, a company is considered a dynamic and complex system suitable for the SD approach.

The SD approach is applied in a process comprising such steps as confirming the purpose of modelling, developing a conceptual model, building a quantitative model, devising the policy, and conducting experiments (Forrester, 1961; 1994; Sterman, 2000; Sterman, et al., 2007). The scope of causal interactions in each case study are then analyzed in three aspects (that is, events, behavioural change, and structure) through systematic thinking to develop a conceptual model that explains the dynamic behaviour (endogenous variable) (Senge, 1997) and obtain the aggregation level and variables. The impact of relevant policies can be addressed using theories yielded from the modelling process (Forrester, 1968; Sterman, 1994; Senge, 1990).

This study derived Proposition 4 using the SD approach: a reform strategy is a process comprising causal circles that involve chronological, continuous, and independent events; its success (or not) is affected by the events, behaviours and structure. Proposition 5 can be summarized as an requirement that business leaders seeking to meet reform-relevant objectives should find out the loading factor and erosion factor with critical

influence, and erase the erosion factor(s) while lifting the effect of loading factor to the full.

## METHODOLOGY

In the first stage of this present study, the strategy map of innovation process proposed by Kaplan and Norton (2004) was adopted as the theoretical foundation. The strategic goals and implementation plans in the case study were integrated sequentially with aspects of strategy map (that is, learning and growth, internal, customer and financial aspects) as the logical concept for systematic thinking, from which a causal relationship was inferred to build the framework of reform policy. The case study was focused on Magee (2003) the automaker NISSAN and how Carlos Ghosn led it to a successful corporate reform, which is a classic example of manufacturers' turnaround. The author of this study collected printed documents including company financial reports, news coverage, books, and the other secondary information (for example, turnaround: How Carlos Ghosn Rescued NISSAN and financial reports concerning NISSAN and INFINITI) in order to understand how NISSAN played its roles, adopted policy objectives and made decisions in each event. All the information was compiled to derive the crucial data.

In the second stage, a quantitative model was built using the SD approach. This study's author used the simulation software *ithink* to generate a mathematical equation that describes the actual business operating process with computer-aided calculations/simulations. Through that equation, the interactive process/relationships among major forces behind corporate reform were described and the necessary initial values estimated, with the variables and relationships observable and measurable in a real-world setting. According to the method and principle proposed by Graham (1980) and Hamilton (1980), the author derived estimates either from first-hand data extracted from the case study or indirectly from the secondary data.

In the "policy experiments" stage, the author examined the proposed model to see whether it generates the dynamic behaviour as we understand it. At the same time, a validity test was conducted to ensure that mathematical model accurately conveys the concepts (Forrester, 1961), and subsequently obtain a preliminary explanation from the complicated, non-linear output (Sterman, 1994; Simon, 1996; Thompson, 1967; Forrester, 1961, 1994).

### The reform of NISSAN: A case study

Car-making is a highly capital-intensive, highly technology-intensive, and highly value-added industry with considerable barriers to entry besides economies of scale. It requires long-term investments as well as cooperation with other industries, hence the relatively close inter-industry ties. Thanks to government incentives offered over the past few years, many Japanese automakers have undergone frequent revamps, strategy adjustments, market repositioning, and a shift to highly efficient operating models. These efforts have resulted in impressive performances and successfully turned around in companies including NISSAN.

In 1999, NISSAN has net debt about 2.6 trillion yen and declined domestic and global market shares in the industry. When NISSAN alliance with RENUALT in 1999, the new leader, Ghosn stepped up to the plate and foresaw that the problem in NISSAN was due to the poor management. He recognized that to move NISSAN forward, total transparency is the key to yield trust and stands before consumers, employees, and shareholders. The media and public had to understand Nissan's current situation and objectives. The plans were drew, visible and invisible decisions were made such as reducing number of vehicle assembly plants, reducing global head

count, breaking up the "keiretsu" to reduce purchasing costs, developing exciting new products, simplifying NISSAN's manufacturing structure and increasing in manufacturing utilization, restructuring personnel, and changing the way employees were managed and compensated.

In October 1999, Ghosn announced NISSAN Revival Plan (NRP) – Returning NISSAN's short-term and long-term profitability, the plan objectives included: reduce hundreds of nonessential holdings, achieve 1 trillion yen cost reduction in global purchasing, manufacturing, and general administrative costs which included three assembly plants in Japan were to be closed by March 2001. In addition, two power train operations were to be close by March 2002 and eliminate 21,000 jobs worldwide (including more than 16,000 in Japan), reduce capacity by 30%, and raising the utilization rate to 82% by FY 2002.

NISSAN's internal financial reform was to centralizing the treasury. The global treasury consolidation reduced NISSAN's financial operation costs from 90 billion yen in 1999 to just 24 billion yen because less direct expense was needed. NISSAN's external financial reforms were breaking up the keiretsu (a traditional web of Japanese business and benchmarking), comparing costs against other companies in the industry. The RENAULT NISSAN Purchasing Organization was formed to maintain ongoing purchasing reduction plans. NISSAN would reduce purchasing costs from 60 to 20%, and the number of parts and materials suppliers would be cut almost in half from more than 1,100 in 1999 to 600 or less by the end of 2002. NISSAN followed a scheme labelled "3-3-3" that would force three partners (suppliers, purchasing and engineering) to work more closely over 3 years, working in 3 regions (Asia, the Americas, and Europe/Middle East/Africa).

Simplifying NISSAN's manufacturing structure and reducing operational cost but while developing new products and implementing new manufacturing schemes. NISSAN focused from the start on rebuilding its brand, boosting research and development investment 20% and rolling out 22 new models for company's future. Revival NISSAN, and ultimately growth were depended upon improved model and getting new models to market. Building brand identity – establishing NISSAN to become a global brand image was highest objective in the company. Japanese-based company met the definition of globalization. Building the right products at the right time and place was critical to NISSAN's future. NISSAN built new plant in Canton, Mississippi one year after the NRP, to build more models in the United States, where profits and future demand are solid (Magee, 2002).

In this present study, the reform policy adopted by NISSAN and Carlos Ghosn in business practice was discussed in combination with the four aspects of product leadership strategy in "strategy map", as shown in Appendix.

### The causal loops and system model of corporate reform

In this study, the basic logics behind NISSAN's revitalization policy were illustrated in Figure 1, where the leader applied his leadership skills to boost employee morale and shape an aggressive corporate culture. By means of cross-departmental teams and management strategies, the leader created inter-departmental synergy that added to the benefits of cooperation, and subsequently devised a reform strategy and action plan based on the company's current corporate conditions and position in the industry.

With fast implementation of that reform plan, he gave NISSAN's products a leading edge in the market, and used systematic thinking to develop the systematic loops in Figure 2. Those loops helped construct and stimulate the system model in Figure 3.

This model contains such sub-systems as corporate governance, corporate culture, market information, technological innovation and the product launch. Table 1 shows the relation between

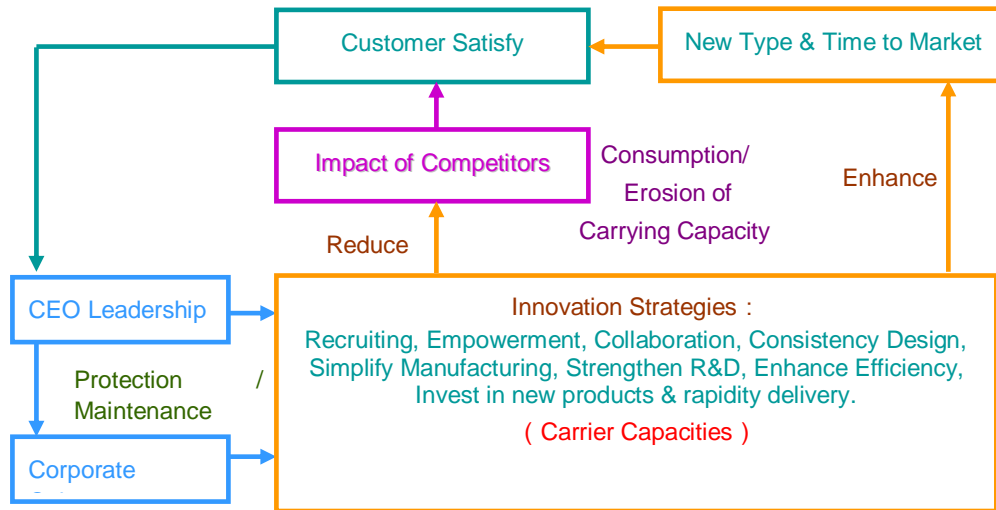


Figure 1. The structural logic of NISSAN's revitalization policy.

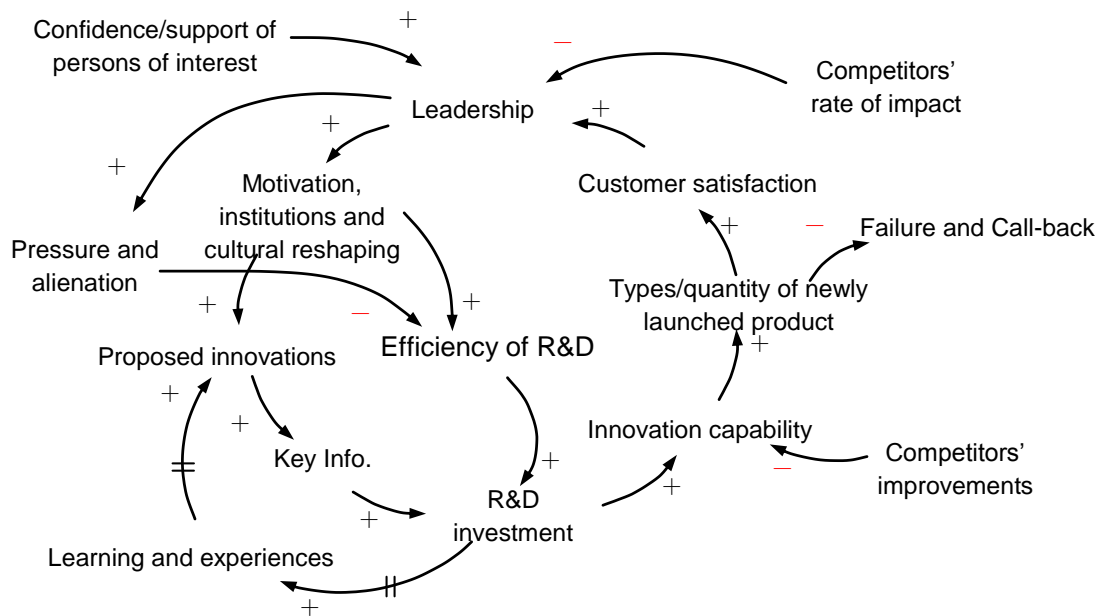


Figure 2. Causal loops depicting how the reform policy affects the product launch.

system-component design and variables.

The author introduced restrictive conditions to remove excessive complexity and uncertainty from the definition of default values. For example, the discussion of "customer satisfaction" was based solely on whether consumers are happy with the quality of products/services, ignoring exogenous variables including corporate image and social responsibilities. The competitors were defined as "businesses with the same market segment, target customers and market position". The other reasons behind corporate reform (for example, the investment rate, yield rate of production, number of projects proposed and project success rate) were all factored into advancement and MktTech\_Frc.

After assuming his post, the leader made an all-out reform effort to restructure the internal affairs, removing the corrupt corporate culture and management style. In the "corporate governance" and "corporate culture" sub-systems, the increased level of leadership drove up the level of culture as well as the flows of Centripetal\_Force and leave, which indicates not only a rise in employee confidence, team spirit and employees' dedication, but also a heavy pressure operations-wise that involves the adjustment of, or changes in, corporate culture and the alienation of some employees, as shown in Figures 4 and 5. The statistics of conversion factor "Idea" shows that employees are working in an environment with intense culture-shaping activities and surging

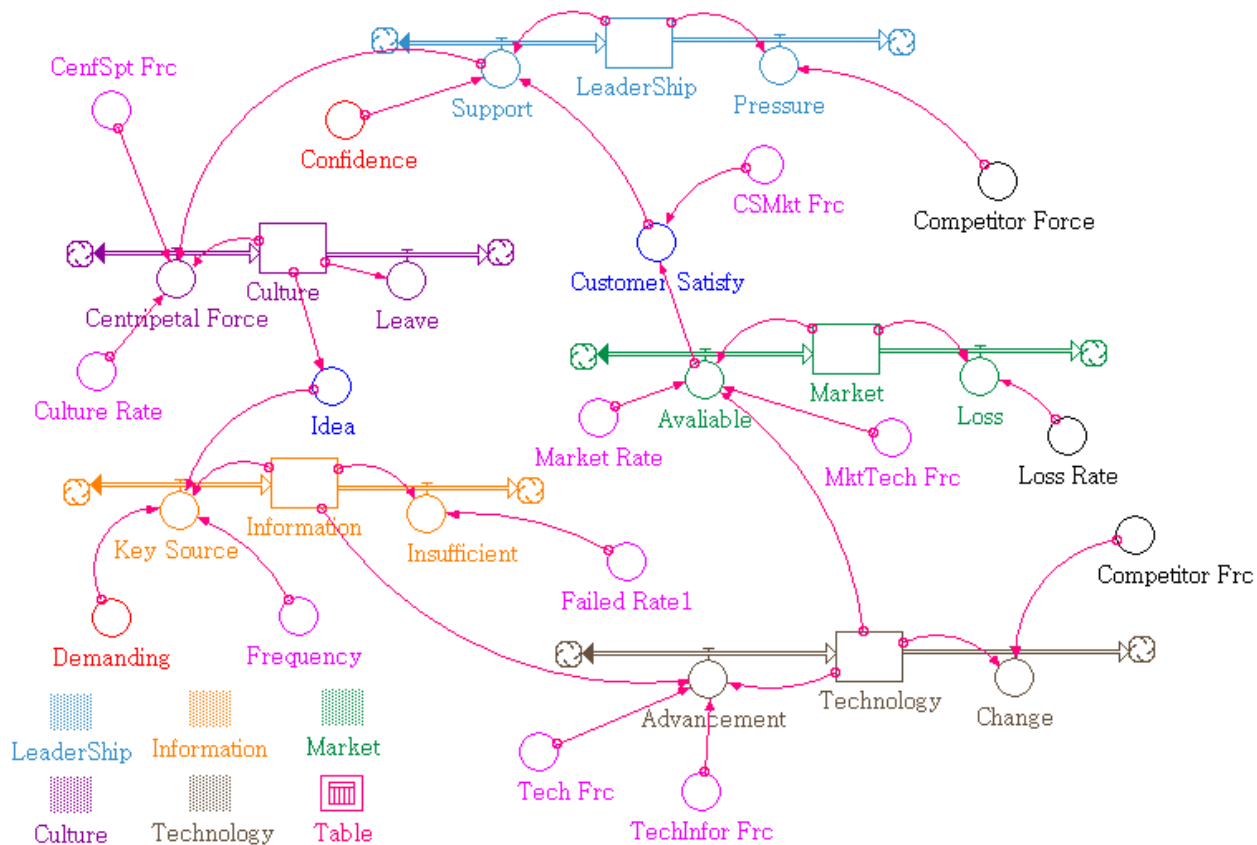


Figure 3. The SD model that describes how reform strategy affects product launch.

Table 1. List components of corporate reform strategy system.

Component Name	Characteristic	Descriptions	Unit
Leadership	Stock	Leader's leadership	Leading force
Support	Flow	Leaders' level of supports	Leading force
Pressure	Flow	Management pressure	Leading force
Confidence	Exogenous variable	External confidence	%
Competitor_Force	Exogenous variable	Competitors' attack	%
Culture	Stock	Corporate culture	Culture
Centripetal_Force	Flow	Build up corporate culture and loyalty	Culture
Leave	Flow	Employees alienation and resignation	Culture
CentSpt_Frc	Conversion Factor	Level of supports toward Leadership and builds up rate of Culture	Culture/ leading force
Culture_Rate	Exogenous variable	Build up rate of corporate culture	%
Idea	Endogenous variable	Creative idea / new product concepts	Number of Concepts
Information	Stock	Key Market Information	Information
Key_Source	Flow	Gain key corporate information per month	Information
Insufficient	Flow	Phase-out key information per month	Information
Demanding	Exogenous variable	Quantity of project proposals per month	Number of concepts
Frequency	Exogenous variable	Frequency of project proposals per month	Number/monthly
Failed_Rate_1	Exogenous variable	Rate of failure proposals	%
Technology	Stock	Technological innovative ability	Technology
Advancement	Flow	Technological improvements per month	Technology
Change	Flow	Lag behind technology per month	Technology
Tech_Frc	Non unit	Rate of technological improvements	%

Table 1. Contd.

TechInfor_Frc	Conversion factor	Technical ability increased by key information per department	Technology /information
Competitor_Frc	Exogenous variable	Competitors' rate of impact	Impact rate %
MktTech_Frc	Conversion factor	New products related to technological improvements per department	New product /technology
Market	Stock	Product types on the market	Amount
Available	Flow	New product types on the market per month	Amount
Loss	Flow	Product types off the market per month	Amount
Market_Rate	Exogenous variable	Rate of new product delivery	%
Loss_Rate	Exogenous variable	Rate of the product types off the market	%
CSMkt_Frc	Conversion factor	Rate of customer satisfaction by products on the market per department	Customer Satisfaction / type of products
Customer_Satisfy	Endogenous variable	Rate of customer satisfaction per month	Customer satisfaction, 0~1

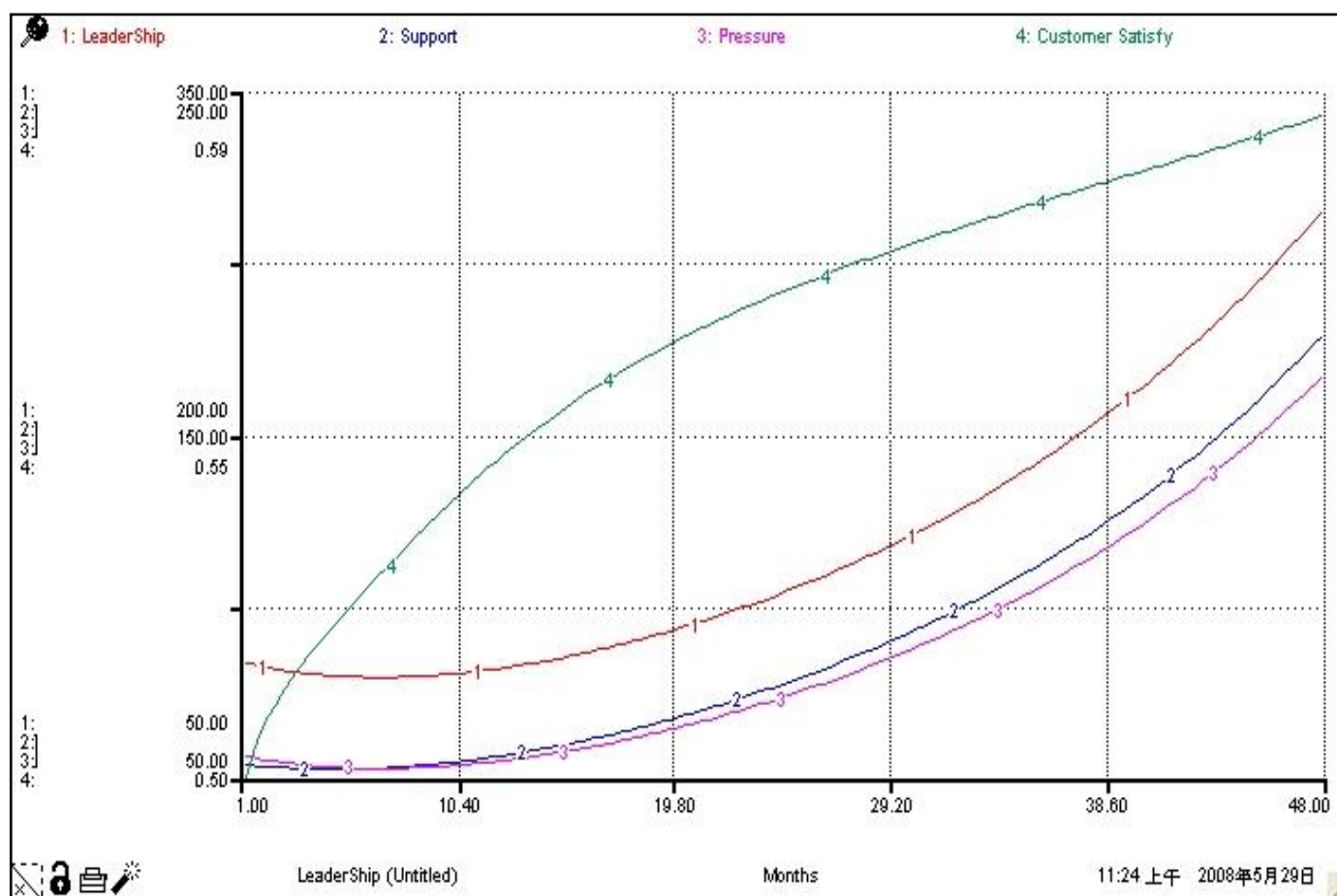


Figure 4. Simulation results (1).

morale, which in turn supports the flow “Key\_Source” in the “market information” sub-system of the next term.

In the “market information” sub-system, information-related capabilities of the level “Market” and flows “Key\_Source” and “Insufficient” decreased for 3 to 6 terms before stably rising through 30 terms, as shown in Figure 6. In other words, the company found previous misconceptions about customers after delving into the customers’ needs. Meanwhile, the updated market information that caused old ideas to be replaced with new ones, the information/latest news obtained from the external market, and the

ideas/experiences of research and development (R&D) department also helped the company capture the critical market information. Such an information-obtaining capability was reflected in the relative increase in patent value and success rate of new projects triggered by customers’ opinions and/or the demand of customers and market, which faced the same challenges with corporate innovation: the speed of industrial development, competitors’ improvements, and the test of time.

In the “technological innovation” sub-system, the increase in level “technology” and flows “Advancement” and “Change” indicate that

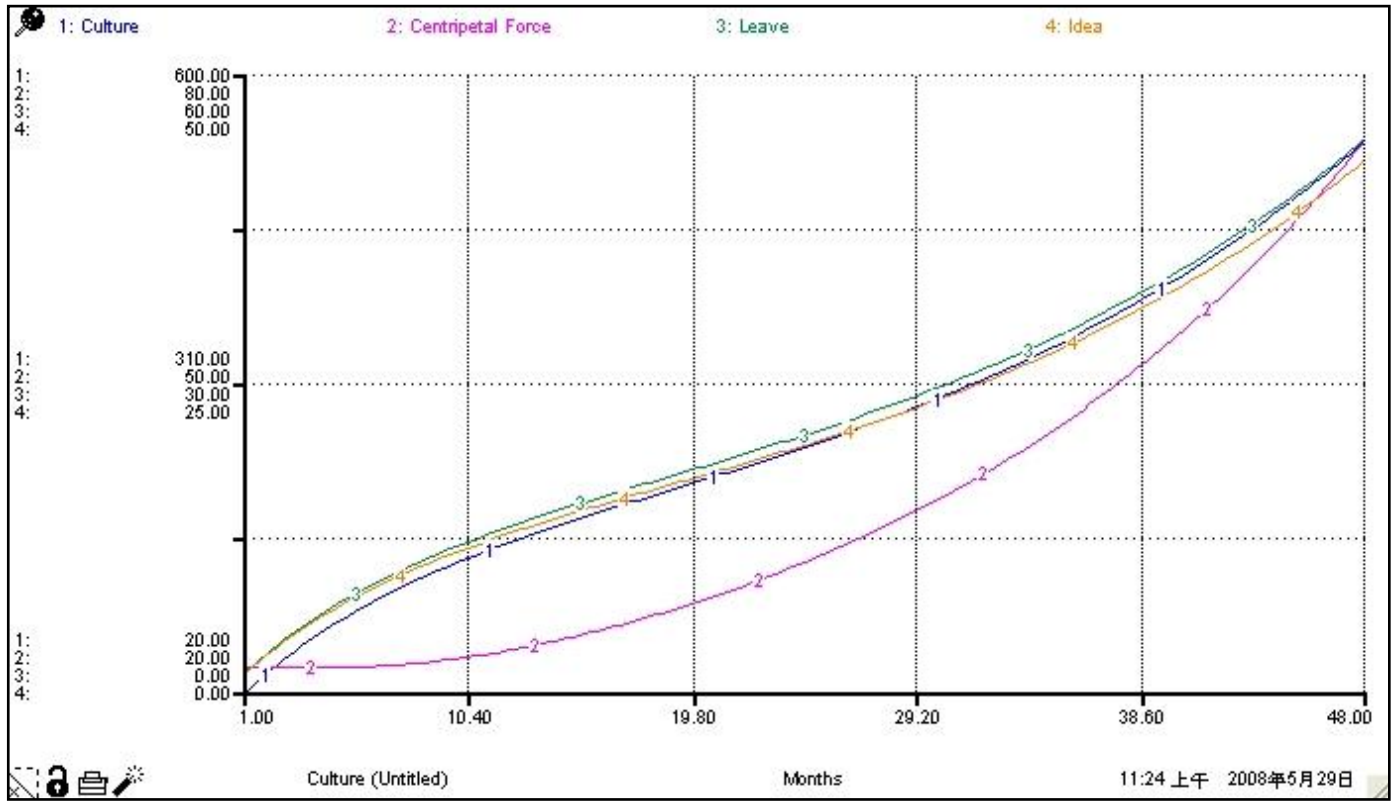


Figure 5. Simulation results (2).

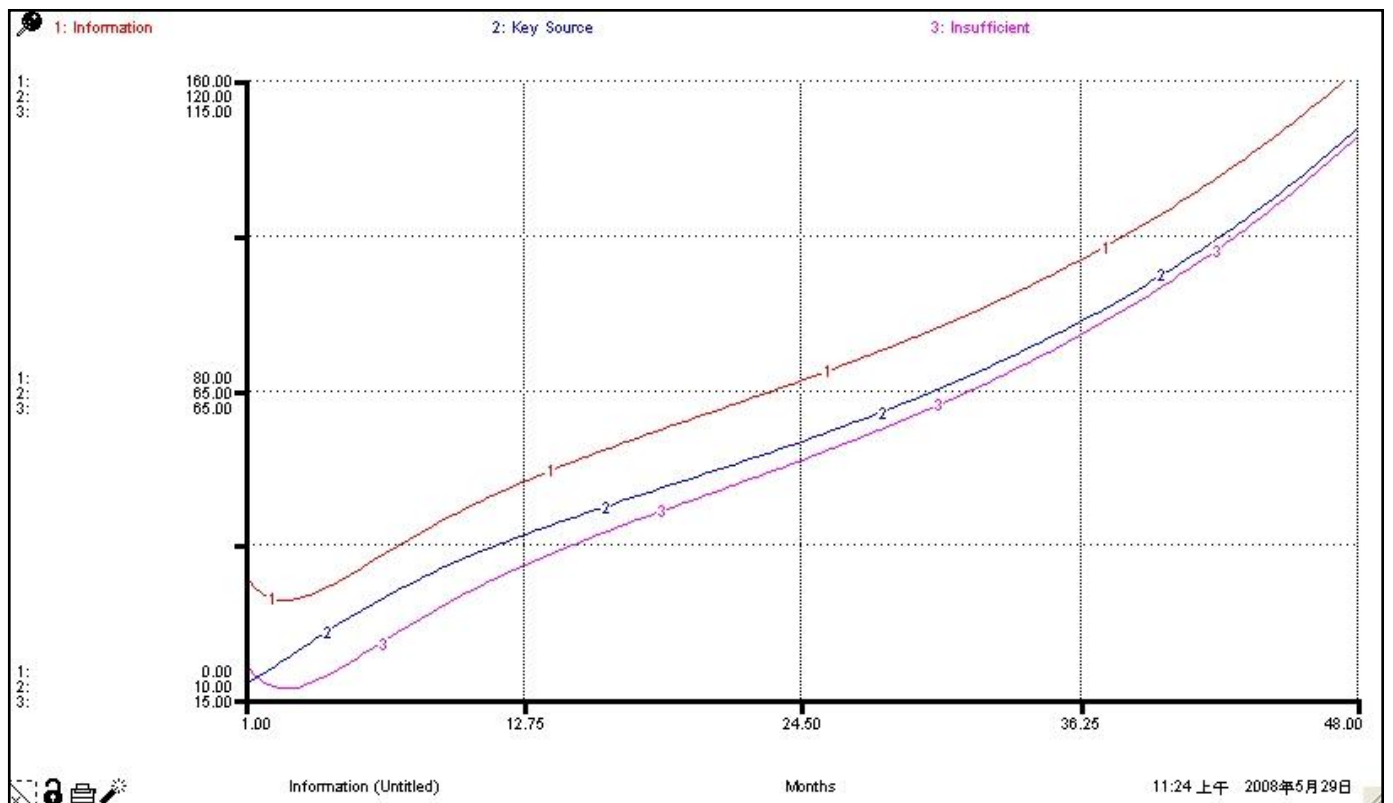


Figure 6. Simulation results (3).

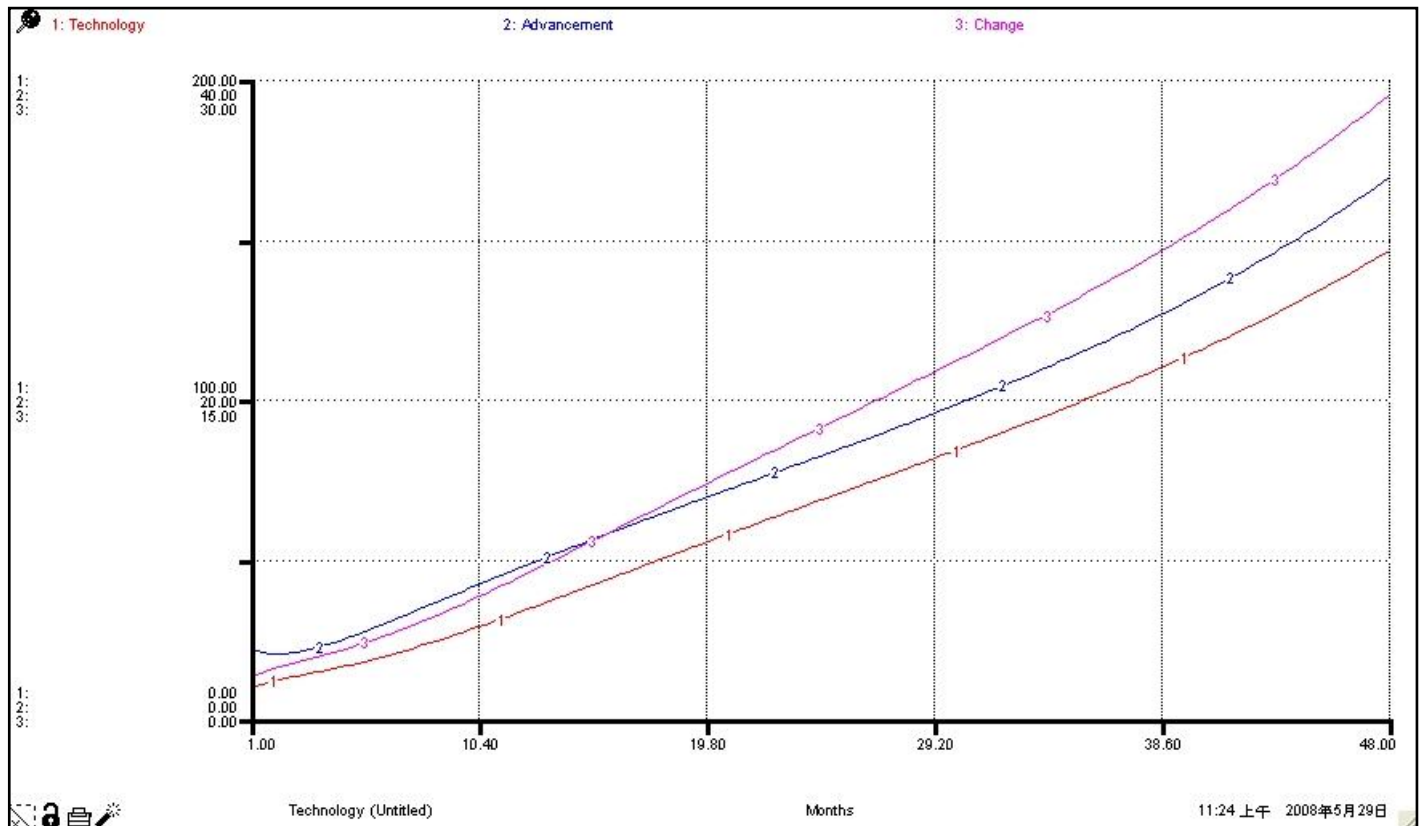


Figure 7. Simulation results (4).

technological advancements led to improved manufacturing process and product quality, which in turn resulted in product designs that meet customers' needs while demonstrating the characteristics of product leadership strategy (that is, differentiation, core competitiveness, and long-term commitment), as shown in Figure 7. The conversion factor "TechInfor\_Frc" and infinite network "Tech\_Frc" were designed to imply that a large part of the technological advancements and improvements/innovations of manufacturing process are resulted from the accumulated feedback of existing products/processes in terms of skills, experiences and knowledge. The exogenous variable "Competitor\_Frc" suggests the competitors' relatively improved technological capability; technological advances and technology replacement effect may reduce a company's technological competitiveness or, in some cases, put it out of business.

In the "product launch" sub-system, the level "Market" and flows "Available" and "Loss" emphatically defined corporate performance by the increase in types/quantity of newly launched product each term, the market withdrawal/recall rate due to failures, and the decrease in models launched each term. The exogenous variables "Market\_Rate" and "Loss\_Rate" represent the consumer preferences for products launched each term, as shown in Figure 8. The simulation results of level "Market" derived from technological innovations in each term also match the case study's actual data. Securing the market share with a massive number of new products in a short period of time pushed up the endogenous variable "Customer\_Satisfaction", a sign of good innovation capability. The confidence of external parties such as directors, investors, banks, creditors and suppliers, however, indicated the tangible results of post-reform innovation capability and brand image that satisfied customers' needs, which in turn constituted a feedback to support the rise in levels "Leader-Ship" and "Culture".

## RESULTS AND DISCUSSION

This study introduced a system that simulated the real behaviours in corporate-reform process under the hypothesis that, in a fully competitive environment, virtual data was used to simulate the strategically interactive dialogue among strategy, behaviours and output. Each stage of the process has a corresponding driving force and inhibiting factor(s) that constitute a typical pattern of successful corporate reform. The pattern formation is illustrated using causal feedback loops in Figure 2.

### Excellent leadership, a fundamental reform policy and the establishment of institution: Creating a domino effect and inside-out growth pattern

The critical success factors of corporate reform are excellent leadership, fundamental reform policies and the establishment of institution aimed for attaining specific objectives. First of all, a business leader must by all means gain a clear picture of the current conditions, the real causes behind problems, and the relation network formed by problems and the old institution. Secondly, the leader should look further into the real causes/relations, determine coping measures that address the roots of problems, draw up plans and a schedule of prioritized



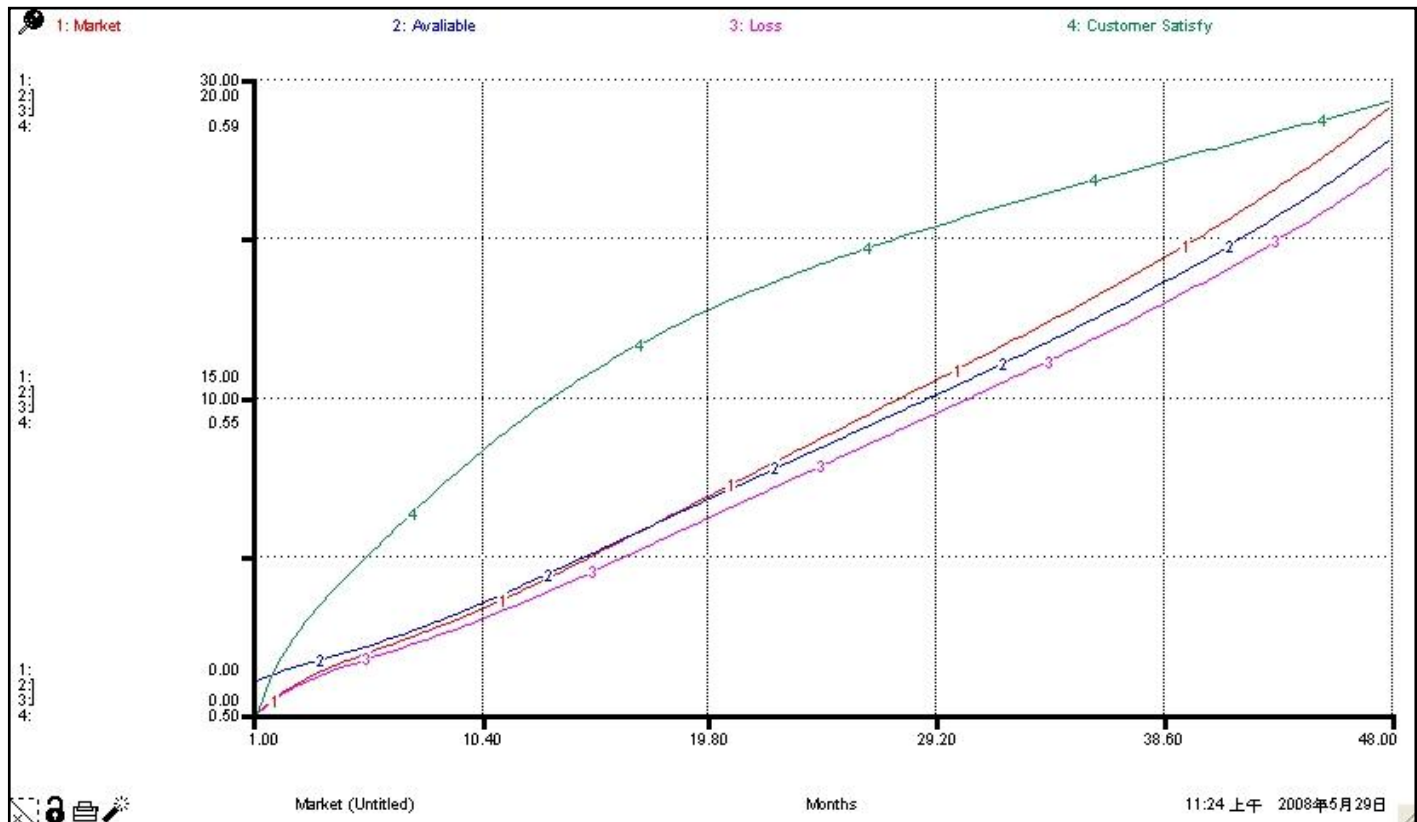


Figure 8. Simulation results (5).

actions, and take actions with the appropriate measures. Thirdly, the leader should set an example and value each employee with full authorization, achieve an inter-departmental balance opinion-wise, negotiate conflicts to maximize the organization's overall interests, focus on execution and performance, and adjust the execution plan based on the gap in actual and projected performances, so as to gradually win the support of all persons of interest.

#### Adjust the organization, reshape corporate culture and process: Building team spirit and creativity

By reshaping the corporate culture, a leader is able to adjust the organization/processes to improve the efficiency in utilizing various resources (for example, funding, labour force and technologies) and turn them into unique capabilities. Not only is a satisfying culture an important intangible asset that helps a business create knowledge, share resources and grow continuously, it also provides the foundation for innovation. When employees are offered an efficient institution (and corresponding processes) and identified with the renewed visions and proposed changes, they will naturally create a positive corporate culture and team spirit that inspire creativity as well as tangible concepts.

#### Speediness and market demand as the core of reform execution: Realizing customer value and reinforcing the return on investment

Differentiation is a major reason why consumers are willing to pay a higher price for new products/services. Since differentiation is the result of the extra value perceived by consumers, it takes the creativity of all team members to make an innovation. That is, the team members are expected to meet market demand as much as possible, listen to customers' opinions and turn customers' needs into the output of realized tangible value. A manufacturer may demonstrate reform-induced output increase through design and technological innovations, integration of capacities, simplified/improved manufacturing process, or enhanced yield rate. As a result, innovation is defined as a business' driving force behind improvement and also the best weapon against competitors. Because the value declines over time, speediness is the crucial factor for maintaining a competitive output. To ensure fast launch of products to bolster both the competitiveness and return on investment (ROI), delays should be prevented during a reform. For any event/phase in the reform process and at any given point of time, extra caution is required to avoid procrastination or failures, which may result from adjustments in customers' needs, technology bottleneck,

or the impact of competitors' advancements. Moreover, efforts are needed to reduce the probability of failures from product launch to mass production, such as the high manufacturing cost, low yield rate, customers' negative responses, product failure/return rate, the excessive gap between initial guaranteed cost and actual cost, customer grievances, accidents stemming from unsafe production, and environmental troubles.

## DISCUSSION

As the non-linear quantitative results and final data match much of that obtained from the case study, inferences concerning the overall system design and relationship among variables proved highly reasonable. In other words, there is dependency between the reform strategy initiated by the leader/corporate governance and the output that offers customer value.

The "loading factor" that affects the results of reform should include: 1) the leader adopts a business philosophy and conducts corporate governance according to a comprehensive view of the industry that meets market demand, builds sustainable feedback performance-wise and subsequently ensures continuous competitiveness; 2) a reform strategy is supposed to effectively create extra source of revenues to continuously and quickly launch attractive products while lowering the cost, so as to enhance both ROI and competitiveness; 3) it is imperative that the reform-induced competitiveness be effective enough to tackle the competition from rivals. Compared with competitors, the reform-induced core competitiveness and advantage should be able to win more transaction opportunities and satisfy customers. Whether a company is able to compete effectively against, or gain an upper hand over, its rivals' technological advancements with innovation capability is a crucial element of sustainable values.

In order to realize customer value, a business leader should scrutinize problems in the old institution before constructing efficient policy guidelines, amending the flaws and establishing policy loops for value realization, which is the critical factor of successful corporate reforms. To realize the customer value means to demonstrate in a tangible manner, a company's perception of innovation, brands and customers' needs. With such value realization reflected in the product/service quality, advancement and differentiation, the company take measures to improve customer satisfaction, making people willing to pay a higher price for its products or services. It is therefore imperative that the process of reform-induced innovation be linked to actual market demand, so as to develop an appropriate operating institution that shows benefits in the new products' characteristics, and restore confidence in consumers with enhanced product value. That restored confidence will in turn lead to performance growth as a part of feedback that bolsters the leader's policy and

corporate governance.

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**APPENDIX**

**Table 1.** Leading indicators of NISSAN.

Indicator	Perspectives	Strategy map	Strategy goals	Plan of execution
Leading product strategy	Financial Perspective	<ol style="list-style-type: none"> <li>1. Management the entire life cycle of the production costs.</li> <li>2. The profits from the new product</li> <li>3. The new product's net profit ratio</li> </ol>	NRP goal: Getting 22 new models in the market in three years and building brand identity	From October 1999 to May 2002, reached the first stage of NRP goal. Two brand identity – Consistent design style in Nissan & Infiniti.
	Customer perspective	<p>Consumer Value</p> <ol style="list-style-type: none"> <li>1. Top performance product</li> <li>2. First and new on the market</li> <li>3. Expand presence in the new market</li> </ol>	<ol style="list-style-type: none"> <li>1. Enhance product / portfolio performance</li> <li>2. Speed up getting product in the market</li> <li>3. Attract new targeted customers</li> </ol>	<ol style="list-style-type: none"> <li>1. Introducing new lines and reinventing current lines.</li> <li>2. Substantially reduce developmental time from concept drawing design to product into the market.</li> <li>3. Overseas investment, plant in Canton, Mississippi.</li> <li>4. Open up the world's largest automotive consumer market.</li> </ol>
	Internal process perspective	<ol style="list-style-type: none"> <li>1. Primary value proposition</li> <li>2. R&amp;D management</li> <li>3. Design and develop</li> <li>4. Bring the new products into the market</li> </ol> <ul style="list-style-type: none"> <li>* Forecast customer demand</li> <li>* Explore new business opportunities</li> <li>* Management portfolio</li> <li>* Identify opportunities for new products</li> <li>* Collaboration</li> <li>* Management product development</li> <li>* Reduce development time</li> <li>* Reduce development costs</li> <li>* Reduce mobilization time</li> </ul>	<p>Nissan's innovation:</p> <ol style="list-style-type: none"> <li>1. Focus on the new car design style</li> <li>2. Customer demand management</li> <li>3. Strengthen the R &amp; D, upgrade the existing state to the fullest</li> <li>4. Simplifying the process</li> <li>5. Shorten planning time</li> </ol>	<ol style="list-style-type: none"> <li>1. Designers fully participate from design to market.</li> <li>2. Get customer and market-specific cars rapidly to R&amp;D department.</li> <li>3. Discipline and development the high-performance products to reflect the global fashion perspectives.</li> <li>4. Focus on the development and manufacture of the new model.</li> <li>5. Japan, German, and the United States design center are jointly in the development process.</li> <li>6. Boosting research and development investment 25 %.</li> <li>7. Keep the same quality but simplify the parts.</li> <li>8. Simplify procedures in R&amp;D and manufacture process.</li> <li>9. Cut planning time from 60% to 5%.</li> <li>10. Increasing implementation time from 40% to 95%.</li> </ol>
Learning and Growth perspective	<ol style="list-style-type: none"> <li>1. Human capital</li> <li>2. Information capital</li> <li>3. Organization capital</li> </ol> <ul style="list-style-type: none"> <li>* Learning multi-skills</li> <li>* Stimulate creativity</li> <li>* Knowledge sharing and learning</li> <li>* Market control</li> <li>* Inquiry alliance and fast getting product to the market</li> <li>* Create and innovate corporate culture</li> <li>* Integrated development goals</li> </ul>	<ol style="list-style-type: none"> <li>1. Strengthen the R&amp;D abilities</li> <li>2. Departments support one and another</li> <li>3. Establish multiregional design team</li> <li>4. Fully empowering the people</li> <li>5. Alliance in development collaboration</li> <li>6. Reduce the number of manufacturing platforms</li> </ol>	<ol style="list-style-type: none"> <li>1. Abolished work-for-life system and senior executive positions were consolidated.</li> <li>2. Increasing more than 5,100 job opportunities in Japan and overseas.</li> <li>3. Stay put on engineering changes and marketing demands</li> <li>4. Stay put on consumer views for the new product / service.</li> <li>5. Employees can cross-functional sharing information, experiments, and improvement.</li> <li>6. Fully empowered command chief architect.</li> <li>7. Infinity creatively launching more than 30 new products.</li> <li>8. Using the existing platform to develop new model.</li> <li>9. Save the production time on the new platform from 30% to 50%.</li> </ol>	