Dynamic competitive Paradigm of Managing Moving Targets; Implications For Korean Industry*

Yu Sang Chang
(Visiting Professor, KDI School of Public Policy and Management)

Abstract: The new competitive paradigm of managing moving targets in the 21st century is being proposed. In the new era of rapid and volatile changes, whatever strategy you try, competitive advantage is tougher to create and sustain with each passing year. It is like in the world of professional baseball today, the world -class players not only need to hit better, but also field the balls better and run faster and steal more bases.

In this article, we will first review the past and present competitive strategies that have been developed for a stable and predictable environment. Each of the three competitive strategies of operational excellence, product leadership and the customer intimacy has been analyzed in terms of value chain activities required for its effective implementation. Effective implementation of respective competitive strategies seems to require a unique set of strategy mix as well as organizational structure. In addition, the concept of "core" and "supportive" activities are defined for the implementation of respective competitive strategy.

Key words: Dynamic competitive priority, Operational excellence, Customer intimacy, Product leadership, Integral organization, Modular organization, Hybrid organization

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Now the dynamic competitive paradigm of managing moving targets can be reformulated as that of replacing the "core" activity from the current competitive priority with the new "core" activity associated with the future competitive priority.

To elaborate, during this transition, the high risk of abrupt and wholesale change to the current strategy mix and organizational structure in use can be avoided. By modifying only the core activity in its value chain, an organization can make a smooth and effective transition.

Now the theoretical development of dynamic competitive paradigm of managing moving targets is complete, final part of this article will present practical implication for the benefit of leadership firms in Korea. In general, the leadership firms in Korea are in transition from the strategy of operational excellence they have pursued during the first thirty years of their operations into the strategy of product leadership in the last ten years. To ensure successful transition, they need to understand the concept of selected replacement of core activities in their value chain. They also should be aware of the option of implementing separate competitive strategy for the segmented market. Finally, they should take advantage of their capability for rapid implementation during this transition.

Ⅰ. Introduction

A new competitive environment is unfolding in the 21st century driven primarily by technological changes and increasing globalization. The widespread use of the Internet which is symbolic of technological revolution is accelerating this trend. A rapid processing and communication of information has increased the innovation and diffusion of many new and old technologies and shortened product life cycle.

Advances in information technology also made it possible for firms large and small to expand their international businesses. The opening of Russia, China, India and other countries previously closed in international commerce is expanding the market toward one single market. In this highly volatile new competitive

environment, firms face much more risk, unpredictability, and discontinuities. Thus, what may be required is a new paradigm to compete.

This new paradigm may simply be described as managing to hit moving targets (Hof,2006). In the new era of rapid and volatile changes, whatever strategy you try, competitive advantage is tougher to create and sustain with each passing year. "So the smartest companies are learning to create new ones –again and again and again"(,Hof,2006,p.1). It is like in the world of professional baseball today, the world -class players not only need to hit better, but also field the balls better and run faster and steal more bases.

In this article, we will begin with a brief historical development of several large Korean businesses, and then describe the new world of dynamic and turbulent competitive requirements that they will be facing in the future. In order to project the future strategy and organizational structure choices for these firms, we will review the past and present competitive strategy that have been effective in a more stable and predictable environment. Finally, we will provide alternative approaches of managing moving competitive targets in the future.

Ⅱ. Dynamics of Competitive Uncertainty and Discontinuity

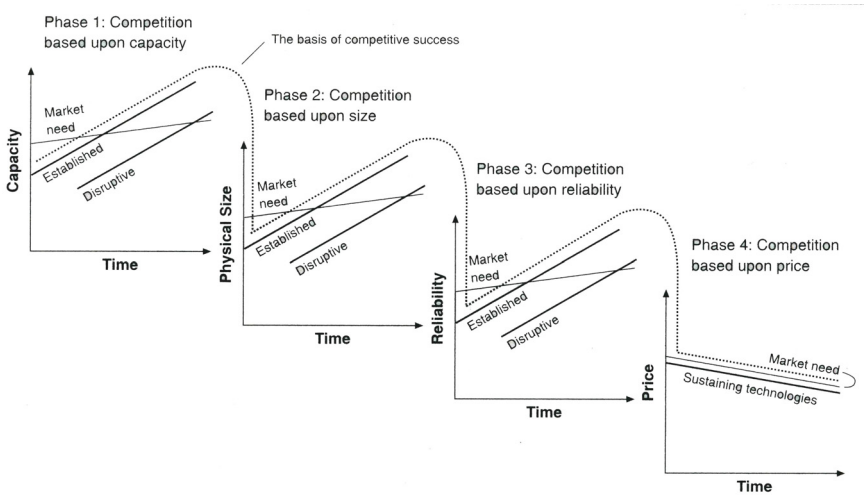
How quickly do moving targets change? And when the competitive priority does change, how long des it take new one to replace the past priority? What are the impacts of moving targets to firms operating in industry? These are essentially empirical questions. When the competitive environment is stable and predictable, these questions may not be critical. However, in the technology life cycle where environment undergoes radical changes, these questions become critical and thus are subjected to

a number of past studies.

One early study of evolving competitive priorities following technology life cycle have been initially observed by (Abernathy and Utterback, 1978). During initial period of fluid pattern, competitive priority is to improve functional performance such as speed and size. And then, the priority usually shifts to product variation in the next period of transitional period. Finally, when standard design is settled, the priority again shifts to cost reduction in the final period of specific pattern.

Christensen (1997) has shown the evolution of competitive priority over the product like cycle of disk drive industry from capacity in 1st phase to physical size, reliability and finally to price as shown in Figure 1(Christensen 1997,p.216). A similar pattern of shifting priority over the technology adoption cycle indicates that the priority of product functionality in the first phase moves to reliability, and then to convenience in the maturity phase (Moore, 2002).

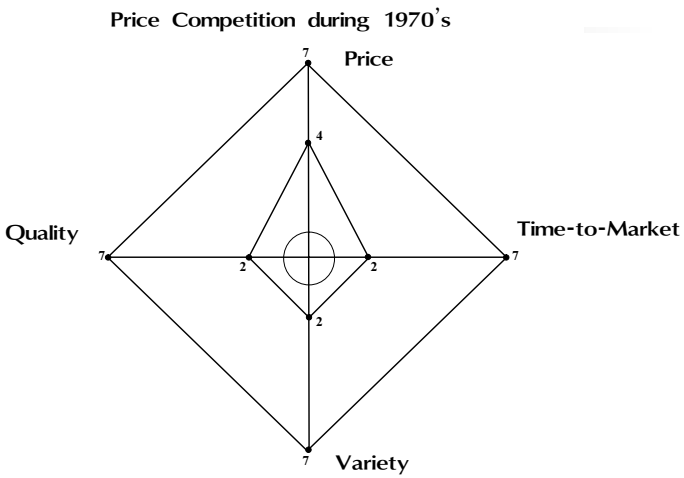
Figure 1. **Changes in the Basis of Competition in the Disk Drive Industry**



(Source: C. M Christensen The innovator's dilemma,1977, p. 216)

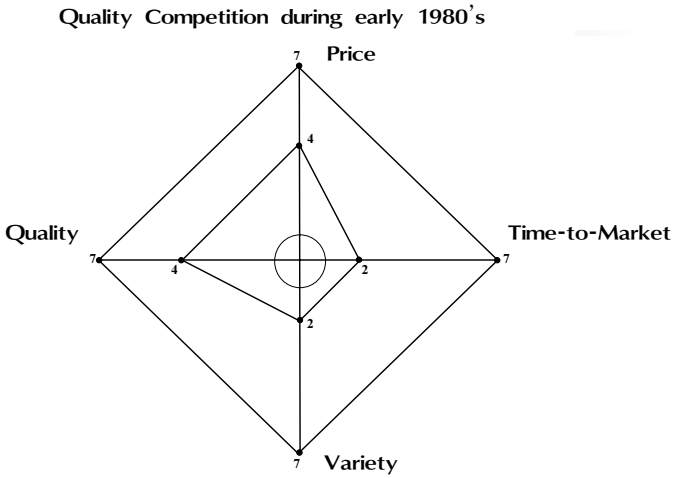
Another evolving concept of competitive priority not associated with the product life cycle has been presented by Hayes, Pisano, Upton and Wheelwright in 2005. In describing the evolving bases of competition for American industries in the previous twenty-five years, they note that the competitive priority in 1970's was in price, "as other dimension like defect levels, breath of product line, delivery times, and even the rate of new product introductions tended to be roughly similar across companies" (Hayes, et al., p.7). The price as the competitive priority has been shown in figure 2, where the price is rated 4 which is higher than ratings of 2s given to other criteria.

Figure 2.



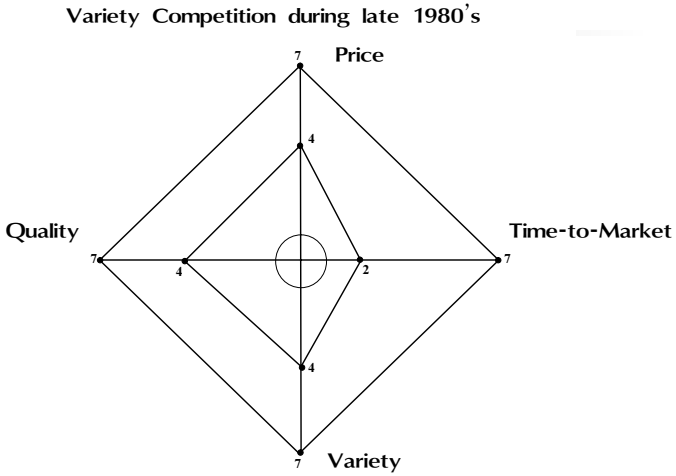
In the 1980's, however, the base has shifted from price to quality, to counter, for example, much more reliable Japanese and high quality German automobiles flooding the U.S market. In other words, quality has become the top in customer preference rankings, and become the main stage of competition. This is shown in figure 3.

Figure 3.



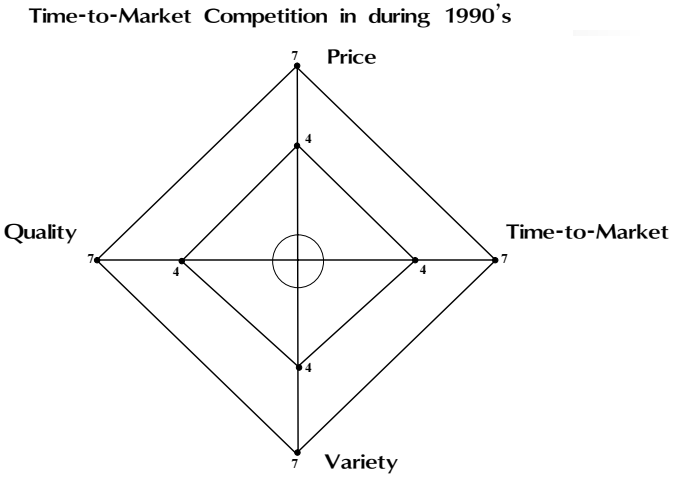
As U.S companies began to catch up and close the quality gap, another competitive battleground began to emerge in product variety. For example, customers in the U.S. automobile market were able to select from over 600 different kinds of cars in the late 1980s compared with only five basic types of vehicles available in the 1970s. The best selling car in the year of 2000 was about 400,000 units, where as in the early 1970s, the most popular automobile sold about 1.5 million units. In another example, "Seiko watch developed the capability to introduce a new model of watch every working day, and to change its assembly line from one model to another in a few seconds." (Hayes et al., 2005, p.8). Again figure 4 represents this new priority of variety.

Figure 4.



The basis of competition began changing again in 1990s when the best companies began to cut their time to market new products or modified old products by half of more. What it used to take 6 or more years to introduce a major change in automobile platform was reduced to 3 year or less and further down to less than 2 years as shown in figure 5.

Figure 5.



By the end of the 20th century, many surviving companies have narrowed their quality gap, increased product variety and reduced the time to market drastically. And now, the same "full circle" of evolving bases of competition may be beginning again. Global over-capacity of production facilities is shifting the base of competition back to price. A very large pool of low-cost workers, technicians and engineers available in India, China, Eastern Europe and Latin America provide opportunity to accomplish a dramatic cost reduction. as shown in figure 6. At the same time, ever-higher requirements by customers in quality, variety, speed will challenge businesses to meet them all in the future and continue the full cycle again, as shown in figures 7and 8.

Figure 6.

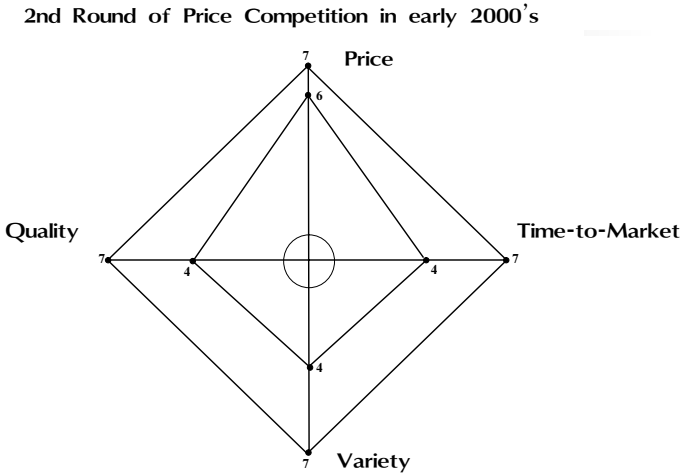


Figure 7.

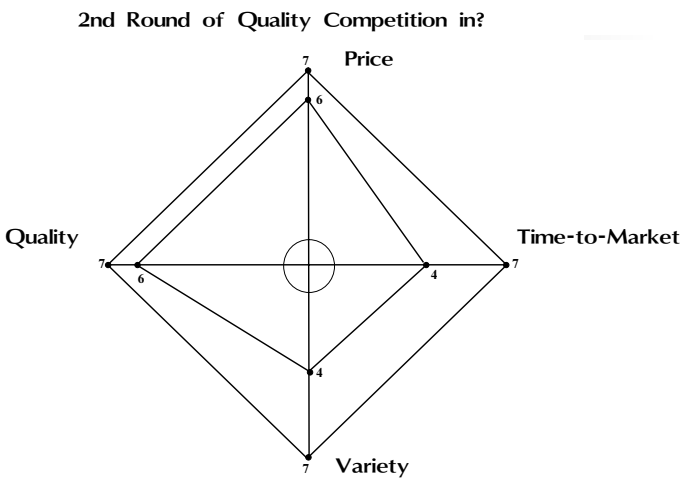
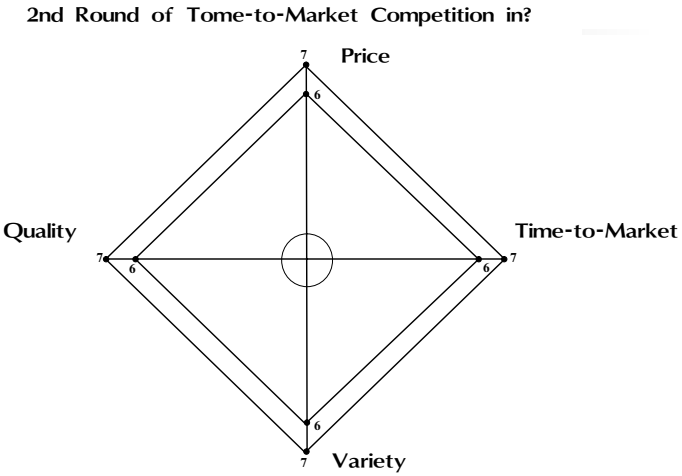


Figure 8.



This analysis suggests that evolving competitive base is not exclusively driven by product life cycle. Rather, the evolving base is driven by global competitive force as well by changing consumer preferences. In other words, evolving competitive base today are impacting all types of industries of fast-cycle such as electronics and communication as well as slow-cycle such as in automobile, shipbuilding, and steel.

The truth of matter is that we do not fully understand the forces responsible for the migration of competitive priority. Thus it is difficult to predict which future priority will replace the present priority and when. Under the circumstance, the important requirement for leadership firms is to develop and expand their dynamic capability (Eisenhardt and Martin; 2000; Teece, Pisano and Shauen, 1997). In other words, be ready with appropriate strategy and organizational structure which are needed to manage the changing priorities in timely and effective manner. This subject will be examined after current approaches

of managing competitive priority in a stable and predictable world are developed.

Ⅲ. The competitive paradigm in a stable and predictable environment

The best known competitive paradigm in a stable and predictable environment has been offered by Porter (1980; 1985) in which firms are advised to select one competitive priority from the three generic strategies of cost leadership, differentiation or focus. Porter's framework has been expanded to ten attributes demanded by the market as shown in Table 1 by Hill (2000).

Table 1. Hill's Ten Qualifiers and Order Winners

1) Price
2) Conformance Quality
3) Delivery Speed Reliability
4) Demand Increase
5) Color range
6) Product range
7) Design
8) Brand image
9) Technical support
10) After-sales Support

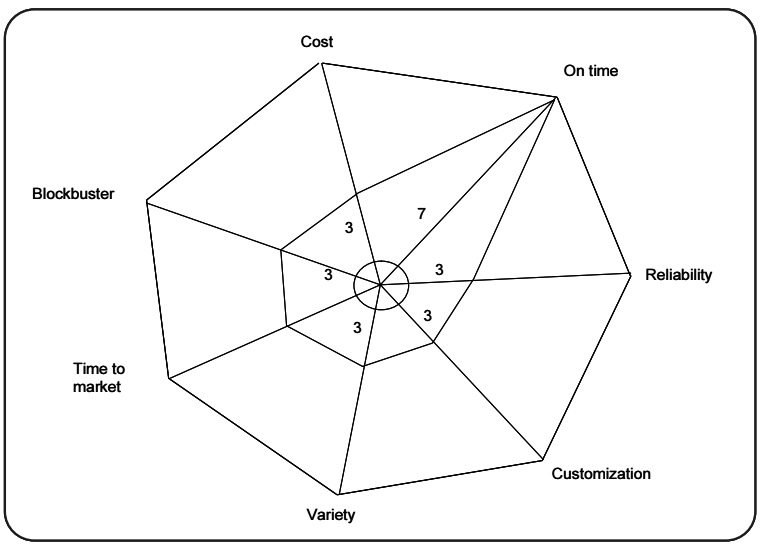
According to Hill, a firm must match the levels of performance that are being offered by the competition in many if not all of these attributes to get in and stay in the market., and these attributes are called order qualifiers. In addition, the firm must provide much higher level of performance in a critical attribute than the competition in order to win the order. What attributes are qualifiers and the order winner will vary by product/service being offered and may be subjected to change over time.

When the environment is stable and predictable, these com-

petitive frameworks by Porter, Hill and others have been quite useful. Treacey and Wiersema (1993) have presented even more pragmatic framework of three alternative approaches of competition called value disciplines of operational excellence, customer intimacy and product leadership which are being pursued by some of the leading businesses in the world.

For example, as an operational excellence firm, Federal Express excels on on-time delivery of packages as the order winning priority, while performing adequately in other priorities such as price, service, variety, as well as on time to market for new service. This competitive profile of FedEx is shown in Figure 9, where the maximum rating of 7 given to on-time delivery indicates the order winning performance.

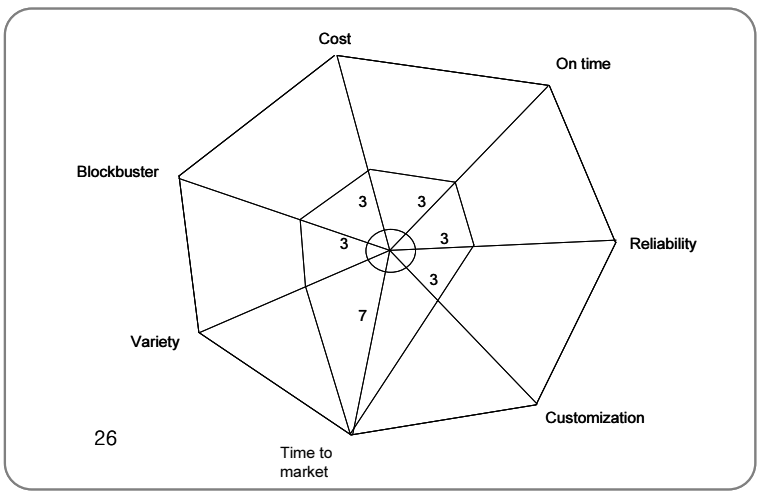
Figure 9. Competitive profile of FeDex



(Source: Chang, 2006)

As a product leadership firm, Intel excels in its time to market for new micro processor chip as the order winner, while performing adequately with respect to its competitors in terms of price, on-time delivery, product variety, etc, as shown in Figure 10.

Figure 10. Figure 2 Competitive Profile of intel

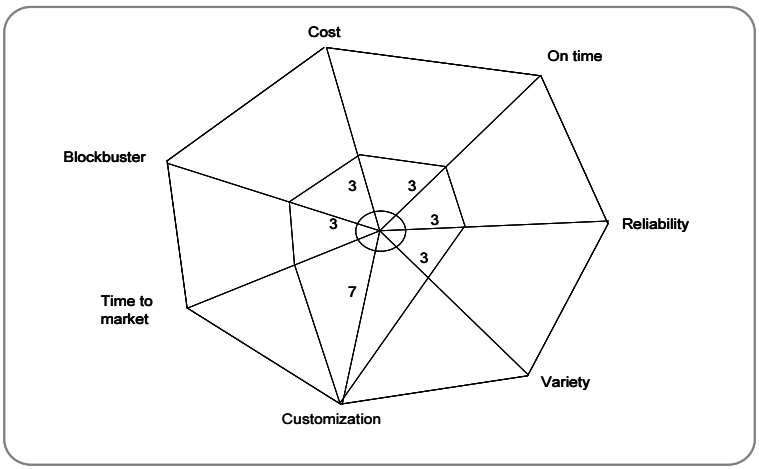


(Source: Chang, 2006)

Representing customer intimacy category, Dell excels in providing maximum number of product variety in its computer offerings on-line as the primary order winner.

At the same time, Dell provides competitive price, on-time delivery as well as in other priorities with respect to its competitors. Dell's competitive profile is presented in Figure 11.

Figure 11. Competitive Profile of Dell



(Source: Chang, 2006)

Table 2 lists some other leadership firms whose specific order winning priorities or attributes are grouped under each of these three value disciplines of operational excellence, customer intimacy, and product leadership.

Table 2. Competitive Priorities under 3 Categories

[Operational Excellence]

Wal-Mart	Cost
FeDex	On-Time
Toyota	Reliability

[Customer Intimacy]

Dell	Customization
Flextronics	Variety
Home-Depot	Service

[Product Leadership]

Intel	Time to Market
Pfizer	Blockbusters
Microsoft	Ease of Use

(Source: Chang, 2006)

Ⅳ. Analysis of competitive strategies and organizational structure of successful leadership firms

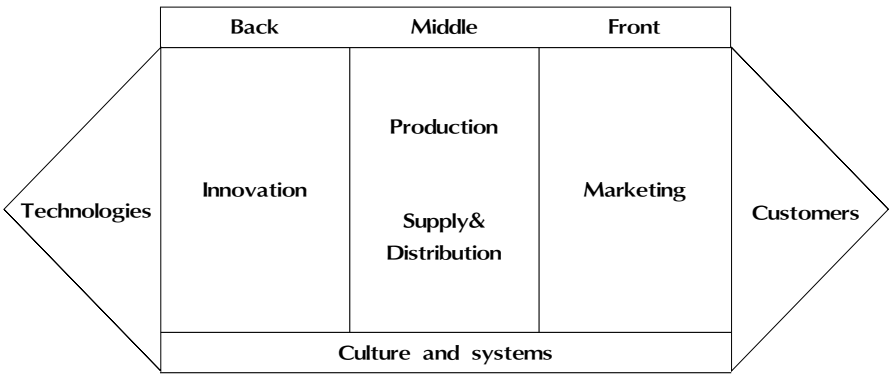
How did Wal-Mart, Federal Express, and Toyota become the masters of operational excellence? What are common strategies and structure of Dell, Home Depot, and Flextronics who are the best-known leadership firms in customer intimacy? What about the keys to success of Intel and Microsoft in product leadership category?

Becoming an industry leader, according to Treacy and Wiersema, requires a company to choose one particular approach from the three categories that takes into account its capabilities and culture as well as competitors' strengths and customers' needs. And then, leaders must stay focused to the selected approach by aligning the entire organization and continue to improve and develop new capabilities to maintain its leadership position.

However, in order to identify what are common and what are different among these firms, we will need to get inside as well as outside of these organizations to learn how they actually manage their key activities and functions to become the leaders. Figure 12 presents a framework for a simplified value chain highlighting the five most important activities or functions that seem to be driving a typical modern business organization.

In the "front" of the organization facing customers is marketing and sales function interfacing with the customers. In the "back" is where the new products and processes are being developed by tapping into the science and technology world existing outside of the firm.

Figure 12. Overview of Five Business Functions



In the "middle" of the organization, production and supply chain infrastructures are sourcing, making, and distributing products and services. Supporting and coordinating all these functions is the corporate culture and systems at the foundation.

The critical question is how do these five functional activities are being aligned and managed to execute a selected competitive strategy. For example, how do firms like Wal-Mart and FedEx manage these activities in pursuit of the operational excellence goal? How similar or different are these two? What about Dell and Flextronics who are focused on the goal of customer intimacy. The same question can be raised for those product leadership companies such as Intel and Microsoft versus customer intimacy firms and operational excellence firms.

There may be three fundamental policy choices that will differentiate these three groups of leadership firms. They are respectively the relative importance of the customer's role, the degree of collaboration, and the methodology used for continuous improvement.

The importance of the customer's role is viewed as central to management of all organizations today (Day,1990; Day 2002;

Galbraith,2006). However, there may still exist some significant difference in the relative importance of the customer' role which can be described as the choice between push to customer vs. pull by customer (Booz Allen Hamilton,2004;Ohno,1988; Womack,et al., 1990; Womack and Jones,2003).

Equally critical to the operation of firms today is the management of its ecosystem or network both within and outside of the firm (Achrol and Kotler, 1999; Galiesh and Gilbert, 1998; Gulati, et al, 2000; Snow et al , 1992). Again, there exists a significant difference in how these relationships are being managed which may be characterized as tight vs. loose coupling or collaboration. (McEvily and Marcus, 2005; Sanchez and Mahoney, 1998; Schilling and Steensma, 2001).

Finally, the necessity of continuous improvement as a survival issue is fully recognized by all organizations. (Deming, 1986; Ishikawa, 1985; Juran, 1989; Laboritz, Chang and Rosansky, 1993). However, the difference of how to improve may lead to a choice between learning by doing vs. learning before doing (Benner and Tushman, 2003; Pisano, 1994) or learning by studying. These three choices are shown in Table 3.

Table 3. Three Basis Strategy Choices

Push	vs.	Pull
Tight	vs.	Loose
Improve by Doing	vs.	Improve by Studying

When these three strategy choices are applied to the five basic functions or activities identified earlier, the resulting combination is a two by ten choices for push vs. pull and tight vs. loose. In the choice of improvement methods, the distinction among the five functions does not seem to add any value and thus is not made. The results are shown in Table 4. I have tried to use those

terminologies which are more likely in use in industry wherever possible.

For example, instead of using a generic choice of loose versus tight collaboration in innovation, the terminology used in industry is open versus closed innovation. Or in stead of tight production, the term in use in industry is integrated production.

Table 4. Application of Three Basic Strategy Choices

Strategy 1) Push vs. Pull
1. Technology Push vs. Market Pull
2. Production Push vs. Order Pull
3. Distribution Push vs. Order Pull
4. Marketing Push vs. Customer Pull
5. System Push vs. Environmental Pull

Strategy 2) Tight vs. Loose
1. Closed Innovation vs. Open Innovation
2. Integrated Production vs. Modular Production
3. Tight Vertical Supply Chain vs. Loose Supply Chain
4. Integrated Marketing vs. Modular Marketing
5. Tight Relationship System vs. Loose relationship

Strategy 3) Improve by Doing vs. Improve by Studying

By using the three basic strategy choices of Table 4, I am now ready to analyze the specific firms cited as the leaders earlier.

Let us take FedEx Express, a core company in the FedEx organization as an example. Their production is that of moving over 3.3 million packages from one location to another each day. The production strategy is to “push” these packages out to their destination at maximum speed. This requires a close and tight integration in the sequence of pickup, storing, flying, sorting, and

delivery. Thus, production organization may be described as a line process, much like an automobile assembly line or even an oil refinery.

FedEx's supply chain also employs distribution push and close internal collaboration strategy. In fact, nearly all of the assets in the chain are directly owned by FedEx, including 671 aircrafts and more than 42,000 motor vehicles, 894 operating stations, staffed with 140,000 employees around the world. Supply chain structure can thus be described as an integral chain where all the elements in the integrated supply chain will work as one synchronized system.

The new product and process innovation at FedEx will also reflect their closed and technology push innovation strategies. Each new innovation is aligned carefully to improve their on-time delivery goal. Thus, their innovation structure can best be described that of integral design.

The marketing and sales strategy is also to push their on-time services to their customers to leverage their strategies in other operating functions. Again, their marketing structure is integral, where their own in-house sales force is being used for the maximum impact.

Finally, FedEx's culture may be based on the "push" ideology that they are the "best" in the world in moving packages from one place to another for perfect on-time delivery. Thus, FedEx's culture recognize that in order to keep doing the job better, they need to encourage and promote internal collaboration among different departments to remove all the walls separating them within FedEx organization and to make them function seamlessly as one system.

As for the methodology of continuous improvement, FedEx seems to emphasizes both learning by doing and learn before doing. Being the first Baldridge prize winner in service industry in America, they are well-versed in the learning by doing method-

ology of total quality management. At the same time, they have invested millions in modern information technology to maximize learning before doing by benchmarking other pioneering firms as well.

The strategy choices being made at FedEx are to push and leverage the technology, production, supply chain, and marketing in a tight collaboration among these divisions in order to maximize on-time delivery performance. The resulting organization structures are integrated system design, integrated production and supply chain as well as in marketing. In other words, FedEx can best be described as an integrated organization.

In summary, I am ready to propose the overall organizational strategy and structure as largely integral, as outlined in table 5.

Table 5. Integral Strategy and Structure of FedEx
Competitive priority — on-time delivery

	Product/process Innovation	Production	Supply chain	Marketing &Sales	Culture
Strategy Ⅰ	Technology push	"factory" push	Distribution push	Marketing push	"the best" in the world
Strategy Ⅱ	Closed Innovation	Close Internal Collaboration	Close In-house Chain	Close In-house System	Close Internal Collaboration
Strategy Ⅲ	Learning by Doing				
Organizational Structure	Integral Design	Integral Line Production	Integral Supply Chain	Integral Marketing System	Integral Organization

(Source: Chang, 2006; Farhoomand, 2000)

Before I discuss how customer intimacy leaders like Dell and Flextronics manage their major functions, I need to discuss other firms who excel in the same operational excellence category such as Wal-Mart in low price and Toyota in high reliability are being

managed. Again, Treacy and Wiersema made a simple observation, when they said that "business systems at Federal Express, American Express, and Wal-Mart, for example, are strikingly similar because they all pursue operational excellence. An employee could transfer from FedEx to Wal-Mart and, after getting oriented, feel right home. Companies that pursue the same value description have remarkable similarities, regardless of their industry." (Treacy and Wiersema,p .85).

In fact, in my own analysis of Wal-Mart's management, their three strategies and structure on the five basis functions at Wal-Mart are remarkably similar to those at FedEx. In fact, Table 5 for FedEx can nearly be duplicated for Wal-Mart by replacing the competitive priority as lower price instead of on-time delivery.

The competitive implication of this observation can be profound. First, it suggests that a leadership firm can switch rather quickly from one competitive priority to another under the same category. So that when a competitive move is called for in another priority due to changing competitive moves or by changing customer requests, one can respond rather quickly.

Second, when a switch is made, the performance on the prior priority may not necessary suffer. Rather, the leadership firm may be able to add a significantly better performance on the newly selected priority as well as retaining the past performance level in the prior priority.

Third, extending this logic, it should be possible to gain stronger performance levels in all the operational excellence priorities because they may require the same sets of strategy choices and organizational structure. In other words, FedEx may have leaned to expand their capability to be excellent performer in on-time as well as low cost and high reliability.

It is not suggested here that excellence in all priorities will happen automatically from being excellent in one priority. What

is being suggested is that strategies and structure that have developed under an integral organization provides a solid foundation to pursue excellence in other priorities in time as long as they are under the same value discipline.

As important are these competitive implications, even more critical question deals with difference and similarity of strategies and structure between the discipline of operational excellence and customer intimacy. In other words, can a leadership firm switch from operational excellence to customer intimacy and if so, possibly to be able to do both equally well?

In order to pursue this issue, I present a summary of Dell's strategies and structures in Table 6. Dell symbolizes what mass customization business can be by being able to offer thousands of different combinations of a given PC model without raising price. Dell has been able to overcome this paradox of customization at mass production price by going direct to customers, specially to their institutional customers. Dell has been expanding their capability to know their customers' needs better than perhaps, customers themselves by using such on-line ordering and monitoring system as Premier Dell.Com. by which customers can track their thousands of past purchases, which may be scattered throughout the globe.

Table 6. Modular Strategies and Structures of Dell
Competitive priority — on-time delivery

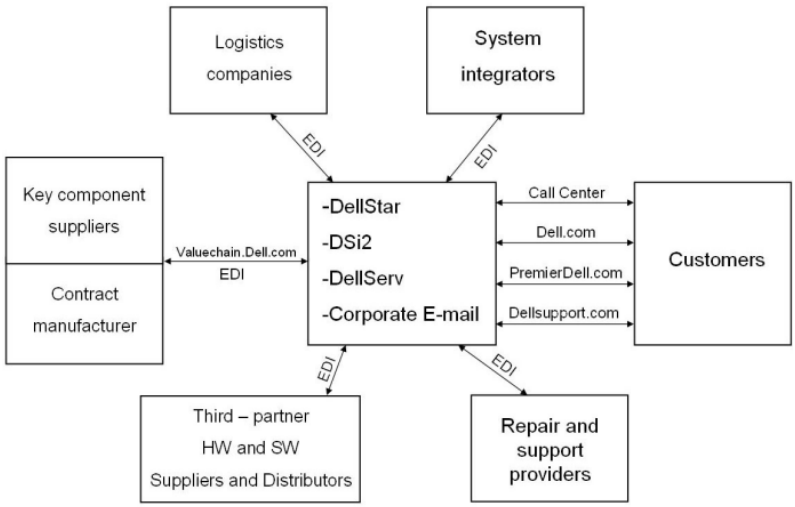
	Product/process Innovation	Production	Supply chain	Marketing &Sales	Culture
Strategy Ⅰ	Customer pull	Order pull	Order pull	Customer pull	"Customer centric"
Strategy Ⅱ	Open Innovation	Open factory	Open Collaboration	Direct to Customer	Open Collaboration
Strategy Ⅲ	Learning by Doing as well as Learning before Doing				
Organiza-tional Structure	Modular Design	Modular Batch	Modular Supply Chain	Modular marketing	Virtual Organization

(Source: Chang 2005; Rangan and Bell, 2002)

Many institutional customers can dispense with their own purchasing approval system by having their employees use Dell's purchasing approval system which has been developed to replace their customers' system.

By using the maximum power of information technology network linking all of the key players such as major suppliers, contract manufactures, repair organizations, and system integration consultants, as shown in Figure 13, Dell has been able to outsource many of its operating tasks.

Figure 13. E-Commerce model of Dell



(Source: Chang, 2005, p. 155)

Dell has been able to increase its capability of operational flexibility that is necessary in handling hundreds of thousands of customized orders each day. this type of virtual organization enable Dell to outsource most of production of parts, components, distribution, warehousing, repair and consulting, yet keep control of critical information necessary to maintain high customer satisfaction. In other words, strategies and structures in all five basic functions of Dell are basically modular.

With modular design and modular organization, Dell is able to outsource nearly all of its design and production of key components and software and is able to rapidly recombine outputs from these outside firms to deliver a wide range of customized products to customers all over the world.

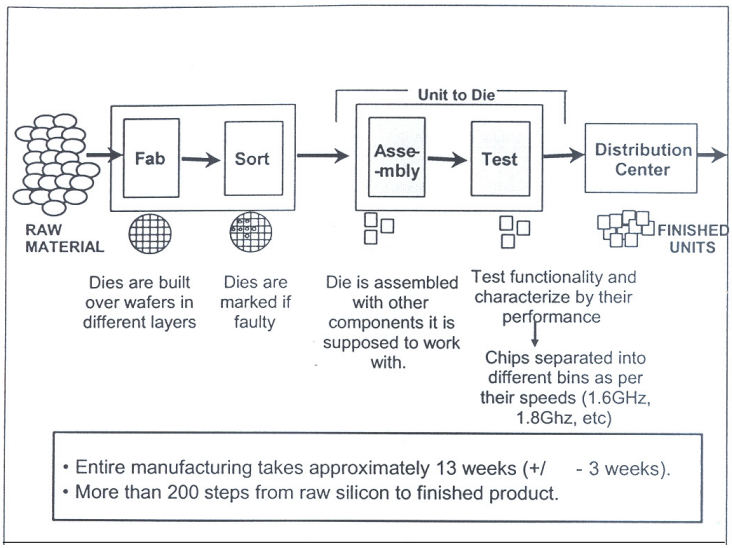
The issue to be discussed is; what about other leading firms in this value discipline of customer intimacy? Again, the same answer is likely to other customer intimacy leaders such as Home Depot or Flextronics in that their strategy and structures may be

strikingly similar, if not identical to Dell. In other words, they are modular organizations.

Finally, we are ready to examine strategies and structures of companies like Intel, Pfizer, and Microsoft-those pursuing the third value discipline of product leadership. As a representative firm in this group, I shall examine Intel, a world leader in microprocessors and their platforms. Ever since Intel introduced its first microprocessor in 1971, it has been introducing new generations of chips about every two years, and each time doubling the size of memory and also the speed of chips. This remarkable accomplishment is known as Moore's law in the industry. By being the first to market each generation of new chips, Intel has been able to dominate the industry with market share of 70 to 80 percents.

The following figure 14 briefly outline Intel's supply chain extending from buying silicone materials to shipment of finished chips to ultimate customers. It is important to note that Intel operate its own fabrication and testing factories for core products, even though a large fabrication plant can cost up to $3 billions today. This is in contrast with others who outsource some or all of their manufacturing. Intel's fabrication plants are scattered over seven states in America and two abroad, while its assembly and testing facilities are in two states and five countries abroad. Intel's distribution network is made up of global, geographic and regional warehouses adding to the complexity of its supply chain "However, through its scale of operations, the agility of its factory network, and consistent execution worldwide, the company managed to run this complex chain seamlessly" (Erhun, et al. 2005, p.3). In other words, Intel's production and supply chain are being run to push inventory in tight collaboration. I other words, organizational structures of production and supply chain may be described as integral.

Figure 14. Chip Manufacturing



(Source: Erhun, et al. 2005, p. 17)

However, in dealing with as many as 75,000 resellers worldwide and in particular with thousands of important original equipment manufacturers such as Dell and Hewlett Packard, it is critical to listen closely to their needs and requirements. In other words, Intel needs to pursue the value discipline of customer intimacy and corresponding strategies and structure in its sales and marketing as well as in product development. "For Intel, the key behind shortening the time-to-market cycle was collaborative product development getting customers and manufacturing involved early in the design cycle"(Erhun, et al.,2005,p.4). Intel is also expanding its collaboration with universities and other high technology startup firms in its exploratory research, although its bulk of research is in support of extending Moore's law (MacCormack and Herman, 2004). In other words, Intel's innovation appears to rely on both open and closed strategy. In short, Intel's marketing

and innovation appear to employ both tight and loose collaboration, although the basic objective is to shorten the time to market goal by pushing the product out to the market,

Put it another way, Intel and other leaders pursuing product leadership discipline may be described as a hybrid organization (Doty, et al. 1993; Ebben and Johnson, 2005; Hennart. 1993; Powell, 1987) standing between integral organizations such as Wal-Mart and FedEx and modular organizations such as Dell and Flextronics. Details of my propositions on Intel are outlined in Table 7.

Table 7. Hybrid Strategies and Structure of Intel
Competitive priority — time-to-market

	Product/process Innovation	Production	Supply chain	Marketing &Sales	Culture
Strategy Ⅰ	Technology push	"factory" push	Distribution push	Marketing push	"the most creative" in the world
Strategy Ⅱ	Open Innovation	Tightfactory	Tight & loose Collabora-tion	Tight & loose Collabora-tion	Moore's law
Strategy Ⅲ	Learning by studyingLearning by Doing				
Organiza-tional Structure	Integral Design	Integral Production	Modular Supply Chain	Modular Marketing & Sales	Hybrid Organization

(Sources: Erhun, et al, 2005; MacCormack and Herman, 2004)

Now I am ready to summarize competitive paradigm for each of the three value disciplines in Table 8.

Table 8. Types of Competitive paradigms

① Operational Excellence → Systemic Integral Organization
Push Strategy Tight Strategy Improve by Doing Strategy
② Product/Process Leadership → Hybrid Organization
Push-Pull Strategy Tight-Loose Strategy Improve Before and Doing Strategy
③ Customer Intimacy → Modular Organization
Pull Strategy Loose Strategy Improve Before Doing Strategy

(Source: Chang, 2006)

In pursing operational excellence, the firm may be described as an integral organization with the strategies of push, tight, and improve by doing. In case of product/process leadership, the firm may be described as a hybrid organization with the mixed strategies of push-pull, tight-loose and improve before and by doing. For customer intimacy goal, the firm may be described as modular organization with the strategies of pull, loose and improve before doing.

Another way of looking at this issue to ask the question about how much external resources and capabilities may be needed to successfully execute one's competitive paradigm? It is proposed that the answer will depend on the type of competitive paradigm as well as on the degree of internal resources and capability available to the firm. In other words, operational excellence leaders with integral organization will rely mainly on their own internal resources and capability, whereas customer intimacy leaders with modular organization will rely more on external resources and capability available in their ecosystem. Product lead-

ership leaders with hybrid organization will rely on both internal and external capabilities and resources.

In conclusion, the best strategy for the leadership firms in a stable and predictable environment is to stay on course pursing one single value discipline. By staying on course, the firms will evolve. Furthermore, the journey toward mastering multiple attributes will continue, because there will always be new emerging multiple attributes. For example, when the firms have mastered the attributes of cost on-time and reliability, there will be new attributes to be conquered such as longer durability, ease of repair, higher safety in use, and lower emission pf pollutants. By continually pursuing these newer attributes, the leadership firms can remain the best and stay ahead of their competitors in the industry.

The similar scenario will prevail for those leadership firms pursuing other value disciplines like customer intimacy or product leadership. In fact, mastering multiple attributes under one single value discipline may be th4 golden rule of sustainable leadership in a stable and predictable environment. What changes are needed to this golden rule when the environment becomes turbulent and unpredictable? Now I am ready to discuss this issue.

Ⅴ. The competitive paradigm in a dynamic and unpredictable environment

As has been mentioned earlier in this article, evolving competitive base may be becoming a norm of today's turbulent environment. Moving competitive priority is impacting all types of industries today. This means that competitive paradigm of pursuing only one of the three value disciplines may require a major revision or even a totally new replacement.

For example, if the competitive base is changing from operational excellence to product leadership or customer intimacy, how should the leaders in operational excellence make the required transition? Or how do customer intimacy leaders adapt the new competitive priority of product leadership or operational excellence in timely and effective manner?

These are extremely complex and difficult questions with few readily available answers from academic or professional management literature. To ease the task of analysis, I propose the following two scenarios. The first scenario is where different markets requiring different value disciplines do exist. The second scenario is that the leadership firm under one value discipline is ready to initiate a move toward another value discipline.

In the first scenario, an organization may be separated into divisions or plants so that individual division or plant can effectively pursue different value disciplines. By employing different strategies and organizational structure that are consistent with respective competitive priority, the potential conflict and inefficiency of pursuing more than one value disciplines can be avoided (O'reilly and Tushman, 2004). If the size of organization is large enough for economic separation into divisions, this may be the most simple and effective solution possible.

In reality, however, each segmented market may experience its own evolving competitive base. For example, the division pursuing operational excellence may need to respond to changing needs toward product leadership or customer intimacy. And the division pursuing customer intimacy may face new priority of lower price emerging in that particular market segment. In other words, separation of organization into divisions may become a short-term solution only rather than long-term answer to ever changing competitive priority.

Under the circumstance, it may be more realistic to consider the second scenario of initiating and leading the management of

changing competitive targets. The basic idea is to find an approach that will avoid conflict and inefficiency of pursuing more than one value disciplines simultaneously under one organization.

By reviewing the case of Intel representing a hybrid organization, I suggest that we may find a possible solution. In order to pursue time-to-market product leadership discipline, Intel has nearly perfected a tight and integral production and supply chain in the "middle" of its value chain. However, in its critical core "back" where new product development takes place, the system is more loose and modular in order to get early involvement of key customers and suppliers. Again, in order to get as many new applications on their new chips and platforms, Intel is relying on a modular on-line order taking and communication system in the "front" of its value chain.

In other words, Intel may be pursuing product leadership discipline by combining its operational excellence in the "middle" and its customer intimacy in the "front" and "back" of its value chain. Put it another way, the most critical core function for Intel may be its modular "back", supported by integral "middle" and modular "front".

To expand this observation further, it may be possible to propose that operational excellence firms like FedEx and Wal-Mart depend primarily on their integrated core "middle", supported by integral "front" and "back". On the other hand, customer intimacy firms like Dell and Home Depot pursue their competitive priority by relying more on the core modular "front", supported by modular "back" and modular "middle". In other words, respective value discipline is being implemented by the combination of one core activity and two supporting activities.

Now I am ready to propose the most effective and efficient process of moving from one value discipline to another. If the firm is currently occupying a pure configuration of operational excellence or customer intimacy, the most logical step is to move in-

to a hybrid configuration. For example, an operational excellence firm may move into a product leadership by modifying only the "back" of its value chain, while retaining its integral "middle" and "front" of its value chain. When and if the firm is ready to pursue customer intimacy priority, the firm can modularize the "front" of its supply chain. And eventually, the firm can modularize the "middle" of its value chain, if necessary.

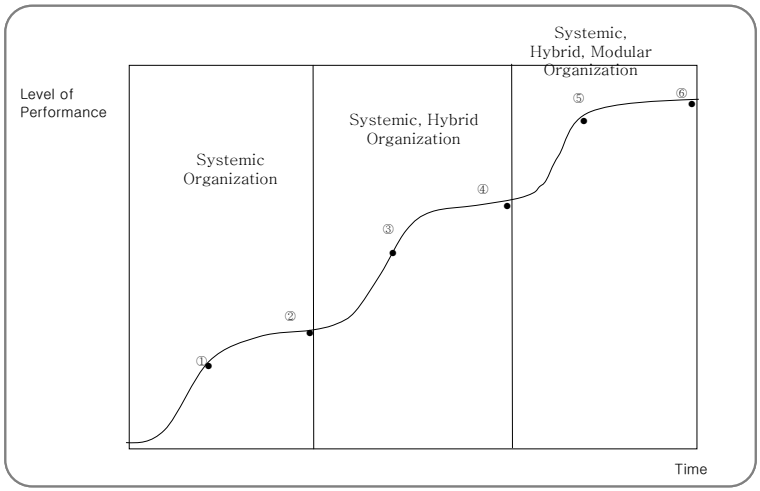
For the purpose of illustration, this particular pattern of evolving competitive paradigms or dynamic capability has been presented in table 9.

Table 9. One Time-Phased Evolution of Dynamic Capability

① Single Operational Excellences
② Multiple Operational Excellences
③ Single Product/Process Leadership
④ Multiple Product/Process Leadership
⑤ Single Customer Intimacy
⑥ Multiple Customer Intimacy

Figure 15 shows a hypothetical varying learning rate possible during this evolution. It has been suggested that whenever a change is made, the rate of organizational learning may begin slow initially and then accelerate after gaining the necessary familiarity and know-how, and then eventually slow down again, reaching its limit. This phenomenon is similar to what has been suggested in the so-called technology S curve [Abernathy and Utterback, 1978].

Figure 9. **Competitive profile of FeDex**



(Source: Chang, 2006)

The reverse pattern can be proposed for a customer intimacy firm. The logical step would be to move to product leadership first, and eventually to operational excellence by using the same mechanism of transition.

If the firm is pursuing a product leadership discipline, the choice is to move to either operational excellence or customer intimacy. However, moving first to operational excellence with its integrated "middle" of its value chain would probably ease the risk and the task of transition. And then, the firm can complete its transition into customer intimacy at a later stage.

Finally, another important element is in its speed of implementation when undertaking change in value discipline. When the advantage of first mover is strong, speedy adoption and execution may become the critical success factor (Eisenhardt and Sull, 2001). Now that the theoretical development of dynamic competitive paradigm of managing moving targets is complete, I am ready to make a brief presentation on practical implications

for leadership firms in Korea.

Ⅵ. Implications to Leadership Firms in Korea

As the Korean economy is advancing to join top ten fully developed nations of the world at the beginning of the 21st century, much of the success or failure of this challenge may rest upon the shoulder of leadership Korean businesses. To just name four such organizations, they are: Hyundai Heavy Industry in shipbuilding, Hyundai Motor in automobile, POSCO in steel products, and Samsung Electronics in information and communication.

When Hyundai Motor was founded in 1967, quickly followed by POSCO in 1968, Samsung Electronics in 1969, and Hyundai Heavy Industry in 1972, no one including their founders ever expected that these companies will someday become world leaders in their respective industries. To everyone's surprise, they now command leading sales rankings and market shares in the global market. For instance, Samsung Electronics and Hyundai Heavy Industry are ranked first while POSCO as 5th, and Hyundai Motor as 6th in their global revenue.

In the global market share for specific product categories, Samsung Electronics possess the highest market shares in several of their products ranging from flash memory product with 61% of the global market share, 31.0% in dynamic random access memory (DRAM) chips to 9.8% in television sets.

Hyundai Heavy Industry also possess the largest market share in three product categories, ranging from 40% in marine generators, 35% in marine diesel engine and 15% in shipbuilding.

They are also the major contributors to Korea's export. Hyundai Heavy Industry exports 85.4% their sales in 2005, while Samsung Electronics shipped 82.1% of their sales for export market. Hyundai Motor had 66.5% of units shipped abroad, while 29.4% of POSCO revenue was for export. When the amount of

what they produce abroad is added to the amount of export, the total sum will be even greater.

How did these firms get started and prospered? The cases of Samsung Electronics and Hyundai Motor have been documented by Kim Linsu in his Imitation to Innovation and other articles (Kim, 1997; Kim, 1997; Kim, 1998). He has also explained how Korean government and hardworking Koreans contributed to the success of these firms. Another account of the early years of POSCO placed the annual rate of cost reduction at 4.5 percents through effective absorption of imported technology (Enos and Park, 1998).

In recent years, however, the past strategy of imitating others to catch up has been replaced with the strategy of new product and technology creator and leader. At Hyundai Heavy Industry, for example, the key concept is to be selective in building the highest value ships given a limited dry dock capacity. They prefer to design and build mega container ships, LNG carriers, and very large tankers, in stead of bulk carriers and smaller tankers of the past. They need to maximize the value of output from nine dry docks they possess. However, 21 dry docks are being planned by China by 2015, and the first LNG ships are being built in China. Thus, Hyundai Heavy Industry may need to add even a higher value-added products like cruise ships and offshore oil platforms in order to maximize the value of output from their given capacity.

The story is very similar at POSCO with a limited annual production capacity of 29 million tons. They are upgrading their product-mix to higher value products. In 2005, for the first time, POSCO's cold rolled steel exceeded the hot rolled steal by some 1.2 million tons. They are trying to expand output of next generation structural steel with a minimum width which can be used for automobile body for example. The thinner the width of finished steel product, the greater will be the value from a given

tonnage. In the future, they plan to employ further cost reduction process technologies such as FINEX and strip casting steel technology. In addition, POSCO plan to build an integrated steel mill with the capacity of 12 million ton in India.

As for Hyundai Motor, their product-mix strategy is the continuous addition and expansion of higher-value vehicles from Pony and Sonata in the past to its current emphasis on Grandeur, the medium priced luxury car. In the future, the greater emphasis will be placed on higher priced luxury vehicles as well as on the next generation of hybrid and electric cars. At the same time, Hyundai Motor's expanded oversea network of plants will help them to realize their ambition of becoming the fifth largest automobile company by 2010.

For Samsung Electronics, the challenge of product and technology leadership will be even greater due to ever shortening product life cycle and accelerating rate of technology innovations worldwide. As evidenced by the largest global market share in eight major product categories, Samsung Electronics have been able to add leadership position in new categories of flash memory, digital handsets, and LCD display, and at the same time maintain their leadership position on the old product categories like televisions, VCRs, monitors, and static and DRAM chips.

In the future, they are targeting several new products to achieve the number one world market share such as in printers, system LSI, mass storage, and air control systems.

In order to realize their goal of expanding and maintaining leadership position in new product and technology in the future, these organizations and other leading businesses in Korea are continuously experimenting and developing new competitive strategies. Unlike in the early years in 1970' through 1990's, these new strategies need to be based on creation and exploration of new paradigm, not based on imitation and adoption of the paradigm pioneered by others. In other words, these Korean firms

will need to become pioneer in their respective industries in term of developing and implementing new competitive paradigms to manage moving targets in the world of competitive uncertainty and discontinuity.

Put it another way, they have consistently pursued the value discipline of operational excellence during the first thirty years, and have succeeded in becoming the world leaders in their respective industries. In more recent years, they have been migrating toward the value discipline of product/process leadership by pioneering their own home-grown technology.

How leadership firms in Korea today can benefit from the competitive paradigm developed in this paper? Initially, the paradigm should serve as a framework or checklist to evaluate the consistency and logic of key strategies and organizational structure in use. More specifically, different types of strategy mix and organizational structure suitable for different value disciplines presented in Table 8 can be used for this evaluation.

For example, I would expect that the companies pursuing the discipline of operational excellence like POSCO and Hyundai Automobile are employing an integrated organizational structure with the strategy of pushing their outputs to customers. In addition, they would be tightly managing their suppliers and dealers in their ecosystem. Their improvement strategy would emphasize the concept of learning by doing like TQM or 6 sigma.

On the other hand, in pursuing the discipline of product leadership, one would expect that Samsung Electronics would likely to be using a hybrid organizational structure with mixed strategies.

It is quite possible to conduct much more detailed evaluation on each key activity of the value chain as shown in Figure 12. The detailed evaluation of FedEx, Dell, and Intel done earlier may serve as examples of such evaluation. The result from this type of evaluation should improve the consistency and fit among

the mix of strategy and organizational structure being deployed.

Another important implication for many of Korean leadership firms deal with the opportunity of creating and managing segmented markets throughout the world. Take the example of cell phones. The requirements for cellular phones should vary significantly across countries and regions.

As has been pointed out, one of the most effective way to manage moving targets is to separate a business into divisions on plants so that each division or plant can pursue different value discipline appropriate for the segmented market. For example, one division can pursue the discipline of low price, while another division can pursue the requirement of product variety. By employing appropriate strategy mix and organizational structure that are consistent with respective competitive priority, the potential conflict and inefficiency of pursuing more than one value disciplines under one organization can be avoided.

However, there are many cases where the segmented market may not exist. Take the case of oil tankers. The market trend is universally for larger and faster tankers. The case of flash memory chips is probably similar in that the market demands larger-size memory and faster products.

Under these circumstances, many Korean leadership firms have to add the value discipline of product or process leadership on top of the operational excellence target. The dynamic competitive paradigm showing the time-phased evolution presented in Table 9 may be a valuable concept to understand.

To elaborate, during this transition, the high risk of abrupt and wholesale change to the current strategy mix and organizational structure in use need to be avoided at all cost. By modifying only the critical activity in its value chain, an organization can make a smooth and effective transition. In case of moving from operational excellence to product leadership discipline, the critical activity in the value chain is at its “front” of technology

innovation and product development. What is needed is to move away from a highly integral and closed innovation to a modular and open innovation (Chesbrough, 2003).

This will enable the leadership firm to seek and utilize all the potentially good ideas for innovation wherever they may exist. At the same time, modular "front" will fasten the speed of product development by ensuring the participation of key outside players like customers, suppliers, and others. In the meanwhile, integrated "middle" and "back" of its value chain will be retained so that operational excellence requirements as well as fast to market need of product leadership discipline can be met.

Finally, selective modification of key activity in value chain recommended does not suggest that the speed of implementation is not important. On the contrary, the first mover advantages maybe a critical factor during the transition from one priority to another. In some cases, the speed of implementing change may be as important as the substance of change itself. Therefore, those Korean leadership firms who posses the capability for rapid implementation in general are also well position to implement speedy changes in strategy mix and organizational structure required during this type of transition.

Ⅶ. Limitations and Future Research

In order to validate a series of propositions presented in this paper, much more in-depth case and empirical studies need to be conducted. In particular, these future studies must include leading firms in Europe and Asia to show whether they use different approach of managing moving targets.

For specific implications to individual firms in Korea, careful and detailed assessment of the strategy mix and organizational structure in the context of external environments will be necessary. This type of assessment can best be undertaken in a

join study of internal staff and external experts.

Managing moving targets also require further addition and expansion in its theoretical framework. For example, the interaction possible between the firm and its ecosystem partners in developing dynamic capability has not been explicitly incorporated in this paper (Jacobides and Winter, 2005; McEvily and Marcus, 2005). Also, much more work is needed to link what has been presented here to the existing literature of dynamic capability, contingency research, corporate strategy, marketing management and operations management.

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