Change in Manufacturing Strategy: An Empirical Study

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Abstract

Ⅰ. Introduction

Today's rapidly changing business environments are challenging a lot of manufacturing firms to modify their current manufacturing strategies and to prepare for the fierce competition of the future. When a firm is faced with a totally new environment, it may need a radical strategic change in manufacturing, shifting from the existing strategy to an entirely different one. Confronted with these turbulent business environments, manufacturing organizations should not only align their operations with current competitive priorities but also deviate from the current competition rules to new ones, for the future[16-17].

However, the extant literature directed toward the static manufacturing strategy for the current competition, seems to neglect this strategic change in manufacturing, that is, *dynamic manufacturing strategy*. Many manufacturing companies are being forced to answer the question, "In which direction should our companies steer the rudder?"[44]. Although some studies[12, 29, 43, 45] have suggested cumulative models as to which capabilities to select in order to cumulate in a continuous way, these models have some pitfalls in that they focus only on incremental strategic change in manufacturing, ignoring the radical dynamic manufacturing strategy.

In this context, this study will see what types of dynamic manufacturing strategies exist and

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their effects on business performance. This study examines Korean dynamic manufacturing strategies by empirically analyzing data from the late 1980s and the early 1990s, when most Korean manufacturers were in transition from large-volume and low-price original equipment manufacture (OEM)-based manufacturing to small-volume and high-flexibility manufacturing. This study concludes with research results and implications.

II. Theoretical Background

In the two decades of research on strategic change in corporate and business strategies[49], change in manufacturing strategy or dynamic manufacturing strategy has not gotten the attention it deserves [3].

In strategic management literature, the concept of strategic change is well defined as "a difference in the form, quality or state over time in the organization's fundamental pattern of resource deployments and environmental interactions" [22, 49, 61]. In other words, strategic change indicates an organizational change over time in terms of the structure, decision systems, and human resource systems of an organization [15].

However, the nature of strategic change might be different at different hierarchical levels within an organization [14]. Changes in manufacturing strategy might be depicted as somewhat different from those in corporate and business strategies, because in the former case the strategy takes a different form in scope and tasks. Due to the limited scope and functions of manufacturing organizations, it is predicted that changes in manufacturing strategy can take place more frequently than those in corporate and business strategies, and won' t take a longer time.

How can one define the concept of dynamic manufacturing strategy? In general, the elements of manufacturing strategy encompass both competitive capabilities (or manufacturing tasks) and manufacturing action programs [18, 40, 59]. Hence, the concept of dynamic manufacturing strategy can be defined as: "A cohesive change of a manufacturing organization's competitive capabilities and manufacturing action programs over time."

2.1. Types of dynamic manufacturing strategies

Greenwood & Hinings [15] argued that patterns of strategic change could be best understood by employing the concept of an organizational archetype-often called a configuration, typology or taxonomy-which is defined as commonly occurring clusters of attributes or relationships that are internally cohesive [39]. Organizations can be viewed as a holistic synthesis of multiple and interdependent attributes with the help of the concept of the typology [3].

Accordingly, it is more appropriate to focus on the changes of typologies in manufacturing strategy (that is, any change in an internally consistent combination of competitive capabilities and action programs) over time in order to identify types of dynamic manufacturing strategies. We support the viewpoint that the shifting patterns between typologies in manufacturing strategy for some period of time indicate the types of dynamic manufacturing strategies.

Competitive capabilities are often regarded as manufacturing strategy itself by scholars [40, 57, 62] and thus, its changes are believed to play a decisive role in determining the types of dynamic manufacturing strategies. Several studies [6, 9, 12, 17, 34, 43, 45, 51] suggest that there are identifiable paths along which competitive capabilities will have to change. For example, Ferdows & DeMeyer's[12] sandcone model portrayed the quality-dependability-speed-cost progression. However, these studies have a common drawback in that the suggested paths are not collectively exhaustive. In fact, there could be multiple routes for the changes in competitive capabilities [17, 45]. Also, these studies seem not to be careful to fully demonstrate the direction, magnitude, and time of strategic change in manufacturing.

If we apply typologies of manufacturing strategy which are ordinarily small in number [3], such problems can be solved. That is, all dynamic manufacturing strategy patterns can be extracted by tracing all the trajectories of the transition from the current manufacturing strategy to a future manufacturing strategy.

A small number of researchers [33, 35, 40, 56] studied typologies or taxonomies for manufacturing strategy (see Bozarth & McDermott [3] for more details). To isolate all possible dynamic manufacturing strategy patterns, it is prerequisite that the typologies for manufacturing strategy should be collectively exhaustive and mutually exclusive. Compared to various typologies championed by several researchers, those of Kim and Lee [3] seem to be relatively good, with types that meet these requirements.

Competitive capabilities can be dichotomized into two underlying dimensions: cost leadership and differentiation [46, 62]. With the two dimensions, Kim and Lee [3] theoretically identified four collectively exhaustive and mutually exclusive manufacturing strategies: pure cost leadership, pure differentiation, cost leadership and differentiation, and no intended strategy. Of course, the classifying of competitive capability into cost leadership and differentiation has faced the objection that it is not sufficient to clarify all the other underlying dimensions of today's competitive environment and to completely reflect the diversified facets of differentiation [36, 42]. Nonetheless, this study adopts Kim and Lee's simple typologies as a basis for classification of dynamic manufacturing strategies. In fact, the other dimensions are not significant enough to receive separate treatment; even among the diversified facets of differentiation, high correlations exist [36, 45].

As a result of cross-tabulating Kim and Lee's four types of manufacturing strategy over two periods of time, sixteen (4×4) collectively exhaustive types of dynamic manufacturing strategies emerged. Even though not all of these sixteen types makes sense, each shows a different characteristic in terms of the direction, magnitude and timing of strategic change in manufacturing. For example, the change from cost leadership to cost leadership & differentiation indicates a dynamic manufacturing strategy of *sustaining cost leadership and building differentiation* which entails a large amount of strategic change in order to cope with new variations in both the internal and external environments without any delay.

Dynamic manufacturing strategies might be typologized over multiple periods. Thus, if dynamic manufacturing strategies over three periods were grouped according to Kim and Lee's classification scheme, a total of 64 (4×4×4) types will appear. Tracing these 64 types thoroughly requires that a more complex and difficult analysis be made with a larger set of longitudinal data. This study will address strategic changes in manufacturing over only two periods due to its limited scope. But we believe even this work may provide some hints for understanding dynamic manufacturing strategy. In this context, we propose this:

Proposition 1: There would be multiple types of dynamic manufacturing strategies.

2.2. Change in manufacturing action programs

It is said that competitive capability directs the action programs of a manufacturing firm [41]. In a static perspective some studies [33, 36, 40] provide models of the cohesive and congruent relationships between competitive capabilities and manufacturing action programs by manufacturing strategy types. Also, with a few key dimensions a small number of researchers suggest models of the evolutional development of manufacturing, which could be applied to the entire manufacturing industry from the perspective of the grand theory. Some of the key underlying variables explaining dynamic manufacturing activities include: product and process life cycle [18], role of manufacturing function [19], level of flexibility [23, 24, 56, 58], level of technological capability [32], and source of value addition [47].

From the perspective of the middle-range theory, however, those studies do not give a full account of the dynamic roles of manufacturing action programs in implementing a specific dynamic manufacturing strategy. As Skinner [52] commented, a timely design of a manufacturing system compatible with changed manufacturing tasks is regarded as a major theme in manufacturing strategy studies. Hence, proper attention should be paid to improving paths and methods to acquire a newly chosen manufacturing capability in time [4].

A number of manufacturing action programs can be dichotomized into the two categories of *Structural action programs* and *Infrastructural action programs* [18]. The former are concerned with location, capacity, equipment and process technology, and vertical integration, the latter with production planning and controlling, quality management, organization, workforce policy, etc.

There exist many controversies about which of the two kinds of manufacturing action programs is more effective in enhancing competitive capabilities. Hayes and Pisano [17] preferred infrastructural programs to structural programs, taking Japanese competitors as an example. Despite there being no difference in equipment and facilities between Japanese and U.S. manufacturers, Japanese manufacturers have paid off more than their U.S. counterparts by introducing infrastructural action programs such as Just-in-Time, total quality management techniques, cross-functional integration, and the delegation of problem identification and solving to the shop floor. In a similar vein, Hayes et al. [19] cited this factor that distinguishes high-performance factories from lower- performance factories: the adoption of a totally different way of management emphasizing simple procedure, bottom-up decision making, incremental problem solving, low inventory, and partnership with suppliers.

By contrast, several researchers [53, 63] put a low value on the role of infrastructural action programs because these programs focus primarily on repairing and revamping the manufacturing system and solving bottleneck issues in manufacturing, allowing manufacturers simply to follow the leading competitors. These researchers argue for radical structural reforms of the manufacturing system to gain the competitive edge over other competitors. In this context, some attempts should be directed toward integrating conflicting perspectives on the respective contributions of infrastructural action programs and structural action programs.

To eliminate any problems new manufacturing technologies would raise, Japanese room air conditioning manufacturers make sure that the production process is under control before introducing robots or automated devices [13]. This practice sheds some light on how to carry out manufacturing action programs in relation to a company's building capabilities. Infrastructural action programs might contribute to eliminating errors which newly introduced structural action programs can cause. Clark [4] claimed that just by employing infrastructural action programs, less competitive manufacturers far from the frontiers of efficient resource utilization could come up to the industrial standards required for competitiveness without investing in new structural action programs. Based on Clark's assertion and the above Japanese example, it can be hypothesized that after reaching the frontiers of efficient resource utilization through implementing infrastructural action programs, a manufacturing firm should put a heavy emphasis on implementing new structural action programs for sustaining competitive advantage.

On the other hand, what form will manufacturing action programs take in the future? How will the characteristics of future programs differ from those in the present? These days leading U.S. manufacturers are shifting their focus from within-factory-wall activities such as rationalizing the production process or retooling production equipment, toward beyond-factory-wall activities such as forming cross-functional teams or integrating information systems with internal and external stakeholders [26-27]. Similarly, European and Japanese competitors are making manufacturing efforts to upgrade workforce ability, investing in information systems [7, 44]. The shift away from the factory is reflected in an international Manufacturing Futures Project(MFP) survey which reveals that U.S. and European producers are constructing a global plant network in an attempt to be close to their customers [7, 9, 26]. These practices are oriented toward changing the manufacturing organization into a value or virtual organization that can provide maximum customer values at competitive prices. The trend indicates that in the future a manufacturing firm should adopt new manufacturing action programs with a broader scope so as to satisfy customer needs, thus maintaining its competitive advantage.

Proposition 2: The dynamic roles of infrastructural and structural manufacturing action programs and their respective scopes will be different according to the types of dynamic manufacturing strategies.

2.3. Performance of dynamic manufacturing strategy types

Among the dynamic manufacturing strategy types, which type will be the most effective in improving business performance? It is not clear which type of strategic change is more effective [3-4]. For example, Bennigson [1] and Skinner [53] supported a radical transformation of manufacturing strategy for maintaining the competitive advantage. According to them, the dynamic manufacturing strategies which entail a great magnitude of radical change are more effective than those with incremental change. By contrast, Wheelwright & Bowen [63] advised practitioners to adopt an incremental and frequent change of manufacturing strategy in order to prevent chaotic side effects of a radical change. Several models for cumulating competitive capabilities [12, 29, 45] support the progressive approach to the dynamic manufacturing strategy for incremental change. On the other hand, in the strategic management literature, it has been recognized that there are multiple and equally effective strategies, what is called *equifinality* [3]. If we apply the concept of *equifinality* to the dynamic manufacturing strategy, it can also be said that there is no difference in business performance among dynamic manufacturing strategy types.

It is argued that the time-lagged effect of strategic change must be taken into account to understand the relationship between strategic change and its outcome [49]. It will be wrong if we hastily judge the relationship between dynamic manufacturing strategies and business performance, without proper attention to the time-lagged effect.

Also, it must be considered that each dimension of competitive capabilities plays a role in increasing its related business performance. It can be assumed that building differential capabilities will have a positive impact on enhancing a firm' s competitive position in terms of market share, while cost leadership capability will contribute to increasing profitability.

Proposition 3: The types of dynamic manufacturing strategy will influence the degree of business performance.

Ⅲ. Methodology

3.1. Sample

The data of this study were gathered from Korean samples in international MFP surveys. The MFP surveys have been conducted internationally every other year since 1983 [41]. Among others, we chose eighty Korean manufacturing business units that consecutively participated in the 1990 and 1992 surveys. Data about the competitive capabilities, manufacturing action programs, and performance improvement of the eighty Korean manufacturers were provided by the 1990 survey for 1988-1989, and by the 1992 survey for 1990-1991. Korean manufacturers began a structural transition in the early 1990s, so that marketing-oriented order winning criteria such as customization and fast delivery became their major concerns, with less emphasis on productivity [50]. By paying attention to the changes that were occurring around 1990, one can get a better understanding of the dynamic manufacturing strategies of Korean manufacturers.

One might argue that the four-year data are insufficient to analyze completely and trace the strategic change in manufacturing, because firms' intended competitive priorities do not change significantly in the ensuing five years [37]. However, it is evident that strategic change in manufacturing can be successfully achieved within only two years [1]. And as noted above, in the year 1990 Korean manufacturers began to shift their focus from low cost/large volume to value added/small volume manufacturing, reconfiguring their manufacturing strategies. Accordingly, the four-year data covering the period 1988-1991 are thought to be sufficient to give a balanced explanation of the dynamic manufacturing strategies of those eighty Korean manufacturers.

Fifty percent of the samples belong to the electronics industry, and the rest to the machinery industry, two discrete Korean manufacturing industries which employed similar process technologies (It has been reported that the characteristics of Korean manufacturing are not significantly different by industry, in contrast to U.S. and Japanese manufacturing [45]. The Korean respondents in the surveys were large companies leading Korean manufacturing at that time. The survey questionnaires were answered by the top management, such as the Vice President or the Director of Manufacturing.

3.2. Instruments

3.2.1. Competitive capability

In the international MFP surveys, fifteen competitive capabilities were examined in terms of their strengths [41]. This study divides them again into five dimensions: low price, quality, delivery, flexibility, and service. *Low price* represents the capability of competing on price. *Quality* comprises the capability of offering consistent quality, offering reliable/durable products, and providing high performance products (three measurement items). *Delivery* is the capability of delivering products on time and quickly (two measurement items). *Flexibility* refers to the capability of changing volume easily, making a rapid change of design, introducing new products quickly, making a rapid change of product mix, and offering a variety of product lines (five measurement items). Finally, *Service* means the capability of providing after-sale service, offering product support, distributing products broadly, and offering product customization (four measurement items).

The measurement items for each of the dimensions of competitive capability were measured on a seven-point, self-anchoring scale, rating a company's relative strength against the best competitor in the marketplace where 1= "very weak" and 7= "very strong." The assessment of the relative strength of each dimension was done twice, that is, in both the 1990 and 1992 surveys. As all Cronbach's Alphas of the measurement items for each capability dimension were over 0.75, calculating the mean of these measurement item values was of great use in disclosing the competitive level of each dimension.

3.2.2. Manufacturing action programs

This study classified 25 manufacturing improvement programs covered in the MFP surveys again into the following nine components: human resource management, cost reduction, quality improvement, advanced management techniques, integrating information systems, reconditioning the manufacturing system, new manufacturing technology, new product/process development, and plant location. *Human resource management* consists of worker empowerment, worker training, management training, and supervisor training (four measurement items). *Cost reduction* includes value analysis, establishing work standards, and recycling materials (three measurement items). *Quality improvement* consists of statistical quality control and quality circle (two measurement items). *Advanced management techniques* are quality function deployment, Just-in Time, design for manufacture, and business process reengineering (four measurement items). *Integrating information systems* can mean integrating an information system within the department of manufacturing, across diverse functions, or with supplier and/or distributors (three measurement items). *Reconditioning the manufacturing system* encompasses such programs as physical reconditioning and investment in manufacturing system improvement. *New manufacturing technology* includes computer-aided manufacturing, computer-aided design, robots, and the flexible manufacturing system (four measurement items). *New product/process development* is composed of new process development for new products and existing products (two measurement items). Finally, *plant location* represents plant closing and location change.

The pay-offs of these action programs during 1990-1991 were measured on a seven-point, self-anchoring scale, where 1= "very low" and 7="very high." As the Cronbach's Alphas, or consistency ratio index of the measurement items for each component, were over 0.70, the means of these item values were used to analyze the performance level of each action program component.

3.2.3. business performance

With the 1990 and 1992 survey results, we could analyze the rates of market share and profitability (profit before tax on sales) during the two-year periods of 1988-1989 and 1990-1991.

Ⅳ. Analysis and Results

4.1. Identifying dynamic manufacturing strategy types in Korea

The cluster analysis technique was employed twice to classify manufacturing strategies during 1988-1989 and 1990-1991 for the eighty manufacturing business units. Here we used the competitive capability variables which were used as clustering variables in Miller and Roth's study [40]. As Ketchen and Shook [25] advised, we employed a hierarchical method (Ward's method) to determine the number of clusters and utilized a non-hierarchical method (K-means or iterative method) so that we might get the final solution clusters optimizing within-cluster homogeneity and between-cluster heterogeneity.

After having examined the increase of the agglomeration coefficient in accordance with the number of clusters, we concluded that with clusters numbering 2 their congeniality to each other was very slight in the 1990 survey data, because the agglomeration coefficient suddenly went up from 286 to 395 when clusters changed from two to one in number. Also, by the same procedure, we found that clusters numbering 3 were not congenial to one another in the 1992 survey. Last, through cross-tabulating the final optimal solution clusters by survey years, six (2×3) types of dynamic manufacturing strategies were identified as shown in Table 1

Table 1. The dynamic manufacturing strategies[a]

Competitive Capabilities	Type 1[b] (n=18)	Type 2[c] (n=11)	Type 3 (n=9)	Type 4 (n=11)	Type 5[d] (n=18)	Type 6 (n=13)	F value
Capabilities in 1990							
Cost(90)[f]	-0.50[e]	-0.19	-0.09[g]	-0.20	0.27	0.72	3.01**
Flexibility(90)	-1.05	-0.08	-0.32	0.31	0.55	0.81	12.02***
Quality(90)	-1.06	-0.55	-0.24	0.87	0.70	0.43	18.49***
Delivery(90)	-0.76	-0.62	-0.71	0.72	0.58	0.65	12.81***
Service(90)	-0.76	-0.55	-0.39	0.50	0.38	0.89	8.75***
Capabilities in 1992							
Cost(92)	-0.57	-0.14	0.87	-0.07	-0.53	1.10	11.07***
Flexibility(92)	-1.14	0.09	0.89	-0.78	0.31	1.11	33.67***
Quality(92)	-1.00	0.00	0.99	-0.74	0.35	1.02	22.42***
Delivery(92)	-0.89	0.03	0.76	-0.59	0.16	0.94	11.93***
Service(92)	-0.85	0.23	0.76	-0.70	0.21	0.85	11.34***

a) Type 1 stands for sustaining cost leadership strategy, Type 2 for giving up cost leadership and building differentiation strategy, Type 3 for sustaining cost leadership and building differentiation strategy, Type 4 for giving up differentiation and building cost leadership strategy, Type 5 for sustaining differentiation strategy, and Type 6 for sustaining both cost leadership and differentiation strategy.
b) Since the '90 comeptitive level (-0.50) and the '92 competitive level (-0.57) of low cost capability of Type 1 respectively are significantly greater than those of the differentiation capability in the corresponding years, we called Type 1 sustaining cost leadership strategy.
c) Since the '90 competitive level (-0.09) of low cost capability of Type 2 is significantly greater than that of differentiation capability, it can be said that the manufacturing strategy of Type 2 in 1990 is cost leadership strategy.
d) Since the '90 competitive level (0.27) of low cost capability of Type 5 is significantly smaller than that of differentiation capability, it can be concluded that the manufacturing strategy of Type 5 in 1990 is differentiation strategy
e) The values are standardized Z scores.
f) Cost(90) means the competitive level of cost capability in the 1990 survey.
g) The bold values mean that they turn out to be of greater significance than all the other values through Duncan's range test at the level of 0.05.

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

Among all possible types of dynamic manufacturing strategies portrayed in Figure 1, only six types are identified as meaningful: Type 1 (sustaining cost leadership strategy), Type 2 (giving up cost leadership and building differentiation strategy), Type 3 (sustaining cost leadership and building differentiation strategy), Type 4 (giving up differentiation and building up cost leadership strategy), Type 5 (sustaining differentiation strategy), and Type 6 (sustaining both cost leadership and differentiation strategy).

These six dynamic manufacturing strategies reflect the characteristics of Korean manufacturing from the late 1980s to the early 1990s. The percentage (48%) of pure cost leadership strategy on the part of the Korean manufacturers in the 1990 survey went down to 36% in the 1992 survey, while the percentage of either pure differentiation or cost leadership and differentiation strategy went up. In short, This finding supports Proposition 1.

4.2. Manufacturing action programs

Table 2 shows that Type 1(sustaining cost leadership) had no effective action programs deserving our attention. However, for Type 2(giving up cost leadership and building differentiation), such manufacturing action programs as human resource management, quality management, advanced management techniques, information systems, and product and process development were highly effective, with a statistical significance. Also, Type 3(sustaining cost leadership and building differentiation) employed human resource management, cost reduction, advanced management techniques, information systems, new manufacturing technology, and location change as dominant tools to achieve strategic goals. Both Type 2 and Type 3 relied more on infrastructural action programs than on structural action programs.

In the meantime, Type 4(giving up differentiation and building cost leadership) and Type 5(sustaining differentiation) implemented a small number of action programs such as information systems and new manufacturing technology as key factors. Notably, Type 6(sustaining cost leadership and differentiation) made the most use of both structural and infrastructural programs, including human resource management, advanced management techniques, integrating information systems, reconditioning the manufacturing system, new manufacturing technology, product and process development, and plant location change, all of which resulted in the highest pay-off. Compared to other dynamic manufacturing strategy types, the action programs of Type 6 had relatively many beyond-factory-wall activities and were well balanced in the proportions of infrastructural and structural action programs.

The above results shed some light on the dynamic roles of manufacturing action programs in Korea. When changing manufacturing strategies from pure cost leadership strategies to innovative strategies such as differentiation strategy, Korean manufacturers had been content to implement only infrastructural action programs. However, in the process of shifting toward the cost leadership and differentiation strategy, Korean manufacturers began to open their eyes to the need to implement not only infrastructural action programs but also structural action programs, most of which were boundary-spanning activities. These results support Proposition 2.

Table 2. Pay-offs of manufacturing action programs and business performance during 1990-1991

Action programs and Performance	Type 6	Type 7	Type 8	Type 10	Type 11	Type 16	F value
Infrastructural Programs							
Human resource management	-.65a	.34b	.48	.10	-.08	.32	2.78**
Cost reduction	-.35	.34	.56	.29	-.19	-.18	1.74
Quality improvement	-.41	.51	.21	-.02	-.21	.30	1.72
Advanced management Techniques	-.69	.43	.16	-.18	.04	.58	3.61***
Information system	-.87	.30	.02	.53	.03	.45	5.15***
Structural Programs							
Reconditioning manufacturing System	-.45	.03	.17	-.01	.01	.48	1.44
New manufacturing technologies	-.31	-1.25	.26	.45	.07	.83	9.37***
Product/process development	-.35	.75	.23	-.01	-.55	.46	4.08***
Location change	-.45	.19	.49	-.11	-.14	.41	1.85*
Business performance							
Market share(1991)	-.58	-.12	.32	-.29	.45	.21	2.07*
Profitability(1991)	-.02	-.71	-.10	.89	-.17	.18	2.19*

a) The values are standardized Z scores.
b) The bold values prove to be significantly higher than other values by using Duncan' s range test at the significance level of 0.05.
* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

4.3. Business performance

As shown in Table 2, Type 3, Type 5, and Type 6 surpassed other types in terms of market share, with a statistical significance. Also, Type 4 and Type 6 recorded higher profits before taxes in 1991. The inferior performer was Type 1, whose market share and profitability were negligible. It is interesting that Type 2 showed no better performance in the process of changing toward differentiation strategy from pure cost leadership strategy.

These results offer some insights. First, Type 2 (giving up cost leadership and building differentiation) supports that there is a time lag between changing a manufacturing strategy and increasing business performance. Second, Type 4 (giving up differentiation and building cost leadership) demonstrates that cost efficiency capability is closely related to increasing profitability in Korea. Third, Type 5 (sustaining differentiation) upholds that differentiation-related capability is positively associated with enhancing market share. Finally, the highest performers in Korea were those who overcame wisely the trade-off problems between low cost and differentiation capabilities, and competed on the cost leadership and differentiation strategy. These results support Proposition 3.

V. Conclusions

Compared to the studies on static manufacturing strategies, efforts to configure dynamic manufacturing strategies have not been significant. In this context, this study investigated Korean dynamic manufacturing strategies during the period 1988-1991, based on that research model. The results provide the following implications.

First, unlike the case of Singaporean manufacturers [62], fostering both cost leadership and differentiation capabilities turned out to be very effective in Korea. The cost leadership and differentiation strategy may be the one which most Korean manufacturing firms will have to pursue in the future, regardless of their environmental situations and past performance. Even the Korean manufacturing firms which have already realized this strategy should continuously upgrade both cost leadership and differentiation capabilities (e.g., through reducing raw material cost and overhead cost, and/or enhancing the capabilities of speedy new product introduction, high performance quality, fast delivery, etc.) [29].

Second, in Korea it is better that infrastructural and structural manufacturing action programs respectively should play a different part in the process of realizing the cost leadership and differentiation strategy, and that infrastructural action programs should be implemented before structural action programs. For less-competitive Korean manufacturers, employing only infrastructural action programs is sufficient to build differentiation capabilities. But the cost leadership and differentiation strategy can be realized by capitalizing on both infrastructural and structural action programs.

Third, there exists a time lag until certain new manufacturing strategies have paid off. Hence, a long-term attitude in configuring dynamic manufacturing strategies is needed in Korea.

This study has some limitations. Like the Greenwood and Hinings' [15] research, it requires broader longitudinal data. The scope of this data does not allow for a complete understanding of all the types of Korean dynamic manufacturing strategies and their major action programs and performance. Furthermore, the study does not take into account the driving factors for strategic change in manufacturing. Finally, it is not known whether these results are applicable to manufacturers in other countries. The author hopes that these problems will be addressed by subsequent studies.

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Change in Manufacturing Strategy: An Empirical Study

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Abstract

Abstract: The purpose of this study is to identify types of dynamic manufacturing strategies and their effects on business performance. Three characteristics of Korean manufacturing should be noted. First, it is found that there are six types of dynamic manufacturing strategies in Korea. Second, the roles of the infrastructural and structural action programs become different according to different types of dynamic manufacturing strategies. Third, the strategy of continuously fostering both cost leadership and differentiation capabilities has turned out to be very effective in Korea.

Key Words: Manufacturing strategy, Business performance

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