

Evolution Path for Corporate Sustainability Based on the Double Helix Model: The Case of GM Korea from 2002-2009*

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Even the most successful firms experience a life cycle effect of rapid growth that eventually gives way to some degree of stagnation. Many firms accept gracefully the natural slowing of their growth rates as they mature, while others try to kickstart a new innovation process as soon as they perceive a slowdown upon them. Many companies fail at such attempts due to inadequate organization capabilities, competition that is too intense, or an inability to overcome legacy practices and/or costs. Some are able to sustain growth rates with new innovation (Nunes and Breene, 2011) but the numbers are small. In particular, only less than 10% of firms can restore. In a study of Fortune 100 companies (Nunes, and Breene, 2011, Olson, van Beber, and Verry, 2008), 87% of the firms saw their growth stall during the period observed. Of these, 11% managed to get back on the high growth track, but 75% failed to break their fall. The remaining 13% managed to maintain a stable, sustainable path.

Mostly firms in Korea have evolved so far by tracking and benchmarking the global leading companies (Lee, 2008).

This paper analyzes the restoration process of the competitiveness of GM Korea, in terms of its organizational capabilities and dynamic capabilities - from the time it became a subsidiary of General Motors following its crisis as the former Daewoo Motors. This paper traces the growth of a firm applying the Double Helix Model of Fine (Fine, 1998, Kim, Park, and Song, Korean translation, 2002). In particular it examines the characteristics of the organizational capability and the dynamic capability (Eisenhardt and Martin, 2000) by evolution stage. It is notable that these characteristics have been reflected on the change in design capability of Korean parts suppliers (Song, Kim, and, Kang, 2003) and the introduction of modularity (Baldwin and Clark, 1997, 2000, Camuffo, 2000, Fujimoto, 2002a, 2002b) to control the complexity management.

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This paper, using Double Helix Model, traces and analyzes the evolutionary path of GM Korea. Also this paper looks into the growth track of the company from the standpoint of benefits through the cooperation (Astley and Fombrun, 1983, Lavie, 2006) between GM Korea and its parent company, GM. After the GM's acquisition, the company reported remarkable sales performance both in the domestic and global market as GM's home for mini and small vehicles development, followed by a steep downfall after the 2008 Global Financial Crisis. Post-crisis, the management team has rebuilt the company as GM Korea. To fully explore this process, this paper traces the evolutionary path of GM, the mother company, as it played a significant role of leading GM Korea to its recent successes. This paper's conceptual structure borrows from Fine's Double Helix Model (Fine, 1998).

This study may be used in learning and capturing strategic lessons on the future study on the evolution path of the Korean automobile industry for the sustainability.

The analysis of this paper focuses on the time period from 2002 through 2009 when both GM Korea and GM together were in the process of rebuilding GM Korea to stabilize the operation through the strategic collaboration between them. Nevertheless, GM Korea may pursue the short term performance after 2009 reflecting the policy of GM which has been restored by the support of US government, but still encountering difficulty in terms of competition. Renaming of GM Korea partly reflects the strategy of GM. GM Korea may take into consideration the position of GM in the future. If this supposition comes true, the relationship between the two companies may be less cooperative and become competitive. Also this kind of different situation may weaken the win-win relationship between GM Korea and its Korean parts suppliers as well as influence the business ecosystem(Kim, 2009). of the entire automobile industry in Korea .

Key Words: Corporate Sustainability (Longevity), Double Helix Model, Path Dependency, Evolution, Organizational Capability, Dynamic Capability

1. Introduction

GM Korea¹⁾ (formerly GM Daewoo Auto and Technology or GMDAT) was founded in 2002 when General Motors took over the struggling Daewoo Motor. For the past nine years since its inception, GM Korea has continued to roll out competitive, market-specific new vehicles under various GM Group brands. GM Korea's annual export in 2007 set the all-time record

by a single company within the GM family.

Daewoo Motor, the predecessor of GM Korea that went bankrupt in November 2000, was competitive in terms of product quality and cost. However, the automotive arm of the Daewoo Group ran into trouble due to brazen expansion and a liquidity crisis caused by excessive debts, and was eventually acquired by General Motors. The combination of GM's capital, marketing and brand power and Daewoo's manufacturing capability and skilled workforce

1) GM Daewoo Auto and Technology was renamed as GM Korea in 2011.

has created huge synergies. In 2007, the takeover of Daewoo Motor has marked as one of the most successful acquisition cases of GM.

GM Korea has pursued a transition into a technology-based production base of GM, which is reflected by the fact that the new company name includes the word ‘technology.’ This is reconfirmed in the words of Nick Reilly, the first GM Korea President and CEO, saying: “The new company is a Korean enterprise and most of its officials are Korean. We will build on Daewoo Motor’s accomplishments by integrating GM’s state-of-the-art technology to create synergy.”

The ownership structure of GM Korea as of 2007 consists of the following: General Motors Investment Pty Ltd., GM’s Australian affiliate, is a 48.19% shareholder while GM Asia Pacific Holdings and Suzuki Motor Corporation are holding 2.71% and 11.24% of the GM Korea equity stake respectively. The remaining stake is held by Shanghai Automotive Industry Corporation (SAIC, 9.8%) and Korea Development Bank (KDB, 27.9%). On the other hand, ownership structure as of 2009 has changed to GM having 70.1%, KDB - 17.2%, Suzuki Motor Corporation - 6.7% and SAIC - 6%.

However, the 2008 Global Financial Crisis has affected the sales volume of GM Korea, especially its exports, which in turn reflected to a drastic decrease of production volume. This had caused GM Korea’s revenue to drop by approximately 31% from 2007 to 2009.

Double Helix Path Dependency Trajectory

Model provides a great analytical framework. This case study shows Double Helix Path Dependency Trajectory Model of GM Korea & GM. In terms of the characteristics of automobile industry that consists of relatively a few automakers globally, GM Korea & GM may represent the entire auto industry. The evolution path of GM Korea, a major subsidiary of GM affects that of GM, as GM Korea’s business is closely interconnected with GM.

In particular the synergies generated from the collaboration of the said two separated companies influence the path dependency of them.

II. Double Helix Path Dependency Trajectory Model

2.1 Historical Routine and Path Dependency of Industries

Path dependency in social phenomena is just like inertia in natural phenomena. Inertia is the key concept explaining Newton’s First Law of Motion and refers to the tendency of an object that is not subject to any outside forces to move at a constant velocity to a constant direction. Likewise, path dependency in social science is a concept explaining a social phenomenon that progresses with a certain direction and force, or a vector. The path dependency concept was first proposed by Stanford University professor, Paul A.

David. Similarly, the historical routine of an industry has a trajectory following the trace of path dependency. Sewell(1996) suggest path dependence means “that what happened at an earlier point in time will affect the possible outcomes of a sequence of events occurring at a later point in time”. Hong(2008) defines that path dependence is that the path established for the specific direction has a tendency to continue to go forward the same direction, and self-reinforcement attributes that is difficult or impossible in shifting the direction over time. Therefore, the concept of path dependency²⁾ can offer insights into the future of an industry through the trajectory created by a series of historical events in the industry.

This case study used the Double Helix model (Kim, Kwak and Cha, 2006) that is utilized to explain the changing patterns of integration and disintegration of an industry. By analyzing specific events that have taken place in the auto industry from the traces in the Double Helix Model, a general understanding of the industry’s evolution can be obtained.

2.2 Double Helix Path Dependency Trajectory Model

MIT Professor Charles H. Fine (1998) defines

a company’s evolution path using a Double Helix Model.³⁾ He used the metaphor of the evolution of a specie in genetics to explain that a company evolves in the same way that a specie does, and when the company fails to change or adapt to new challenges, it will become extinct.

As the vertically integrated industries built by large enterprises become extinct, horizontal and non-integrated industries composed of numerous innovative companies that have entered the niche markets created in the wake of the extinction of large enterprises emerge; thus, creating an infinite double loop. In the evolution in the form of the Double Helix Model, the decision-making on product-supply chain drives the shift from a vertical-integrated industrial structure to a horizontal-modular industrial structure. For example, during the transition from the 19th century to the 20th century, over 100 carriage-makers sprouted up in Detroit, U.S., and all of them were in fact contributing to some extent to the “horseless carriage” industry that would emerge later.

In the mid-20th century, Henry Ford and Alfred Sloan integrated the horizontally fragmented auto industry around a few vertically integrated large companies such as Ford and GM. However, the automobile industry has

2) This explains how institutions and organizations become permanent by insignificant accidents of history, taking the typewriter keyboard arrangement as an example. In path dependency, the lock-in effect refers to the phenomenon that an insignificant event has a huge consequence or makes institutions and organizations too rigid to be changed.

3) This model is based on the Double Helix structure of DNA explained in *DNA: The Secret of Life* by James D. Watson and Francis Crick who found that DNA consists of two anti-parallel strands (phosphate and deoxyribose) in the shape of Double Helix.

recently been showing clear signs of reverting back to the horizontal/modular structure in the Double Helix Model, prompting Ford and GM to sell off their component business units (Fine, 1998). As such, when an industrial structure is vertical and the product architecture is integral, it comes under pressure to disintegrate into a horizontal-modular structure. In reverse, when an industry has a horizontal structure, it tends to come under pressure to integrate vertically and to move towards integral product architecture.

An enterprise evolves in a similar manner as the Double Helix Model shown below.

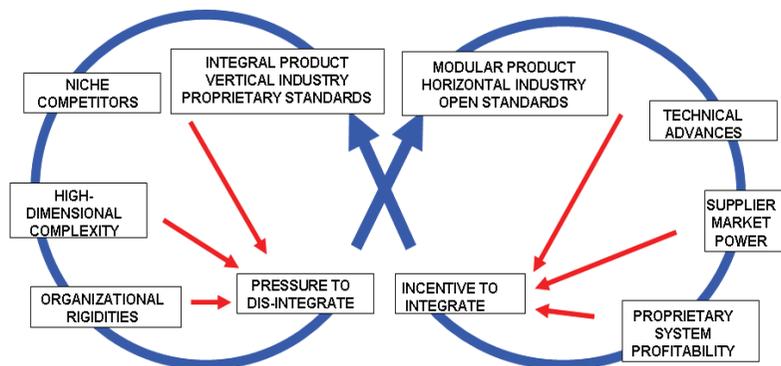
When the Double Helix Model is combined with the movement paths on the Strategy Map (Figure 2-A), Figure 2-C is derived.

Figure 2-A is a strategy map created from the combination of resource-based views (RBV) including generic strategies (Porter, 1980), core competency (Prahalad and Hamel, 1990), tacit knowledge (Nonaka, 1994), and VRIN

(valuable, rare, imperfectly imitable and non-substitutable; Barney, 1991).

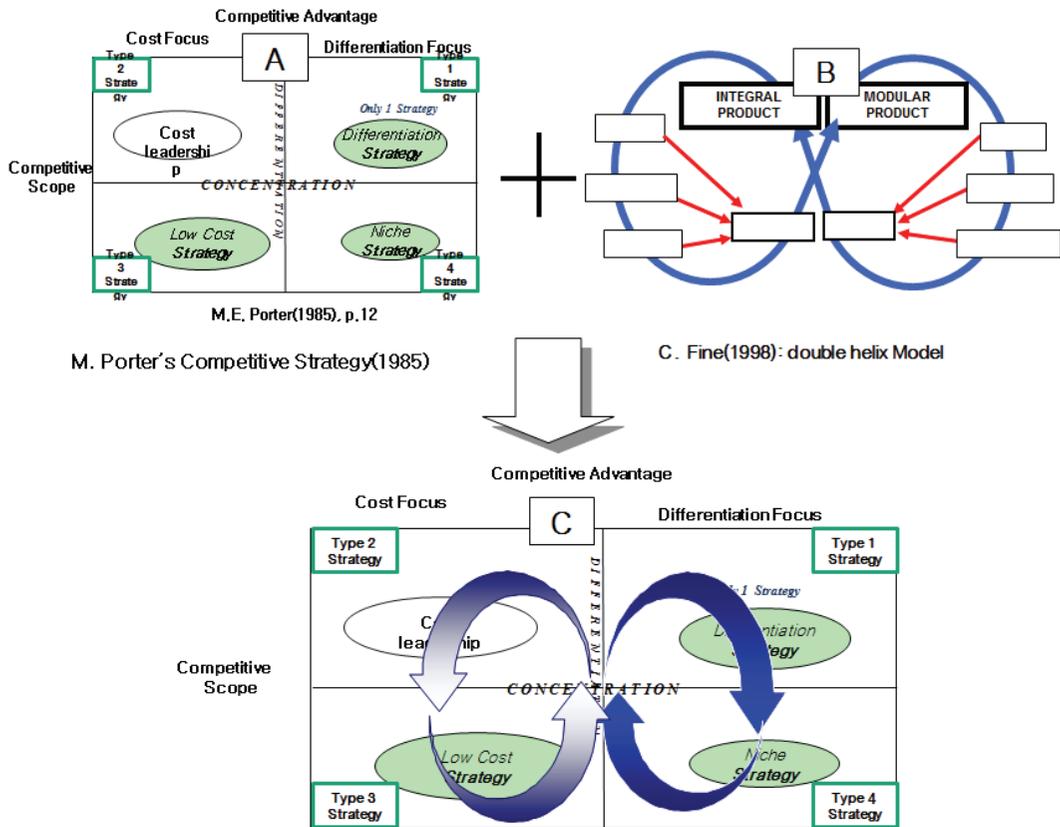
Figure 2-B is Fine’s Double Helix Model that illustrates the oscillation between vertical industry and horizontal industry, between integral product and modular product, and between proprietary standard and open standard that take place along with the repetition of strategic inter-company integration and disintegration. An excessive bureaucratic cost induces a horizontal organization, modular product, and open parts standard while an excessive transaction cost induces a vertical organization, integral product, and proprietary parts standard. In other words, bureaucratic cost and transaction cost create the path dependency in the behaviors of an organization.

Figure 2-C, where the path dependency trajectory in Figure 2-B is overlaid on the strategy map in Figure 2-A, explains the objectives and goals pursued by a certain company moving on its path dependency trajectory.



Source: Charles Fine, Architectures and Roadmaps for Communications and Media, MIT, November 2002

〈Figure 1〉 Double Helix Model



Source: Kim, Ki-Chan. (2005), "Dynamic Path of 3D Business Architecture and its performance," MIT International Motor Vehicle Program Researchers Meeting, University of Pennsylvania, Wharton School.

<Figure 2> Analytic Framework: Evolution Trajectory on the Double Helix Model

2.3 Characteristics of the Double Helix Path Dependency Trajectory Model

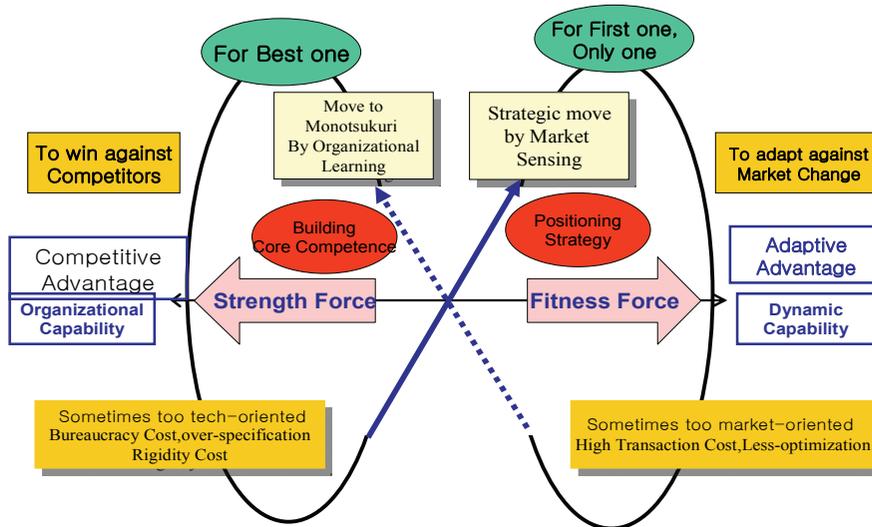
The characteristics and motives of each phase in the Double Helix Path Dependency Trajectory in Figure 2-C, are shown in Figure 3.

Phase 1: Integration and Organizational Capability Building

The evolution trajectory of an enterprise

starts in the fourth quadrant moving to the second quadrant if the enterprise is a venture, and starts in the second quadrant if the enterprise is an invention company. As the trajectory progresses toward the second quadrant, the enterprise needs a higher level of organizational capability. For this, *monozukuri* (Fujimoto, 2006) efforts emphasize that organizational learning and constant improvement, and subsequent Global No.1 in quality and price are required. One of the examples

Evolution Path on the Double Helix



〈Figure 3〉 Evolution Path on the Double Helix Path Dependency Trajectory Model

of a vertically integrated organization is Toyota which is famous for Toyota Inside and *kaizen*. Toyota also stresses the significance of shop-floor operations.

Phase 2: Disintegration and Cost Saving

However, if the enterprise becomes too bureaucratic or loses cost competitiveness due to excessive technology and quality, core competence might turn into core rigidity to resist environmental changes. These possible weaknesses of the second quadrant happen when the vertical integration of an enterprise can be disarrayed and horizontally disintegrated moving to the third quadrant. A look at the lifecycle of any product will tell us that integral products at the market introduction stage tend to become module products when

they reach their maturity stage. For instance, the charge-coupled device (CCD) image sensor and lens of the digital camera have been modularized to boost cost competitiveness.

Phase 3: Modularization and Dynamic Capability Building

As an enterprise moves from the third quadrant to the first quadrant, the capability of its planning and strategic team to respond to the changing market environment is more emphasized than the organizational capability on site. The strategic team would pursue a crucial move to a specific segment market identified through market monitoring and adopting of the 'First One, Only One' strategy to differentiate their products. In this stage, products tend to become modularized. One of

the benefits of modularization is the facilitation of innovation, as modularization makes product integration easy to acquire. In modular products, the subsystems are independent and the interfaces are simple. Therefore, the costs tend to be low.

In the meantime, the power shift between the platform leaders and mega-parts suppliers will become intensified. In general, system assembling companies as the platform leaders have the power to set the design rules for the assembly and composition between subsystems. If the mega-parts suppliers like Intel Inside have the control, the rule setting power goes to them. Often, companies like Intel and Cisco Systems that supply subsystems integral to the entire systems become the platform leaders.

Phase 4: Reintegration and Start of Focus on Production

As an enterprise moves from the first quadrant to the fourth quadrant, system assembling companies as the platform leaders come to lose a significant part of their organizational capability due to excessive production outsourcing while incurring too much transaction cost and deteriorated quality reliability. At this time, companies come to pay more attention to their shop-floor competitiveness to reinforce their weakened production capability, and begin to rebuild their organizational capability through vertical integration in order to reduce the excessive transaction costs caused by their vertical arrangements. As a result, the companies move to the second quadrant

<Table 1> Characteristics of Double Helix Path Dependency Trajectory

Evolution Path	Position on the Double Helix	Characteristics of Capability Building: Direction & Magnitude of Vector for moving
Phase 1: Integration & Organizational Capability Building	Quadrant 2	- Strength: Strong Factory with High Quality and Productivity - Weakness: High Organizational Cost - Evolution Direction: Continuous Improvement
Phase 2: Disintegration & Cost Saving	Quadrant 3	- Strength: Start to save cost by disintegration - Weakness: Core Rigidity with Bureaucracy - Evolution Direction: Disintegration and Cost Saving
Phase 3: Modularization & Dynamic Capability Building	Quadrant 1	- Strength: Product Differentiation and Customization - Weakness: Strong Power of Mega Supplier and High Transaction Cost - Evolution Direction: Marketing-oriented Strategy with Highly Value-Added Product Development
Phase 4: Re-integration & Start of focus on the Production	Quadrant 4	- Strength: Low Cost Strategy and Penetration Strategy - Weakness: Weakened Technology and Product - Evolution Direction: Start to focus on the Good Quality and Production Technology

again as shown in Figure 1.

The characteristics of the business architecture by phase on the Double Helix Path are summarized in Table 1.

III. Crisis and Revival of Daewoo Motor

3.1 The Acquisition of Daewoo Motor by GM

GM Korea began its history in 1962 as Shinjin Motor, a Busan-based car manufacturer. Shinjin Motor was one of the seven car manufacturing facilities authorized by the Korean government under its comprehensive automotive industry promotion plan. Shinjin entered the complete vehicle business in 1965 by taking over Saenara Motor, the biggest automaker in Korea at that time. The site of GM Korea's Bupyeong facilities was where the Saenara Motor headquarters stood. Shinjin Motor CEO Changwon Kim established collaborations with Toyota and began producing the Corona in 1966 and then the Crown Publica. After Toyota's withdrawal from Korea for the Chinese market in 1972, Shinjin started a joint venture with General Motors with a 50-to-50 equity interest ratio under the name General Motors Korea. However, the Chevrolet 1900 and the Record 1700 of GM Korea were both failures. These types of vehicles do not fit the road conditions in Korea and taxi companies were irresponsive to the GM brands, which only were strong and tough.

The struggling Shinjin sold its stake with GM Korea to Korea Development Bank in 1976 and GM Korea was renamed to Saehan Motor. Saehan's Gemini released in 1977 was popular. The Gemini was based on an Isuzu model using the Opel-Kadett platform. Its European style and good driving performance were the main selling points. A total of 18,900 units of the Gemini were manufactured from December 1977 to March 1981. GM's Korean partner changed again in 1978 when the Daewoo Group purchased Korea Development Bank's stake with Saehan Motor. After the Daewoo Group gained control of Saehan Motor in 1982, the company name was changed to Daewoo Motor in 1983. Daewoo Motor since exported the LeMans, GM's world car model, on an OEM basis. However, Daewoo Motor wounded its alliance with GM in 1992 due to frequent disagreements for the decision making on the investment.

Daewoo Motor seemed to be sailing well with the development of its own brand Lanos, Nubira and Leganza. However, its highly leveraged financial structure, excessive takeovers, and zero-interest car loan programs drove the car maker further into financial difficulties amidst the Asian financial crisis. Consequently, Daewoo Motor was saved from collapsing in August 1999, but was forced to bankruptcy on November 8, 2000. On the condition of GM's purchase of most of Daewoo Motor's assets, Daewoo Motor went through painstaking restructuring costing to nearly one trillion won (about US\$1 billion). It reduced material,

overhead, and investment costs, and slashed its payroll by 7,300 employees including the 1,750 laid-off factory workers at the Bupyeong plant. After signing a Memorandum of Understanding (MOU) in September 2001, Daewoo Motor was acquired by GM on October 17, 2002. The subsidiaries of the Daewoo Group - that became insolvent due to their affiliation with the struggling Daewoo Motor - were reorganized into Daewoo Corporation, a subsidiary of Daewoo Engineering & Construction and Daewoo International, and Daewoo Heavy Industries, a subsidiary of Daewoo Shipbuilding & Marine Engineering and Daewoo Machinery. Daewoo Electronics was sold off. As such, the third largest Korean conglomerate as of 1998 with the cumulative revenue of 61 trillion won, 12 key subsidiaries, and potent influence on the national economy, became a history.

3.2 Synergy with Daewoo's Production and GM's Marketing

Since its establishment in 2002, GM Korea has served as GM's key production base of mini and small vehicles, playing the lead role

in GM's global mini and small car strategy. The reinforced production capability of Daewoo Motor is combined with the brand power and global marketing network of GM to create synergies. GM Korea's first five years have been marked by significant achievements overseas. The combined export of complete vehicles and KD (knockdown) kits has more than tripled from 452 thousand units in 2003, 1,756 thousand units in 2007 and down to 1,422 thousand units in 2009 while domestic sales had 130 thousand units in 2003 and 2007 and decreased to 115 thousand units in 2009.

Daewoo-built vehicles that are receiving a positive response from customers around the world, have a Chevrolet badge in Europe, Latin America, Middle East and Africa, Buick or Pontiac badge in the US and China (as for the Pontiac, also in Mexico and Canada), and a Holden badge in Australia. In Vietnam and Central Asia, GM Korea cars retain the Daewoo brand. Under the leadership of the first GM Korea President and CEO Michael Grimali, GM Korea stabilized its foundation, exporting 830 thousand units of complete cars and 926 thousand units of CKD (completely

〈Table 2〉 GM Korea Sales Volume (unit)

		2003	2004	2005	2006	2007	2008	2009
Domestic		127,759	104,457	107,664	128,332	130,542	109,599	114,750
	CBU*	264,639	458,505	544,119	638,829	829,644	725,664	430,386
Export	CKD	187,495	337,122	506,074	758,658	926,446	1,066,294	991,263
Sub Total		452,134	795,627	1,050,193	1,397,487	1,756,090	1,791,958	1,421,649
Total		579,893	900,084	1,157,857	1,525,819	1,886,632	1,901,557	1,536,399

* CBU: Completely Built Up

〈Table 3〉 GM Korea's Revenue & Operating Margin

(in one hundred million Won)

		2003	2004	2005	2006	2007	2008	2009
Revenue	Domestic	13,004	10,132	11,360	16,258	16,466	12,712	15,409
	Export	29,765	50,803	63,952	79,783	108,670	110,394	79,917
	Total	42,769	60,935	75,312	96,041	125,136	123,106	95,326
Operating margin		-2,551	-3,543	-288	3,356	4,718	2,905	1,554

knocked down) kits in 2007, but, it decreased to 430 thousand units for CBU (Completely Built Unit) in 2009 while CKDs slightly increased to 991 thousand units.

3.3 GM Korea Joining the '10 Billion \$ Revenue Club' in 2006

GM Korea achieved 9.6 trillion won (about US\$ 1.03 Billion), joining the '\$10 billion revenue club,' and 592.8 billion won in revenue and net profit respectively in 2006, and achieved to report a cumulative revenue of 12.5 trillion won and a net profit of 540 billion won in 2007. The automaker's revenue has multiplied by over 3.6 times in 2007 since its birth in October 2002.

GM Korea's annual sales have gained steadily. Its worldwide sales in 2007 were 1,886,632 vehicles, including 1,756,090 units exported. Accordingly, the car builder's cumulative revenue went up 27.5% from 7,531 billion won in 2005 to 9,041 billion won in 2006. The figure rose again to 12,513 billion won in 2007. The operating margin also jumped from a loss of 28.8 billion won in 2005 to a gain of 335.6 billion won in 2006 with the forecast of another large increase in 2007. In

2009, GM Korea managed to sell 1,536,399 units (wherein 1,421,649 units were exported) despite the financial downturn in 2008; while increased to 1,842,564 units in 2010 with 1,716,834 units exported.

IV. GM Korea with its Moves to Change

4.1 Environment changes of Automobile Industry

The global automobile marketing has continued to change in terms of major marketplace, car segment and customer needs.

The share of emerging markets including BRICs has continuously increased. In particular the share of BRICs showed 21% in 2007 in the global car market, and it increased up to 34.7% in 2010.

The small car segment has increased steadily, as the small car gives more benefit to customers in terms of car purchase price and running cost, and car makers have concentrated on the development of small cars to respond to the environment regulations.

Also niche car market has been expanding to meet the requirement of high income and young customers who want to buy sports cars including SUV, Cross-over, Coupe, and Convertible. In the meanwhile each auto makers have accelerated the investment for developing the future environment friendly vehicles including hybrid vehicles, electric vehicles, fuel cell vehicles.

Amid the unfavorable business environment such as the high oil prices, a stagnant economy, and the weak Korean won, GM Korea's sales revenue has increased by 4.6 times and 3.6 times in 2006 and 2007, respectively, since 2002. What are the secrets? Constant innovation, focus on mini and small vehicles, and leveraging of GM's global network are the major contributing factors.

4.2 Evolution of Production Capability

"GM Korea's fundamental role is the research and development for GM around the world leveraging GM's global network." This is GM's blueprint for GM Korea explained by GM Chairman and CEO Rick Wagoner who spoke at the dedication ceremony of the GM Korea Cheong-Na Proving Ground in the Incheon Free Economic Zone in October 2007. After Michael Grimaldi took over the GM Korea presidency, GM has not spared any efforts to elevate the status of GM Korea from merely one of its production facilities to a world-class automaker as well as the home for GM's R&D. Indeed, GM Korea has con-

tinued to fortify its status by adding competitive new car models to its product portfolio and enhancing its production capabilities.

Starting with the Magnus midsize sedan in November 2002, GM Korea released the subcompact Lacetti and Kalos, followed by a new version of the Matiz micro-car and the Genra premium sedan. In 2006, it introduced the Winstorm, the car builder's first SUV, to market. In 2003, the company bought the Boryeong plant (previously Daewoo Powertrain) that manufactures automatic transmissions for passenger vehicles. Currently at the Boryeong facilities, a new six-speed automatic transmission is under production. GM Korea has also developed a diesel engine that is standard on its diesel-powered passenger cars and SUV. A new diesel engine plant constructed in Gunsan went into full operation in 2006 with the annual production capacity of 250,000 units. In November 2003, the GM Korea Design Center opened in the Bupyeong facilities. In 2007, the Cheong-Na Proving Ground, housing GM Korea's new test track along with its engineering and R&D facilities, was completed in the Incheon Free Economic Zone. On these efforts, GM Korea has spent almost three trillion won, strengthening its production capacity and engineering capability as well. Now with its new CEO Micheal Grimaldi on board, the company's focus is on transforming itself into GM's global R&D base. The Cheong-Na Proving Ground, which was completed in 2007, was the starting point.

4.3 Focus on Mini and Small Vehicles and the Dual-Brand Approach

Selected as the home of GM's global mini and small car development teams, GM Korea is concentrating on the development of new mini and small car architecture that befits the new demands of the global GM brands. The export record of 1.75 million units in 2007 is the result of GM Korea's focus on mini and small cars such as the Matiz, Lacetti, Gentra, and Kalos, and leveraging of GM's global sales network that reaches more than 150 nations around the world. GM Korea-built vehicles are being marketed worldwide under various GM Group brands including Buick, Pontiac, Suzuki and Holden. GM re-branded most of Daewoos (former brand of GM Korea) as Chevrolet, GM's most popular brand.

GM Korea's leading role as GM's strategic base for mini and small vehicle R&D and production is expected to continue. "GM Korea's world-class vehicle design and development capability has already been proven. It will allow GM to continue to gain in our global sales," GM Chairman Richard Wagoner said at the GM Tech Tour event held in Shanghai in November, 2006.

GM Korea's Cheong-Na Proving Ground will play the central role in developing the next generation global mini and small cars for GM around the world. GM's global mini and small car architectural development team working at GM Korea's Bupyeong headquarters manufactured almost 200,000 units in 2009.

These models are marketed both in the domestic and global market as GM's next generation mini and small car.

4.4 GM Korea Entering the Emerging Market of China as GM

GM Korea's mini and small vehicles are entering the world's second largest vehicle market, China. According to the China Association of Auto Manufacturers (CAAM), China's car sales in 2007 rose by 21.8% year on year to around 8.79 million vehicles, and the number of vehicles (domestic and imported) sold in China went up by 20% to about 8.6 million units during the same period. In particular, the sales of passenger cars went up by 50%. Imported car sales have also been on the rise: in 2007 Volkswagen sold over 0.9 million vehicles, up 28% from the previous year, and GM sold over 1million vehicles, up 18.5%, in the Chinese market.

Exports accounted for 83% of GM Korea's revenue in 2006 due to its strong sales in China and other emerging markets. Most of the Chevrolet and Buick vehicles that were marketed in China were re-branded GM Korea models. The Buick's bestseller was the Excelle, the re-branded version of the Daewoo Lacetti. The Excelle represented 53% of GM Korea's CKD kit exports in 2007. GM Korea exported approximately 360,000 units of the Excelle KD kits to be assembled into vehicles by Shanghai GM and Shanghai GM Wuling. GM Korea's Matiz, which is being sold as the

Chevrolet Spark, was rated by J.D. Power as the 'Best Small Car in China in 2007.' In this regard, it can be said that the success of Buick and Chevrolet in China was in large part attributable to GM Korea.

Shanghai GM, the number one carmaker in China's domestic market claims over 10% of the market share as of 2007. This is not an easy feat in the Chinese market, where all the world's auto companies except Renault are involved in fierce competition. The number of car brands, if the 120 Chinese firms are included, is near 150. Referring to the strong presence of GM in China, GM Chairman Wagoner praised GM Korea for being an integral part of it. GM China President Kevin E. Wale noted in his analysis that the demands for the Buick Excelle (the Lacetti) and the Chevrolet Lova (the Gentra) were solid amidst the fierce competition in China. The sales of the Chevrolet, the most popular GM brand with reasonable prices, rose by 37% to 145,392 units in 2006. The sales of the Buick, another bestselling GM brand in China, increased by 24.9% to 304,230 units during the same period.

There is a notable increase of total sales in Shanghai GM from 2007 to 2009 with 35% increase from 358,241 units to 483,072 units, respectively. From January to May 2010, Shanghai GM has already sold 408,200 vehicles, which increased by 79% from the same period in 2009.

4.5 Improved Labor-Management Relationship and Productivity

The labor union of GM Korea was one of the most militant in Korea. After the bankruptcy of Daewoo Motor, the labor-management relationship in GM Korea has dramatically improved. When GM Korea was launched in 2002, GM postponed the acquisition of the Bupyeong plant where the unionized Daewoo Motor workers were waging a series of violent protests until the labor unrest was eased and productivity was improved. One of the acquisition conditions was that the lost workday of the Bupyeong plant caused by labor strike should not exceed six days, the global working average of the GM facilities. As of 2007, the Bupyeong facilities have been running smoothly with the negotiation between labor and management being settled without major labor strikes each year. The operation rate of the plant has also increased significantly, displaying enhanced productivity.

In 2004, the Kalos ranked first in the small car category in the US market and GM decided to take over the Bupyeong plant. The previous GM Korea President and CEO Nick Reilly predicted that the Bupyeong plant would soon record the highest productivity among the all GM production facilities around the world. In a move unprecedented among Korean enterprises, GM Korea brought back all 1,605 former employees who wished to be reinstated in May 2006, showing its belief in co-prosperity of labor and management. They were among

〈Table 4〉 GM Korea’s Domestic Operation

		Capacity*	Operating rate			
			2003	2005	2007	2009
Bupyeong	Vehicle Assembly	440	43.10%	67.90%	113.70%	45.30%
Gunsan	Vehicle Assembly	264	43.00%	75.80%	97.70%	66.50%
Changwon	Vehicle Assembly	211	54.40%	82.50%	87.30%	76.10%

* Capacity: 1,000 unit/Year: Capacity based on 4,400 hours/year

the 1,750 employees laid off by GM Korea’s predecessor, Daewoo Motor, due to financial difficulties. With the rising production and sales, the plant’s operation rate was exceeding 100%, compared to less than 50% in 2003, and the payroll has increased by 2.5 times since 2002 to 20,841 as of December 31, 2007. However, due to the global financial crisis in 2008, which affected the sales volume, payroll has also decreased by approximately 23% to 16,900 in 2009.

V. Key Success Factors of GM and GM Korea from 2002–2007

Following the definition of innovation by Joseph A. Schumpeter (1883–1950), GM Korea succeeded to innovate itself through new combinations as follows:

- i. GM Korea’s focus on mini and small vehicles and GM’s brand power;
- ii. GM Korea’s workforce and GM’s technology;
- iii. GM Korea’s low cost and GM’s sales

network;

- iv. GM Korea’s speed and GM’s system; and
- v. GM Korea’s manufacturing technology (process standardization and plant layout) and GM’s product technology.

These new combinations evolved into cost competitiveness, which will be elaborated below.

5.1 Lean Structure and Cost Competitiveness

One of GM Korea’s strengths is its cost competitiveness when it started becoming compact and lean, through strong reform measures during its restructuring. GM Korea’s lean structure has reduced labor, manufacturing, marketing, financing and other costs. Moreover, the labor union, once the stumbling block for GM Korea, has become a stepping stone for the company’s fresh start as the labor-management relationship has been considerably mended. As such, GM Korea sets sail on an effective foundation where all the unnecessary parts of operation had already been removed as of 2002. In addition, since the new company foundation, GM Korea has continued to improve the productivity as well

as to achieve the material cost reductions through value engineering and global sourcing. As GM's systematic thinking was introduced and transparency was emphasized, GM Korea has become an exemplary case of constant cost innovation. Its excellent cost competitiveness has become its basis for expanded world sales while retaining its original Daewoo models.

5.2 Focus and Speed

The Koreans have a unique workplace culture called *shinbaram*. As a social-cultural expression, *shinbaram* commonly refers to a surge of emotive energy that inspires people to work diligently with ownership toward a task. GM Korea's workers' focus on given tasks speeds up their day-to-day operations. GM Vice President of Commercial Operation Alan Batey was amazed by GM Korea's speed. "When Korean workers get a task at 5 pm, they show the results to their supervisor the next morning. That speed is alive at GM Korea," he said.

GM officials who moved from Korea to another country always ask their people to learn the enthusiasm, experience and speed of GM Korea's workers. "I believe that our employees' hard work and strong desire to win are the factors behind the significant progress of GM Korea since its founding," said Nick Reilly who is currently the appointed President of GM Asia Pacific and Chairman of the GM Korea Board of Directors. The passion and devotion of GM Korea's workers are improving

the effectiveness of every aspect of the operation from product development and technology accumulation to productivity.

"I am happy for having been able to devote myself to my work for more than a decade in the glorious past," says an international official of the company. These words are meaningful. The challenging spirit, passion, and experience of the people at GM Korea have enabled them to reach into remote parts of Africa, Latin America, and Eastern Europe. These virtues living in the DNA of the employees have made today's GM Korea possible.

5.3 Close technology collaboration with global GM R&D Network

GM Korea has recruited outstanding Korean engineers. These engineers are the driving force for the company's technological evolution. They are contributing to enhancing the quality and cost competitiveness of the company. GM Korea can design and manufacture jigs and molds in a shorter time at a lower cost than its competitors. Equipped with this remarkable engineering capability, GM Korea is drawing attention around the world by posting explosive increases in exports every year due to its dual-brand strategy and leveraging of GM's global marketing network.

GM Korea has been assigned as a base for the development of global GM mini & small car architecture contributing to the remarkable increase of these models at the global marketplace. As a closer technology colla-

boration with GM Korea has developed new compact SUV & 6 Speed auto transmission by using the platform of GM, which resulted in the engineering expense savings. And also the company has been developing environment friendly vehicles including electric cars with the global GM technical centers & design houses.

In addition, President Michael Grimaldi and the workers have made efforts to reinvent the corporate image of GM Korea as a friendly company. In particular, the corporate image ad campaign “We invite you to experience our passion” featuring Mr. Grimaldi has received a favorable response from Korean customers.

5.4 Maximizing benefits from GPSC(Global Purchasing & Supply Chain)

Remarkable quality improvement, not only at GM Korea but also at Hyundai and Kia Automotive Group, the biggest Korean car-makers, can be attributed in large part to the Korean automotive industry’s quality and cost competitiveness. Korean car parts cost about 20% less than those of the world’s leading car parts manufacturers but their quality is not inferior. Consequently, a complete car sales increase leads to a parts sales increase. The purchase of auto parts by GM Korea has jumped to 6.9 trillion won in 2006 from 2.9 trillion won in 2003, backed by the company’s robust global complete car sales. The strong performance of GM Korea has changed GM’s perception of the Korean parts and materials

and persuaded GM to directly purchase Korean parts and materials worth 1.1 trillion won in 2007.

GM Korea has adopted the global purchasing and supply chain of GM to get parts cost competitiveness. Through the efficient integration into global GM purchasing GM Korea has been able to reduce the cost and it has pursued the global sourcing which made the best landed cost globally. In addition the company together with GM has accelerated supplier footprint optimization and restructuring to reduce the supply chain cost for global products program.

5.5 Effective utilization of global GM distribution network

GM Korea has have an opportunity to use GM’s well established worldwide vehicle sales network. This enabled GM Korea to increase the car sales volume dramatically as well as save the marketing cost significantly. In addition the company has expanded CKD export to the region & market where GM has the operation base. GM Korea has maintained position of CKD supply center in major regions such as Asia pacific and Latin America. It is notable that much of profits it made comes from the CKD business.

GM Korea has differentiated its brands reflecting the characteristics of different region and marketplace. In particular at the European market, the company use Chevrolet brands to differentiate with OPEL brands in terms of

customer awareness and car price.

VI. GM Korea Facing the 2008 Global Financial Crisis

6.1 GM Korea during the Crisis

Since the birth of GM Korea in 2002, it has been continuously improving its company performances. However, when the Global Financial Crisis struck in 2008, GM Korea was heavily affected. Revenue drastically decreased from 12.5 trillion won in 2007 to 9.5 trillion won in 2009. This reflected approximately 31% decrease in revenue as an effect of low sales in Europe, which is the major market of the company, with around 40% of its total volume. The crisis did not spare Korea as well in encountering low demands from the market. The International Financial Crisis has caused the demand to drop which in turn reduced the production volume (942,411 units in 2007 to 532,260 units in 2009 - approximately 44% decrease) and the number of employees working (20,841 in 2007 to 16,900 in 2009).

GM Korea has encountered massive hedging loss mainly driven by the weak Korean Won against hard currency after the Global Financial Crisis. It totaled to 745.5 billion won in 2009. The currency foreign exchange fluctuation also contributed to the increase in raw material costs, such as steel and rubber, which resulted

to the increase in the costs of parts.

Cash shortages were also experienced. This was partly derived from the inability of the operations to generate cash from sales. In addition, it was also due to the high levels of inventory of the importers and dealers in 2008, which in turn reflected to a delay in the collection of the receivables. The importers and dealers have experienced economic problems especially in its major markets, Eastern Europe and South America. Thus, some of the importers and dealers were unable to pay GM Korea as agreed in the contracts. Due to the slow sales as a rebound of the financial crisis, Eastern Europe and South America markets were selling inventories of 2008 in the year 2009 which also explains the inability to pay by some of the importers and dealers.

In addition, GM Korea has decided to delay its new product development due to concerns in cash flow. This has caused the company's supposed to be diverse product portfolio to be constant, thus, no new sales or niche market. Subsequently, the corporate image of GM in USA after declaring 'Chapter 11 - Bankruptcy' has also affected the image of GM Korea in international markets. This is due to the reason that most of its international markets are using Chevrolet as their brand. Moreover, GM Korea's relationship with its external stakeholders, including domestic sales distributors, financial institutions and local parts suppliers, has not been exceptionally good since 2008.

6.2 Rebuilding Plans of GM and GM Korea

6.2.1 GM Corporate

Ed Whitacre, the new GM Chairman and CEO, has been pushing and emphasizing process simplification in presentations, reports, meetings, etc. This is also to flatten the organizational framework as well as to make decision making more efficient. The main objective is for GM “to design, build and sell the world’s best vehicles”. Product has been the emphasis and thus, finance people are not in the middle of the processes any longer. This has been done in order to rebuild the consumer confidence over the brands of GM.

GM Corporate Office has also been preparing for its IPO (Initial Public Offering) to sell 20% of its Treasury’s stake that would reduce the US government to a minority owner by November 2010. In addition, GM has already established a venture capital subsidiary of US\$100 million LLC, in order to develop innovative technologies and alternative ways of powering vehicles and equipment quickly. The company also plans to acquire an auto finance company, AmeriCredit to meet the demands of the customers for leasing and non-prime financing for the vehicles of GM. As part of the efforts of the company to give confidence to its consumers, GM is also planning to offer buyers of Chevrolet Volt plug-in hybrid vehicles 100,000 mileage warranty on the lithium-ion battery.

6.2.2 GM Asia-Pacific

GM Asia Pacific is driving to increase its local content rate in GM India to 90% from its current 60% to reduce its material costs. In addition, it is aimed to sell 2 million vehicles in China in 2010. In order to increase even more, GM Asia-Pacific is planning to set up new GM China Advanced Technical Center to develop advanced vehicle designs and technology solution to carry out testing and development of electric vehicles and do researches on alternative energy vehicles.

6.2.3 GM Korea

On October 1, 2009, the new CEO, Mike Akarcamone, took over GM Korea. The new CEO focused on improving the operations of the company. He observed three challenges in the company in terms of organizational culture during the three months he joined the company as the new CEO. These are: 1. There are no clear matrix to evaluate performance; 2. No good teamwork; and 3. Processes are not well organized. In order to rebuild and change the company culture, the new CEO has developed a new set of core values: speed, risk taking and accountability.

In addition, following the strategies in the GM Corporate, Akarcamone is also emphasizing the need to make processes simple as long as tasks are being done efficiently. The organization has also been flattened, parallel to the strategies being implemented by the GM

Corporate Office.

New policies of GM Korea after the Akar-camone took over focused on enhancing productivity to reduce costs as it also develops new products and continuously improves its quality. In effect, more volume must be reached as the company creates new business opportunities and consequently increase its market share. The company went back to the black making a net profit in 2010 after experiencing net loss in 2008 and 2009.

GM Korea launched Alpheon, a new upper-medium sedan vehicle (jointly developed with GM North America) in 2010 in the domestic market. A new MPV (sub-compact size) model, Orlando, came out in the Korean market in 2011. In addition, the company introduced Malibu, in the intermediate car segment and plans to debut onwards based on their vehicle portfolio program. The company also takes a look at importing GM Volt, plug-in hybrid car under Chevrolet brand into the Korean market. It introduced Chevrolet brand in the Korean market substituting the Daewoo brand in 2011 and also renaming the company from GM Daewoo Auto and Technology to the current GM Korea to be a strong presence in Korea.

It is also aimed to import assembled vehicles from GM Global in 2012 in an effort to diversify its product portfolios and increase its market share so as not to incur duplicate developmental investment costs in different

countries. In addition, GM Korea will continue to leverage their technology to be up-to-date to the industry standards. GM Korea has started to develop the Spark electric vehicle with GM as part of its efforts in developing environment-friendly vehicles.

VII. Tracking and Analyzing the Evolution and Path Dependency Trajectory of GM and GM Korea in the Double Helix Model

7.1 Macro Path of GM and Micro Path of GM Korea

The evolution speed of a path dependency trajectory varies depending on the altitude of the architect, the decision maker (Clock-speed, Fine, 1998). GM Korea is part of GM's global strategy. In the context of GM's decision making, GM Korea is merely a base for GM's mini and small vehicle production. While GM designs higher-altitude business architectures, GM Korea makes low-altitude decisions in compliance with GM's global strategy, as illustrated in Figure 4.

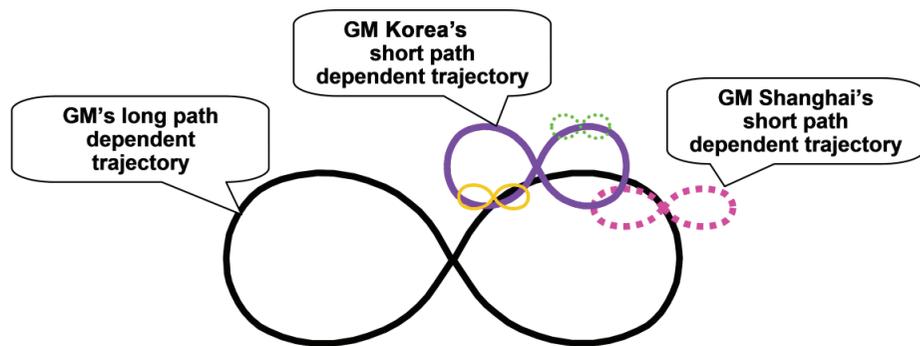
Whereas GM's business architecture determined at higher altitude moves at a slow clock-speed as the mega-trend⁴⁾ in the Double Helix Structure, GM Korea's business architecture

4) Mega-trends were quoted from futurist John Naisbitt's book *Megatrends Asia* (Simon & Schuster, 1997) and micro-trends were quoted from Mark J. Penn and E. Kinney Zalesne's book *Microtrends: The Small Forces Behind Tomorrow's Big Changes* (Grand Central Pub, 2007).

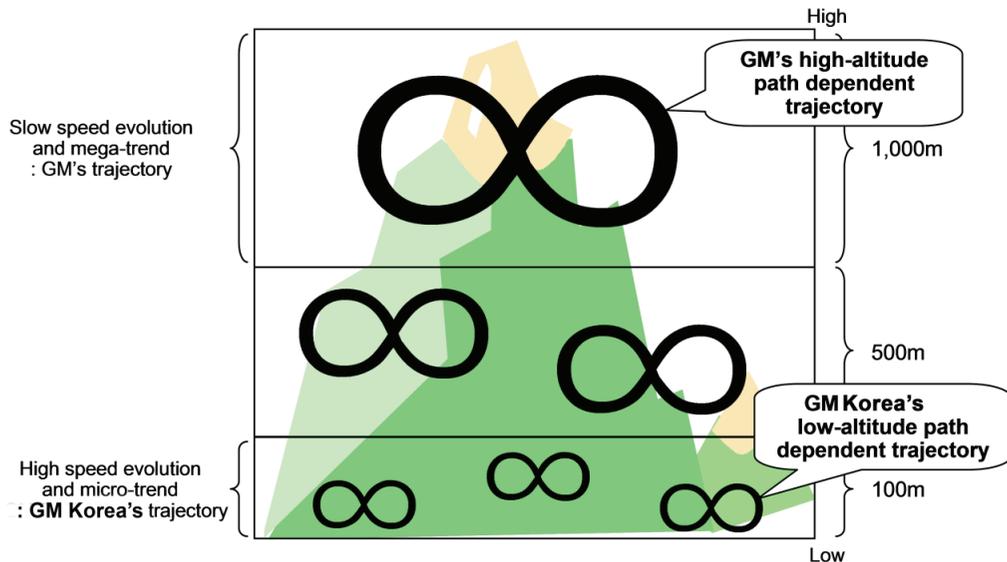
designed at lower altitude is the micro-trend on GM's megatrend Double Helix, which evolves at a relatively rapid clock-speed following a small Double Helix path dependency trajectory.

In Newton's First Law of Motion, the inertia of an object depends on the mass. The greater the mass is, the stronger the inertia is. In other words, breaking the inertia of a heavier object requires more power. The external en-

vironment of an enterprise in business plays the same role as the mass of an object in inertia. The impact of the external environments gets stronger as the altitude of an enterprise's decision making gets higher, as the enterprise has to also consider various social environments such as industrial, technological, cultural and organizational circumstances that the enterprise cannot control. To



Managerial altitude and speed of architectural evolution



〈Figure 4〉 Altitudinal Management and Speed of Path Dependency Trajectory: GM's trajectory of Macro-trends vs. GM Korea's trajectory of Micro-trends

check the impact of such external environments, an enterprise at a higher decision-making altitude needs the power strong enough to beat the maximum static friction force. Because of this, path dependency (David, 1985) becomes intensified having an explosive chain reaction like the butterfly effect. As a result, a big Double Helix megatrend, where integration and disintegration occurs in an alternating pattern to strike a balance between transaction cost and bureaucratic cost, is formed at higher-altitude business architecture. In this case, the pattern of integral product after modular product in terms of product architecture, internal capability reinforcing after outsourcing in production architecture, and proprietary system after open system in supply chain architecture, repeat on the Double Helix framework. In contrast, lower-altitude business architecture forms a micro-trend Double Helix structure on the mega-trend trajectory for the balance between centrifugal force and centripetal force.

7.2 Position of GM and GM Korea in the Evolution Path

The tracking of the GM and GM Korea's evolution trajectory reveals that GM is moving toward the first quadrant by changing its vertical supply-chain arrangement into a horizontal one on the occasion of Delphi's spin-off and pursuing the market segmentation and brand differentiation. Meanwhile, GM Korea is heading from the first quadrant toward the

second quadrant by adopting World No.1 strategy with the global mini and small vehicle market as its mass market. In short, GM is moving to the first quadrant of mega-trends and GM Korea to the second quadrant of micro-trends.

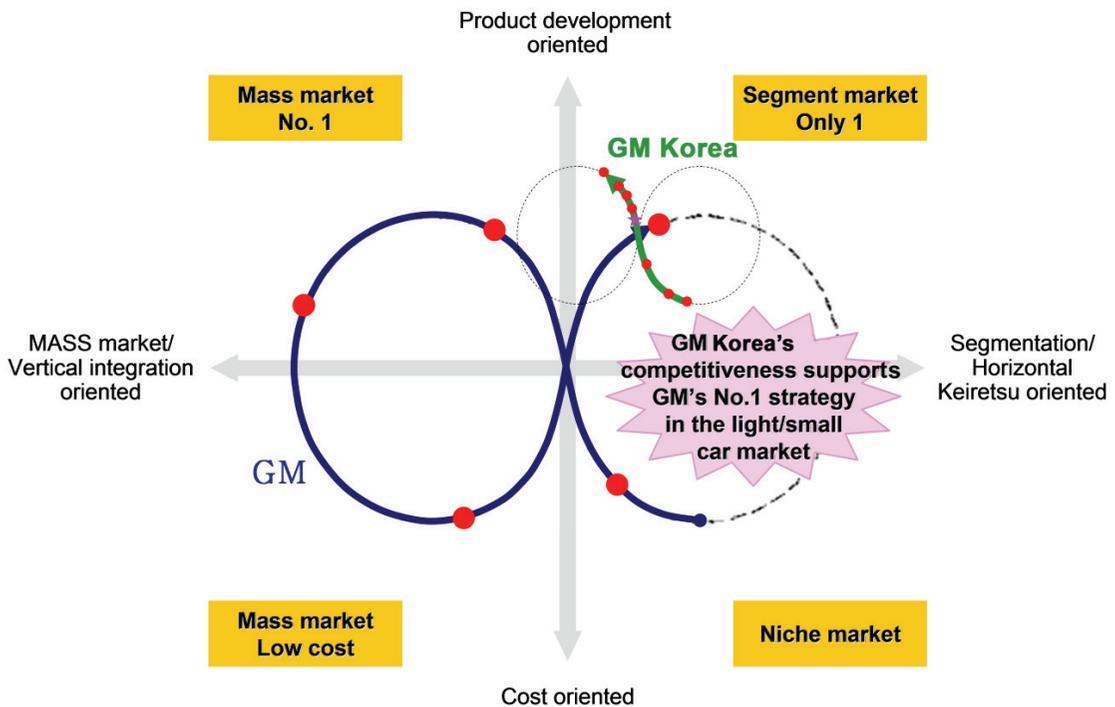
Mindful of its global performance, GM makes high-altitude decisions. When it develops a new vehicle, GM decision makers open a world map where the locations of GM Group companies are marked and decide which one will be responsible for development, architecture, upper body, design, and manufacturing. GM seeks a global optimization and integration where one of combination, optimization or allocation is determined according to the capability of each GM member company. In accordance with this global strategy of GM, the Global Manufacturing System (GMS) was created. The GMS can be seen as a kind of more systematized and standardized version of the Toyota Production System (TPS). GM has to apply the GMS to all the GM facilities around the world to reinforce its competitiveness in production. The GMS is comprised of five principles, 33 elements, and 260 core requirements that are intended to help the GM workers to become lean thinkers and lean leaders in order to increase values and reduce waste.

In the meantime, each one of GM's global factories does its best at the local level to become optimal in its segment market. GM Korea is specialized in the mini and small car segment of the market. The evolutions of GM

and GM Korea may appear to head toward different directions. However, their orientation is the same. Only their altitudes are different. In a nutshell, GM's mega-trend evolution and GM Korea's micro-trend evolution is progressing toward the same direction while interacting with each other at different altitudes.

GM Korea, which is integrating GM's capability of product development and production technology focusing on the global small car market, is pursuing the second quadrant of the Double Helix Model. It is because in the second quadrant, GM Korea can have the World No.1 competitiveness as the global powerhouse of mini and small vehicle deve-

lopment and production. The unrivaled competitiveness of GM Korea enables GM's 'World No. 1 and Only 1' strategy possible in the global mini and small car market. In this regard, GM Korea's evolution is serving as the driving force for GM's evolution toward the first quadrant. While GM is pursuing its 'Only 1' strategy in each segment of the global automotive market, GM Korea should become World No. 1 in terms of the development and production of mini and small vehicles. Based on this co-evolution, GM and GM Korea will enjoy sustainable development through positive interaction.



〈Figure 5〉 Evolutionary Paths of GM and GM Korea

7.3 Evolution Path of GM

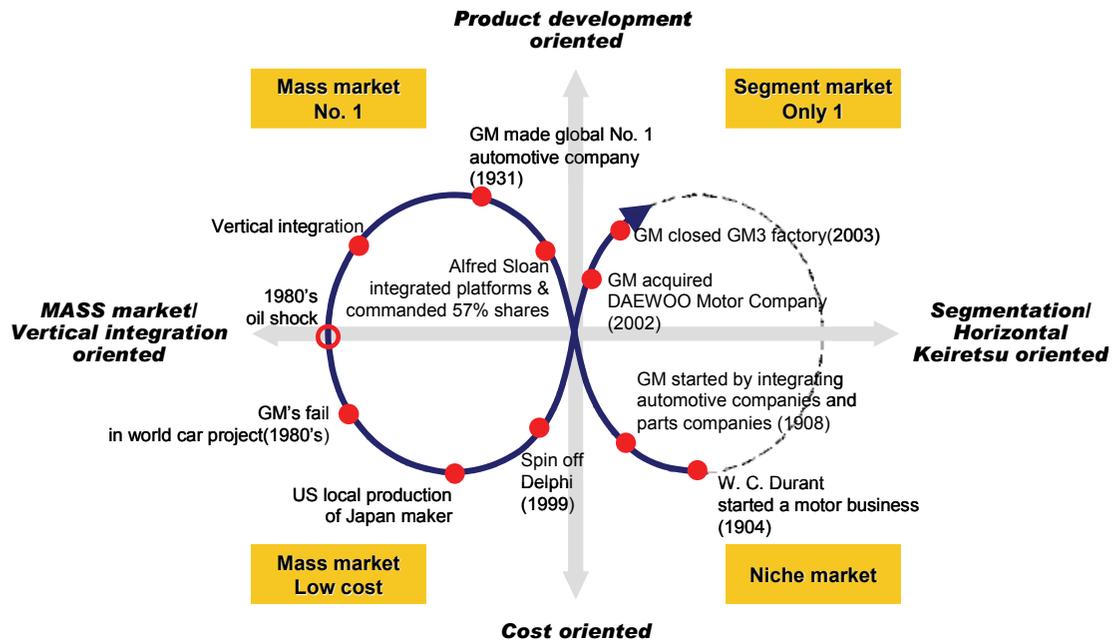
Phase 1: General Motors was founded in 1908 in Flint, Michigan by horse-drawn vehicle manufacturer William C. Durant who made a success as the General Manager of Buick. The next year, Durant brought in Cadillac, Oakland, and several others laying the firm foundation for today's GM. In this early stage, GM was on the fourth quadrant and headed to the second quadrant by concentrating its resources on building production capability.

Phase 2: GM strengthened its production capability by vertically integrating its organization through the merger and acquisition of related companies and parts suppliers. After Alfred P. Sloan joined the company as the Vice President in 1918, he enhanced GM's product quality and productivity by rearranging the assembly line to fit the market segmentation and integrating platforms. Due to this effort, GM's market share in the US reached 57% and GM secured the World No. 1 market share position in 1931. Since then, GM has maintained its World No. 1 car maker status. At this stage, GM is located on the second quadrant, equipped with World No. 1 technology and production capability.

Phase 3: As GM became a mega-organization, GM faced problems and the necessity to strengthen its operational efficiency came. After the oil crisis in the 1980s, in particular, Japanese car makers led by Toyota began to

erode GM's share in the US market. The most affected were GM's mini and small cars. The world car strategy that GM ambitiously adopted in the 1980s became a failure. The ineffectiveness of GM's mega-organization and vertical arrangement was blamed and GM took steps to cut costs. From this point, GM began to move toward the third quadrant of the Double Helix model. In 1999, GM came to pursue the horizontal integration of the supply chain by spinning off Delphi. A company is a part of a business ecosystem that crosses a variety of industries (Kim, 2009). The healthiness of this ecosystem, including supply chain, is critical to the success of the company.

Phase 4: At this stage, GM focused on spin-off and outsourcing, while enhancing its ability to respond to market changes. The previously vertical supply chain became horizontal and underperforming production facilities were closed. In 2003, three plants in the US were shut down. In addition, GM began to take a different approach to a different segment market. It strived to develop products and production technology that are optimal for each local market. As part of this effort, GM acquired Daewoo Motor (now GM Korea) in 2002 to use it as the home of its mini and small car strategy teams. In this phase, GM is moving to the first quadrant of the Double Helix Model, initiating its global differentiation strategy. The core role of GM on the first quadrant is to support the marketing of segment-specific products developed by the



〈Figure 6〉 Evolutionary Path of GM

GM family members by utilizing its brand power and global sales network.

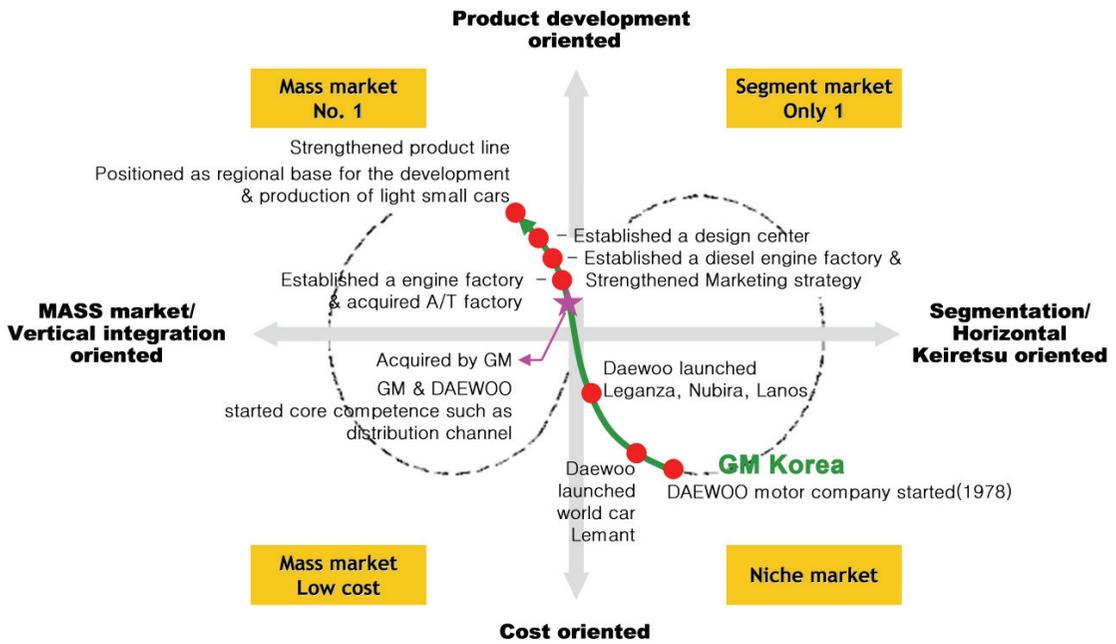
7.4 Evolution Path of GM Korea

Before the acquisition by GM in 2002, GM Korea was located on the fourth quadrant, making inroads into niche markets such as Eastern Europe. After the acquisition, it has been oriented toward the second quadrant of the small Double Helix model, constructing a new engine plant, purchasing an automatic transmission plant, and establishing a design center. On the second quadrant, the company is pursuing the No.1 status in the global small car market strategy by expending its product line-up and reinforcing productivity.

While GM Korea is enhancing its product competitiveness on the second quadrant, GM - while heading toward the first quadrant in the global market - is supporting the sales of GM Korea-built mini and small cars. Consequently, GM is solidifying its leadership in the global mini and small vehicle market.

VIII. Discussion & Conclusion

The interrelations between a mother company & its subsidiary affect the path dependency of both companies each other. Nevertheless the path dependency of them may be different depending on the degree of colla-



(Figure 7) Evolutionary Path of GM Korea

boration in doing business. In case of GM Korea & GM, even if GM Korea is a separate legal entity two companies perform business very closely like one company. They are cross functionally interoperated.

GM is strengthening its marketing capability based on its position in the first quadrant of the global mega-trend Double Helix trajectory. Meanwhile, GM Korea is reinforcing its competitiveness with regards to mini and small car production based on its position on the second quadrant of the micro-trend Double Helix trajectory. The result is the synergy created by the combination of GM Korea's production capability and GM's marketing capability.

GM Korea became a success case of *Ko-*

balization (Korea + Globalization) referring to globalization based in Korea. Now it is a car maker that delivers the best possible satisfaction to its global customers. It presented a new corporate vision in September 2006: 'A Global Leader in Automotive Design, Quality, and Customer Value,' 'Grow in Korean Market,' 'Accelerate Cost/Profit Improvement,' 'Development/Building High-Quality Segment - Leading Products,' and 'Expand International Business.'

For the sustainable development of GM Korea, coinciding with the global strategy of GM, GM Korea is required to continue to play a significant role within GM as a global product architecture development base, a high quality and cost efficient vehicle provider, and

a hub for maintaining a close relationship with competitive parts suppliers. In addition, GM Korea, with the support of GM, needs to aggressively invest in R&D to develop advanced technology and future environment-friendly vehicles including electric vehicles.

The Double Helix model used to analyze and show the evolution path of GM Korea can be applied for other auto makers which have their own evolution path, though each company may have different stages of developing its capability. One of the differences in analyzing the evolution path between GM Korea and other companies is that the evolution path of GM Korea, a subsidiary of GM is reflecting that of GM partly.

For the future research and study, the case of a mother company and its subsidiary of other company or industry is recommended to see the difference in the path dependency compared with the case of GM Korea & GM.

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지속가능기업을 향한 이중나선모형기반 진화경로 분석: GM Korea 2002-2009사례

김기찬* · 박지윤** · 이성상*** · Edward Keith G. Capoy**** · Charles H. Fine*****

요 약

대부분의 기업들이 성장과정에서 정체기를 가지며, 이것이 혁신의 시작이 되면 장수하지만 그렇지 못한 경우는 주저앉고 만다. 기업능력은 더 이상 개발되지 못하는데 유산비용은 점차 커지기 때문이다. 특유한 기업 역량은 모방되고, 기존 경쟁이 진부화되면 기업은 쇠퇴한다. 이때 재혁신이 필요하다(Nunes and Breene, 2011).

특히 큰 정체기에서 다시 회복하는 기업은 10%정도에 불과하다. ‘스톨포인트(Nunes, Paul, and Tim, 2011, Olson, van Bever, and Verry, 2008)의 연구에 의하면 포춘 100대 기업 중 87% 기업이 스톨의 덩에 걸린다. 이 중 11%는 고성장을 다시 회복한 반면 75%는 재도약에 실패하고, 13% 기업만 지속적 성장을 한다고 보고한다.

한국기업들은 선진기업 추적전략을 통해 지금까지 진화해왔다(이근 외, 2008). 본 연구는 구 대우자동차가 경영위기로부터 GM에 인수된 이후 경쟁력을 회복하는 과정을 동적능력과 조직능력의 관점에서 분석하고 있다. 첫 번째로, MIT의 파인교수(1998, 김기찬, 박성규, 송창석 역, 2002) 모델을 기초로 기업의 성장과정을 추적하고자 하였다. 특히 조직능력(organizational capability)과 동적전환능력(dynamic capability, Eisenhardt and Martin, 2000)의 진화단계별 특성을 살펴보고자 하였다. 그 특성에 따라 부품산업에 있어서 설계능력의 변화(송창석, 김기찬, 강명수, 2003), 기업복잡성 관리를 위해 모듈화(Baldwin and Clark, 1997, 2000, Camuffo, 2000, Fujimoto, 2002a, 2002b)가 도입되는 특성이 있었다.

두 번째로, 이러한 모델을 바탕으로 GM Korea의 진화과정을 추적, 분석하였다. 특히 GM과 대우자동차 간 협력전략의 장점을 중심으로 살펴보고자 하였다(Astley and Fombrun, 1983, Lavie, 2006). GM Korea는 GM에 인수된 이래 국내와 해외자동차시장에서 괄목할만한 판매신장을 가져왔으며, GM의 글로벌 경차 및 소형승용차 개발센터로 선정되어 핵심 R&D의 역할을 수행해 왔다. 2008년 글로벌 금융위기 이후 GM Korea는 침체기와 회복기를 거쳐 회사명의 변경과 더불어 한국시장에서 브랜드를 변경하였다. 또한 본

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연구에서는 글로벌 전략을 통해 GM Korea의 성공에 많은 영향을 주고 있는 모회사 GM의 진화과정을 함께 분석하고 있다. GM 진화과정의 한 부분으로 GM Korea의 역할과 진화과정을 Double Helix Model을 통하여 연계분석함으로써 글로벌자동차 메이커와 연계한 한국자동차기업의 지속성장(장수기업) 진화경로 연구에 대한 전략적 시사점을 얻고자 하였다.

다만 본 연구의 사례연구 대상기간인 2002년에서 2009년은 미국 본사의 GM과 한국의 대우자동차가 협력적 전략관계를 통해 부실기업인 대우자동차를 안정화시키기 위해 노력했던 시기이다. 그러나 2009년 이후에는 어려워진 본사 GM의 영향으로 단기적 수익추구전략이 예상된다. 회사명까지 GM Korea로 개정하였다. '대우'라는 명칭을 지운 GM Korea는 향후 대우자동차의 입장보다는 본사의 단기수익을 강조하게 될 것이다. 이 경우 협력적 관계를 전제로 한 지금까지의 사례내용과는 다르게 갈등적 경쟁관계가 예상된다. 또한 한국 내 부품업체들과의 상생적 협력관계기반이 흔들리고, 기업생태계와 관련된 여러 문제(김기찬, 2009)가 제기될 것으로 예상된다.

주제어: 지속가능기업, 장수기업, Double Helix Model, 진화경로, 기업 진화, 동적능력, 조직능력

〈Teaching Note〉

Evolution Path for Corporate Sustainability Based on the Double Helix Model: The Case of GM Korea from 2002–2009

Synopsis

This paper traces the evolution path of GM Korea - since General Motors (GM) took over the struggling Daewoo Motor and rebuilt it, to its remarkable performance in sales both in the domestic and global market and as GM's homeroom for mini and small vehicles development, to its downfall after the 2008 Global Financial Crisis, and to its way of rebuilding the company bringing the current name, GM Korea.

We use the Double Helix Model by Charles H. Fine to observe and analyze the evolution path of GM and GM Korea and get strategic insights of the company's path of longevity. Whereas GM's business architecture determined at higher altitude moves at a slow clock-speed as the mega-trend in the Double Helix Structure, GM Korea's business architecture designed at lower altitude is the micro-trend on GM's megatrend Double Helix, which evolves at a relatively rapid clock-speed following a small Double Helix path dependency trajectory. The evolution path of GM Korea can

significantly affect the path that GM is taking. Likewise, GM, being the mother company, plays a very significant role of leading GM Korea to success under its global strategy, affecting the evolution path of the company.

Teaching Point

1. What has been the process of GM Korea in building an organizational capability since it was acquired by GM?
2. Did the evolution of GM Korea affect the evolution path of GM? And so, what is the relationship between GM Korea's micro evolution path and GM's macro evolution path in the Double Helix Model?
3. How did the acquisition of GM Korea by GM affect the evolution path of the GM Korea?
4. Even if GM Korea has been successful in overseas market, but still struggling

in the domestic market. What initiatives are required for GM Korea to increase the market share in Korea?

maker as well as the home for GM's R&D. Indeed, GM Korea has continued to fortify its status by adding competitive new car models to its product portfolio and enhancing its production capabilities.

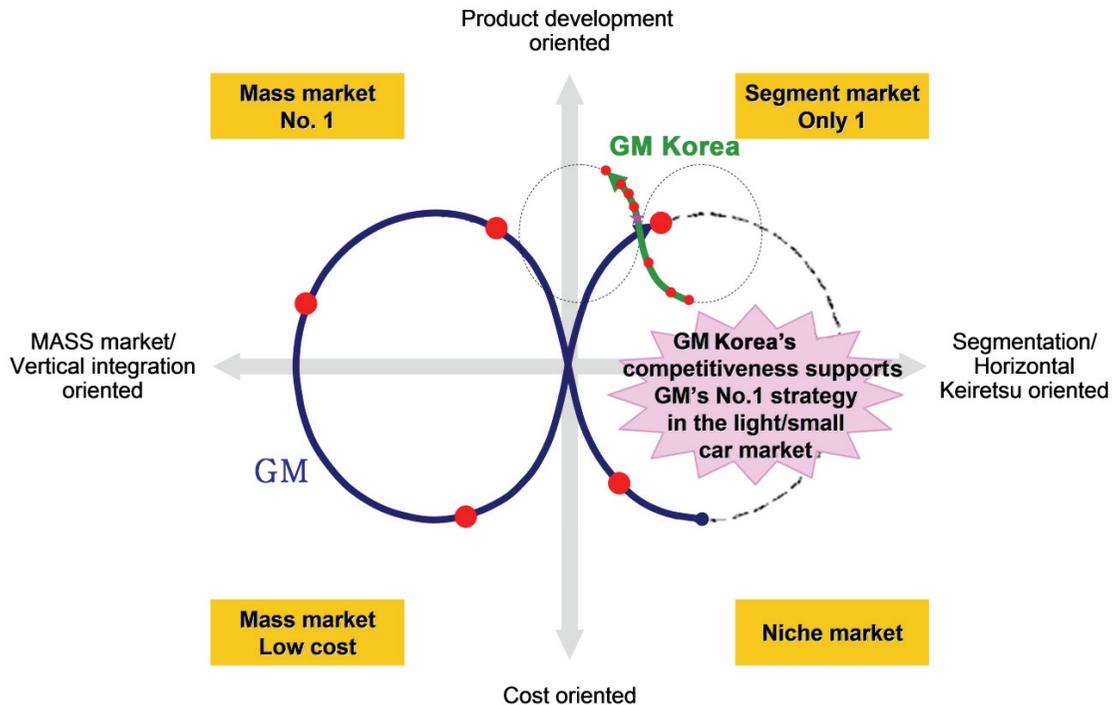
Assignment Questions

1. What has been the process of GM Korea in building an organizational capability since it was acquired by GM?

GM has not spared any efforts to elevate the status of GM Korea from merely one of its production facilities to a world-class auto-

GM Korea is concentrating on the development of new mini and small car architecture that befits the new demands of the global GM brands. GM Korea-built vehicles are being marketed worldwide under various GM Group brands including Buick, Pontiac, Suzuki and Holden. GM re-branded most of Daewoos (former brand of GM Korea) as Chevrolets, GM's most popular brand.

GM Korea has invested in building pro-



〈Figure 5〉 Evolutionary Paths of GM and GM Korea

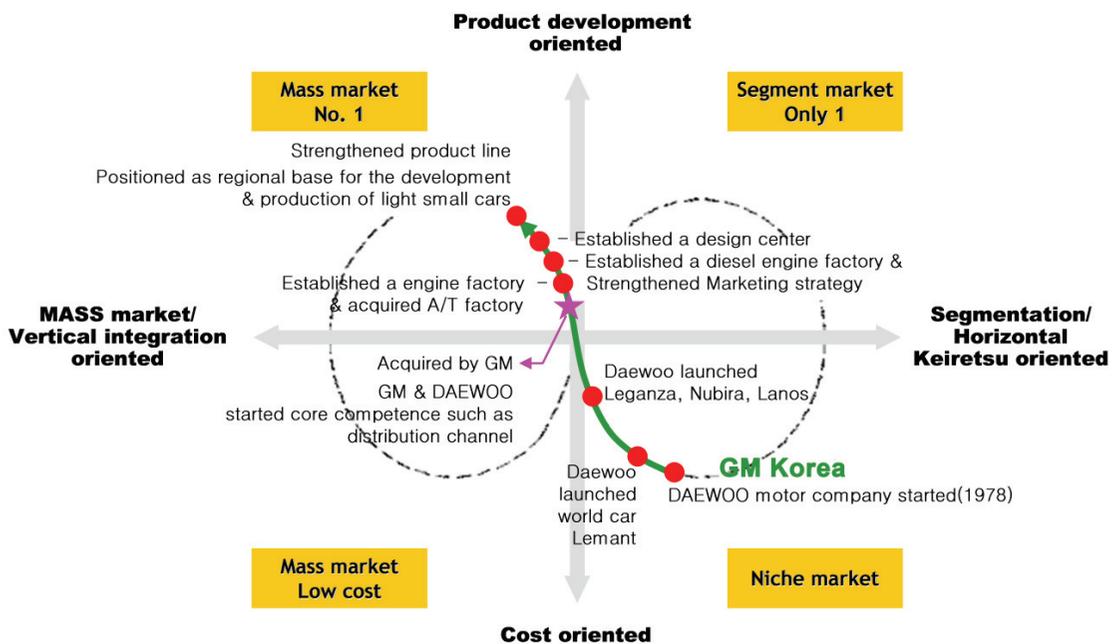
duction facilities. It built the proving ground as the new test track for new car development, expanded vehicle design center, acquired automatic transmission manufacturing facilities and built diesel engine production plants.

GM Korea increased its export of small cars and knock-down (KD) kits to the emerging markets including China.

The labor-management relationship in GM Korea has dramatically improved, since the bankruptcy of Daewoo Motor, and has led to the rising production and sales, with the plant's operation rate exceeding 100%, compared to less than 50% in 2003, and the payroll has also increased by 2.5 times since 2002 to 20,841 as of December 31, 2007.

2. Did the evolution of GM Korea affect the evolution path of GM? And so, what is the relationship between GM Korea's micro evolution path and GM's macro evolution path in the Double Helix Model?

GM Korea's evolution is serving as the driving force for GM's evolution toward the first quadrant. While GM is pursuing its 'Only 1' strategy in each segment of the global automotive market, GM Korea should become World No. 1 in terms of the development and production of mini and small vehicles. Based on this co-evolution, GM and GM Korea will enjoy sustainable development through positive interaction.



(Figure 7) Evolutionary Path of GM Korea

3. How did the acquisition of GM Korea by GM affect the evolution path of the GM Korea?

Before the acquisition by GM in 2002, GM Korea was located on the fourth quadrant, making inroads into niche markets such as Eastern Europe. After the acquisition, it has been oriented toward the second quadrant of the small Double Helix model, constructing a new engine plant, purchasing an automatic transmission plant, and establishing a design center. On the second quadrant, the company is pursuing the No.1 status in the global small car market strategy by expending its product line-up and reinforcing productivity. While GM Korea is enhancing its product competitiveness on the second quadrant, GM - while heading toward the first quadrant in the global market - is supporting the sales of GM Korea-built mini and small cars. Consequently, GM is solidifying its leadership in the global mini and small vehicle market.

For the longevity of GM Korea, it should continuously build and integrate its organizational capability and dynamic capability, thus going on track on its evolution path, coinciding with the global strategy of GM.