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The governance of global value chain between Korea and China

- A case of LG Display's new plant in China -

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ABSTRACT

Global value chains exhibit a variety of characteristics and impact players involved in a variety of ways, and they have become much more prevalent and elaborate in the past 10 to 15 years. Multiple participants that comprise a global value chain are spread over wider areas, the activities of these players need to be tightly integrated and systematically managed. Thus the governance system becomes an important instrument in global value chains. Taking LG Display's new plant in China as a case study, this paper analyses the structure of LG Display global value chain, and explores the governance strategies of LG Display in the view of global value. Some suggestions are proposed such as enhancing cooperation with local government authority, fostering strategic coupling with domestic firms, utilizing the opportunity brought by the policy of Chinese domestic demand expansion, effective management of human resources and strengthening the R&D capability.

Keywords: Global value chains, governance, LG Display, Korea and China

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1. Introduction

Bilateral trade between Korea and China has been increasing fast since 1992, when formal diplomatic relations between the two countries established. Now the two countries have become major trading partners with each other. During the past 20 years, trade patterns between the two countries have changed a lot in the aspects of items, production stages and technology level. Since 2003, the share of parts and semi-finished products in China's total import has been decreasing, which implies that substitution of import has started to take place in China's intermediate goods market. At the same time, the share of parts and materials in Korea's export to China is also decreasing since 2004. This shows Korean invested affiliates in China are gradually localizing their use of parts and materials within China, rather than import from Korea. We can see the trade pattern of Korea export parts and intermediate goods to China, and China manufacture final goods and then re-export to the global market will be changed. Meanwhile, accompanying with China's policy of boosting the domestic consumption and promoting industrial restructuring, China is changing from the 'world factory' to the 'world market'. All these contribute to the changes of global value chains between Korea and China.

Global value chain analysis has become an ever more important approach in economics to study the globalization of different sectors. And good and effective governance in global value chains harbors a significant potential for the enhancement of competitiveness and performance. It is worth noting that the governance pattern of global value chains is not immutable, it tends to be various in different industries, and it can be various from one stage or level of the chain to another even in the same industry. In this paper, analysis are focused on the liquid crystal display (LCD) industry for the following reasons: firstly, the LCD industry is the one of the main industries that Korea and China are closely linking; secondly, the LCD industry is also one of the state-designated strategic emerging industries in China that has been getting considerable attention recently; and thirdly, Korea has a strong voice in the LCD industry as LG Display and Samsung play key roles in this industry. The supply chain governance strategies adopted by the two enterprises have important impact on the industry. Considering LG Display has constructed a new plant in China recently, this paper takes LG Display's new plant as a case study, and analyses what governance strategies can be adopted for LG Display to maintain their competitiveness in the view of global value chains.

In the following section, global value chain will be firstly reviewed. The third section of this paper introduces the trade between Korea and China in the aspects of trade volume, pattern changes by item, stages of production and technology level. The fourth section reveals the governance strategies of LG Display's new plant in China.

2. Literature review

2.1 Global value chain

Value chains are the evolution of supply chain management, which shift the focus from production to the whole range of enterprise activities. A value chain encompasses the full range of activities undertaken by enterprises to bring a product or service from conception through different phases of production, delivery to final consumers, and final disposal after use (Kaplinsky and Morris, 2001). Enterprises try to optimize their resources by international production, trade and investments, which promotes the emergence of global value chains.

The global value chain framework provides a holistic view of industries from the aspects of (1) a input-output structure, which describes the process of transforming raw materials into final products; (2) a geographical considerations; (3) a governance structure, which explains how the value chain controlled; (4) an institutional context in which the industry value chain is embedded; and (5) upgrading, which describes the dynamic movement within the value chain by examining how producers shift between different stages of the chain (Gereffi, 1995; Gereffi,1999; Humphrey and Schmidt, 2002).

With the different elements of analysis, the global value chain has been used widely in various industries, such as agricultural (Ponte, 2002; Bush and Oosterveer, 2007; Guthman, 2009; Busch and Bain, 2004), manufacturing (Gereffi and Korzeniewicz, 1994; Kenney and Florida, 1994; Sturgeon, 2002; Kaplinsky and Morris, 1999), and service industry (Rabach and Kim, 1994; Clancy, 1998).

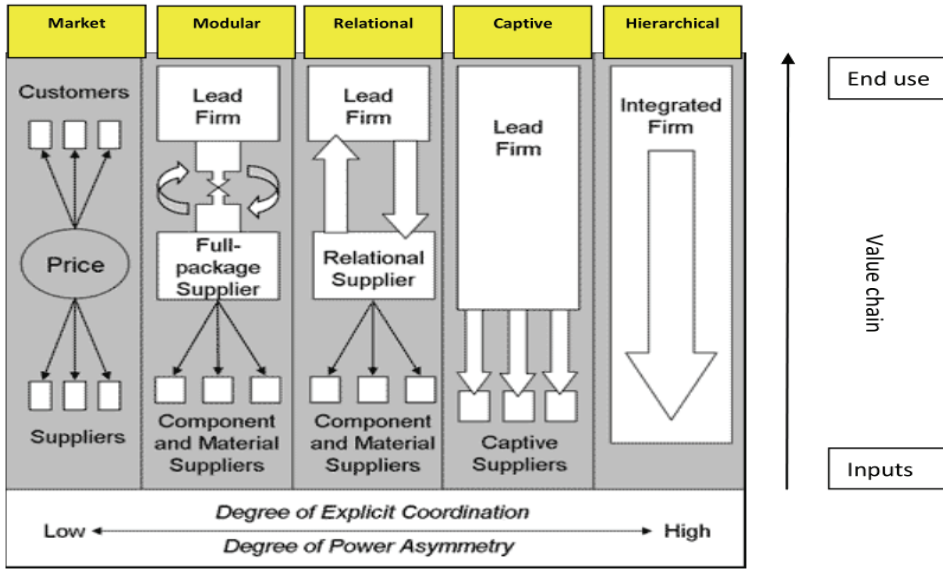
2.2 The governance of global value chain

How to govern the global value chain has been a core concern of the literature. Gereffi (1994, p. 97) defined governance as “authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain”. Not only improving the efficiency and performance of global value chains, value chain governance can also increase the competitive advantages of the parameters involved. According to Martin’s working paper, the driving forces for actors to lead and coordinate value chain activities are as follows : firstly, to increase competitiveness by assuring quality and the range of products the market expects; secondly, pressure for outsourcing activities that were previously performed in-house by large, vertically integrated companies has caused the need for value chain governance as opposed to the former managerial control; and thirdly, growing pressure from the public for safety, good environmental and social conduct requires increased governance in these spheres.

The governance of global value chain has been classified into five types: market, modular, relational, captive and hierarchical governance. These structures are measured and determined by three variables: the complexity of the information between actors in the chain; how the information for production can be codified; and the level of

supplier competence (Gereffi, John and Timothy, 2005; Frederick and Gereffi, 2009).

- Market governance: Transactions under the market governance are relatively simple. Transmission of information on product specifications is easy. Suppliers can make products with minimal input from buyers. These transactions exchanges require little or no formal cooperation between players and the cost of switching to new partners is low for both producers and buyers as an arms-length. The key mechanism under the market governance is price rather than a powerful lead firm.
- Modular governance: Modular governance involves transactions that are easy to codify. Typically, suppliers in modular chains make products to a customer's specifications and take full responsibility for process technology using generic machinery that spreads investments across a wide customer base. The cost of switching is low and transactions are limited between buyers and suppliers. Relationships between suppliers and buyers are more substantial than in simple markets because of the high volume of information flowing across the inter-firm link. In this kind of type, information technology and standards are very important.
- Relational governance: When buyers and sellers rely on complex information that is not easily transmitted or learned, relational governance is usually used. These relationships need trust and generate mutual reliance, which are regulated through reputation, social and spatial proximity, family and ethnic ties, and the like. Despite mutual dependence, lead firms still specify what is needed, and thus have the ability to exert some level of control over suppliers. Producers in these chains have to supply differentiated products based on quality, geographic origin or other unique characteristics against competitors. Relational linkages take time to build, so the costs and difficulties required to switch to a new partner are relatively high.
- Captive governance: Captive governance describes chains characterized by one or a few buyers who have a great deal of power. Switching costs for buyers and sellers is high because of the power asymmetry in this network. The core function of the lead firms tends to be in areas outside of production, helping their suppliers upgrade their production capabilities does not encroach on this core competency, but benefits the lead firm by increasing the efficiency of its supply chain. Ethical leadership is important to ensure suppliers receive fair treatment and an equitable share of the market price.
- Hierarchical governance: Hierarchical governance occurs when chains are formed by vertical integration and managerial control within lead firms that develop and manufacture products in-house. Product specifications cannot be codified and products are complex, or highly competent suppliers cannot be found. This sort of vertical integration is still an important feature of the global economy, but it is less common than in the past. The dominant form of governance is managerial control.



Source: Gereffi, John and Timothy (2005)

Figure 1. Typology of governance in global value chains

Each governance type provides a different trade-off between the benefits and risks of outsourcing. It is notable that the form of governance can be changed as an industry evolves and matures, and governance patterns within an industry can vary from one stage or level of the chain to another. In addition, recent researches have shown that many global value chains are characterized by multiple and interacting governance structures, and these affect opportunities and challenges for economic and social upgrading (Dolan and Humphrey, 2004; Gereffi, Lee and Michelle, 2009).

3. Bilateral trade between Korea and China

3.1 Trade amount between Korea and China

The economic interdependence between Korea and China has grown rapidly ever since the two countries established diplomatic ties 20 years ago. Bilateral trade increased from $6.4 billion in 1992 to $235.4 billion in 2014, about thirty seven-fold. Korean exports to China increased faster than imports from China, as revealed in Korea's substantial trade surplus with China throughout the period. Now, China is Korea's biggest trade partner. For China, Korea is the second-largest exporter after Japan, and is the fourth-biggest importer after the U.S., Hong Kong and Japan. There are several key factors contributed to the rapid growth in bilateral trade, such as improving bilateral economic and political communications, complementarities in economic structure, as well as the large number of Korean foreign invested enterprises (FIEs) to China.

Table 1. Bilateral trade between Korea and China

(Unit: $Mil)

Year	Koran exports to China	Koran imports from China	Bilateral trade balance	Bilateral trade amount
1992	2,654	3,725	-1,071	6,379
1993	5,151	3,929	1,222	9,080
1994	6,203	5,463	740	11,666
1995	9,144	7,401	1,742	16,545
1996	11,377	8,539	2,838	19,916
1997	13,572	10,117	3,456	23,689
1998	11,944	6,484	5,460	18,428
1999	13,685	8,867	4,818	22,552
2000	18,455	12,799	5,656	31,254
2001	18,190	13,303	4,888	31,493
2002	23,754	17,400	6,354	41,154
2003	35,110	21,909	13,201	57,019
2004	49,763	29,585	20,178	79,348
2005	61,915	38,648	23,267	100,563
2006	69,459	48,557	20,903	118,016
2007	81,985	63,028	18,957	145,013
2008	91,389	76,930	14,459	168,319
2009	86,703	54,246	32,457	140,949
2010	116,838	71,574	45,264	188,412
2011	134,185	86,432	47,753	220,617
2012	134,323	80,785	53,538	215,108
2013	145,869	83,053	62,816	228,922
2014	145,288	90,082	55,206	235,370

Source: Korea International Trade Association.

3.2 Trade commodities between Korea and China

As the rapid growth of bilateral economic, the main trade commodities have been changed a lot. In the mid-1990s, Korea's primary exports to China were manufactured products such as steel flats, synthetic resin and articles of petroleum. And Korea mainly imported low-end manufactured products including vegetable matter, coal from China. Since 2000s, the bilateral trade has been dominated by intra-industry trade in electronics, steel flats and machinery industries. The technological level of the trade commodities have been upgraded and diversified over time.

The changes are closely linked with Korea's FDI into China. In the initial stage, Korean FDI in China was focused on labor-intensive manufacturing, with a large number of small scale investments. As the progress in the economic development of the two countries and their deepening economic interdependence, Korean FDI is mainly occurred on technology-intensive manufacturing sector.

Table 2. Korea's export commodities to China

(Unit: $Mil)

Commodity	Korean exports to China							
	1992	2000	2005	2008	2011	2012	2013	2014
flat display and sensor	0	22	860	7,287	21,574	25,292	25,516	22,520
Semiconductor	4	576	7,114	8,729	15,777	17,878	21,670	26,156
articles of petroleum	74	1,677	3,254	8,517	10,995	9,977	8,380	7,000
synthetic resin	299	1,577	3,670	5,333	7,382	7,113	7,725	7,564
steel flats	420	1,099	3,413	2,996	3,671	3,180	3,191	3,489
Electrontube	60	1,231	588	99	58	15	6	5

Source: Korea International Trade Association.

Table 3. Korea's import commodities from China

(Unit: $Mil)

Commodity	Korean imports from China							
	1992	2000	2005	2008	2011	2012	2013	2014
Semiconductor	8	631	1,902	5,864	6,642	6,051	6,520	8,115
Computer	13	823	3,324	4,858	5,941	5,605	5,340	5,785
steel plates	39	176	1,982	9,622	5,541	4,559	4,060	5,740
wireless Communication apparatus	2	91	826	2,185	4,653	2,844	3,164	6,757
flat display and sensor	1	194	586	3,489	4,543	4,058	4,038	3,831
garments/clothes	75	870	2,188	3,078	3,448	3,097	3,406	3,518
Coal	210	717	1,529	2,815	1,165	797	548	455
vegetable matter	657	692	736	446	402	461	630	620

Source: Korea International Trade Association.

3.3 Analysis on bilateral trade structure

From the point of production stages, Korea's exports to China are primary focused on intermediate products (71.6 percent in 2010). Korea-China have formed a key link in the global value chain, that is, China is a major manufacturer of final products, Korea is a major supplier of intermediates, and the advanced economies such as the United States are markets for the final products. The domestic economy of China is transitioning from a country recognized for manufacturing low-end goods to a nation that fosters higher-end products. As a result, China's dependence on Korea's key industries such as petrochemicals, semiconductors and cars is falling, on the other hand, the dependence on Korean high-tech goods such as IT-related components and machinery parts has grown. The bilateral trade structure has improved from low added-value to high added-value industries.

Table 4. Bilateral trade structures by technology level

(Unit: $Mil, %)

Division		Export			Import
		2007	2009	2011	2011
high-technology industry	total	27,369 (38.5)	30,975 (40.9)	38,623 (34.3)	23,300 (32.2)
	aircraft & pharmaceuticals	46	82	119	311
	semiconductors & parts	2,939	4,976	5,849	6,097
	computer	4,146	2,641	2,882	5,326
	audio. image communication equipment	10,615	8,312	6,704	7,480
	precision, optical instrument(LCD)	9,623	14,964	23,069	4,086
high-medium technology industry	total	25,141 (35.4)	26,741 (35.3)	45,278 (40.2)	13,904 (19.2)
	chemical products	15,941	16,130	25,165	7,275
	general machine &equipment	6,071	7,114	13,486	4,934
	electric machine &equipment	124	106	147	418
	automobile	3,005	3,391	6,480	1,277
low-medium technology industry		14,626 (20.6)	14,727 (19.4)	24,518 (21.8)	24,673 (34.1)
low technology industry		3,935 (5.5)	3,303 (4.4)	4,112 (3.7)	10,456 (14.5)
total exports of industrial products		71,071 (100.0)	75,746 (100.0)	112,531 (100.0)	72,333 (100.0)

Source: www.seri.org, Economic Focus (2012.9.4, 395th)

Summaries: From the above analysis, we can see that structural changes have occurred in Korea-China economic interactions in the aspects of traded commodities, the stages of production and technology level. The changes can be described as a shift from inter-industry to intra-industry trade, from labor-intensive manufacturing industries to capital-intensive industries, which caused the dynamic changes of value chains between Korea and China.

4. The Governance strategy of LG Display's new plant in China

4.1 Introduction of LG Display's new plant in Guangzhou

LG Display engages in the manufacture and sale of liquid crystal display (LCD) and thin film transistor liquid crystal display (TFT-LCD) panels in Korea, the United States, Europe, China, and rest of Asia. It offers large-sized panels for use in televisions, notebook computers, and desktop monitors, and small-sized panels for other application products, such as mobile phones and tablet personal computers. The company also provides panels for industrial and other application.

The manufacturing plants of LG Display were set in Korea and module assembly plants were set overseas such as China and Poland. In China, the module assembly plant had been set in Nanjing and another one is in Guangzhou, which was opened in 2014. Before discussing the LG Display's value chain governance of the new plant in Guangzhou, it is necessary to analysis the business circumstance of LCD panel first.

In the large-sized LCD panel business, two major Korean suppliers, LG Display and Samsung Electronics continued to dominate the majority market share in 2015. Together the two electronic companies accounts for 39.8% of global shipments for large-sized LCD shipments in the fourth quarter of 2015. It is notable that the shipments of Innolux Display Group has exceeded Samsung Electronics, ranked to the second place. This may have been caused by various factors, including a diminished customer base in China, the break-up of its LCD joint venture with Japan's Sony Corp., and the decision by Samsung to focus more on high-end LCD segments in order to improve profitability.

Although the two major Korean brands continue to dominate, Chinese suppliers of large-sized LCD panels are the fastest growing segment of the industry, according to a new IHS iSuppli LCD Market Tracker report. In 2012, Beijing Optoelectronics Technology Co. Ltd. (BOE) of China achieved first-quarter shipment growth of 18.6%, the best performance among the Top 10 suppliers. Infovision Optoelectronics Co. Ltd. (IVO), also of China, increased its own shipments by a slightly smaller 18.3%, the second-best results for the Top 10. (IHS iSuppli Research, May 2012). The fast growing of Chinese producers are creating challenges for LG Display.

Also China's tariffs in April 2012 increased to 5% for imports of LCD panels sized 32" and larger, up from 3% before. The higher tariff means a number of traditionally-strong LCD exporters to China including LG and Samsung would lose competitiveness in prices. It makes the two firms as well as their competitors would have to build factories in China or face higher duties.

With the increased competition from Chinese companies and rising tariffs, it is necessary for foreign suppliers to figure out their strategies in order to maintain the competitiveness. Some are focusing on value-added or more differentiated products, while others are moving into new panel size, as Chinese players are focusing on the country's fast-growing demand for 32-inch panels used in televisions. For example, Chunghwa Picture Tubes Ltd. and HannStar Display Corp. from Taiwan, who were large-sized LCD suppliers, are moving away from the mature large-panel market to the small- and medium-sized LCD space, or even into panels for the touch screen industry, where greater opportunities are springing up given the increasing proliferation of tablets and smart phones.

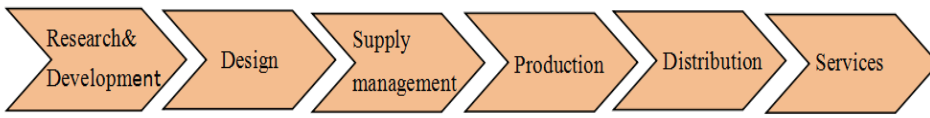
In spite of the downturn and rival competition in the LCD market, LG Display still decided to build an LCD manufacturing facility in China and obtained approval from the Chinese government in 2010. The plant has been completed in September 2014, and it will be used to produce LCD TVs bigger than 50-inch using 8.5thgeneration technology. The 8.5thgeneration LCD plant, that located on a 695,000㎡site in Guangzhou's Advanced Technology Industry Development District, is a joint venture invested at a ratio of 70:20:10 by LG Display, the Guangzhou Development District,

and Skyworth Digital. Skyworth Digital is one of the largest TV set makers in China and is also a strategic partner of LG Display. Following the construction of the new plant, a new stage of value chain will be formed.

Local production of LCD panels will help LG Display to control the overall volume of panel production, meanwhile, it provides room for the company to launch the next generation production line for organic light emitting diode (OLED) panels. But it should be underlined that both BOE and another newer Chinese entrant China Star have the same fabs, which allow them to compete with LG Display, especially in the television market. Facing competitors from China and other countries, how to survive is an important issue for LG Display. This paper will propose some suggestions focusing on this topic from the aspect of global value chain governance.

4.2 Basic framework of the LG Display global value chain

Figure 1 illustrates the basic structure of the LG Display global value chain. This closely relates to how LG Display governs its global value chain. For LG Display, product research & development (R&D) are primary activities that prior to procurement and inbound logistics. This is different from Porter's value chain model that classified these as support activities. Based on R&D, product design, supply management, production, distribution and services are conducted accordingly. These activities do not take place in the same place, but in different countries such as Korea, China, Poland and so on.



Source: compiled by the author

Figure 2. global value chain of LG Display

4.2.1 R&D/design

Research and development plays a vital role in LG Display, since the company realize that investment in technology development is a crucial part of value chain activities since hi-tech products are changing rapidly. LG Display spends one million won per annum on R&D, providing continuous competitive advantage. It has wide research interests including AH-IPS, FPR 3D, OLED and Flexible. In order to better meet customer requirements, LG Display designs various kinds of products including thin-film transistor liquid crystal display (TFT-LCD) panels, OLEDs, flexible displays, TV, Mobile, IT products based on the above technologies.

4.2.2 Production/supply management

LG Display currently operates nine fabrication facilities and six back-end assembly facilities in Korea, China and Poland. Before the new LCD panel plant in Guangzhou, LG Display's production operations had focused on the manufacturing of modules

in China. The new plant in Guangzhou will further bolster LG Display's local production base and improve cost advantages in terms of logistics and lower tariffs as it is close to major Chinese TV makers, including Skyworth and TCL. By saving costs, improving on-time local delivery and providing fast technical support to Chinese customers, the Guangzhou panel plant will enable LG Display to solidify its competitiveness in China as well as the global market. The Guangzhou panel plant also has achieved a landmark by being recognized by the Chinese government as the country's first 'Green Plant' after it passed a stringent certification process as part of the Green China Policy.

4.2.3 Distribution/service

LG Display is one of the main licensed manufacturers of the more color-accurate IPS panels used by Dell, NEC, ASUS, Apple (including iMacs, iPads, iPhones, iPod touches) and others. And the products manufactured by plants in China will not export to Korea again, almost 80% of which were consumed by China's domestic demand, and the rest will be sold to other countries. Most of the customer complaints can be applied through the website of LG, phone and emails. Online service request and online service tracking are also provided for customers.

4.3 The governance strategy of LG Display

It can be seen that the LG Display integrates all value chain transactions, which leads to a hierarchical type of global value chain. As mentioned above, the dominant form of hierarchy governance is managerial control. Some suggestions are proposed based on the above theoretical analysis.

4.3.1 Enhancing cooperation with local government authority

Integration into global value chains through foreign direct investment (FDI) has been adopted by Chinese government in the 1980s as a major engine of technological upgrading. In 2005, the Chinese government realized that the effectiveness of technological catch-up by attracting transnational corporations (TNCs) to China was not ideal, and limited technological innovation activities was conducted by TNCs in China (Fu and Gong, 2011; Zhou, Sun, Wei and Lin, 2011). Notably, there has emerged a paradigm shift of national innovation policy towards indigenous innovation with more focus on domestic firms (State Council, 2006). In 'Guidelines for the Implementation of the National Medium- and Long-term Program for Science and Technology Development (2006-2020)', indigenous innovation was defined as 'enhancing original innovation through co-innovation and re-innovation based on the assimilation of imported technologies'. The policies are designed to boost indigenous R&D efforts and encourage domestic enterprises to have more strategic control in technological interactions with foreign parties (Yang, 2014). Meanwhile, seven strategic emerging industries were designated by the government in 2010, including energy efficient and environmental technologies, next-generation information technology (IT), biotechnology, high-end equipment manufacturing, new energy, new materials, and

new-energy vehicles. All the above strategic emerging industries are knowledge- and technology-intensive industries. Local government authorities, such as the Guangdong provincial, announced similar strategic emerging industries to replace the low-end, labor-intensive, environment-polluting and high energy consumption industries primarily invested in by TNCs from Hong Kong and Taiwan (Yang, 2012). The policy provides a good opportunity for the development of LG Display as the LCD industry is selected as a strategic emerging industry by Guangdong provincial. As the government authority is playing important role in the global value chain, deep cooperation with local government authority is needed for LG Display to obtain more preferential policy.

Table 5. Strategic emerging industries designated by the Central and Guangdong Provincial

National	Guangdong
Energy-saving & environment protection	High-end electronics and IT
New generation information technology	New energy vehicle
Biotechnology	LED
High-end equipment manufacturing	Biotechnology
New energy	High-end equipment manufacturing
New materials	Energy conservation and environmental protection
New energy vehicles	New energy and new materials

Source: Yang (2014)

4.3.2 Fostering strategic coupling with domestic firms

Complying with the Chinese government authorities' intervention in technological upgrading, Chinese enterprises are altering their positions in global value chains towards high value added parts. Enterprises in LCD industry are no exception. LCD industry is a technological and capital-intensive sector, the technological barriers and the prolonged development periods necessary to qualify panel products mean that the LCD panel business is concentrated in the hands of just a few suppliers (e.g. Samsung, LG Display). In the past, Chinese producers did not have their own panel firms and mainly rely on imports from aboard. Now indigenous display manufacturing production companies emerged in China, such as Beijing Orient Electronics Technology (BOE), formed a new challenge to LG Display. And the Chinese government raised the import tariff rate on large size LCD panels from 3% to 5% in order to support the indigenous supply of LCD panels in 2012 (Feng, 2012).Considering the LCD industry is the upstream of consumer electronics and IT industry and the LCD panel is a core component of LCD TV screens, strategic coupling with local TV producers is a good way for LG Display to main competitive advantages.

4.3.3 Utilizing the opportunity brought by the policy of Chinese domestic demand expansion

By implementing the reform and opening-up policy, China has become the largest exporter in the world with a heavier dependence on exports than many other countries. Owing to the issue of global trade protectionism and the ongoing European

financial crisis, China's efforts to increase exports have met with more trade barriers and fiercer international competition. To respond to this, China is trying to shift its economy from quantitative growth to qualitative growth by expanding the domestic market and promoting industrial restructuring.

Since 2010, China has emerged as the world's biggest LCD TV market. The expansion of Chinese domestic demand creates a need for more sophisticated and high-quality LED products and services. The intermediate goods that Korea exports to China are used to produce final goods that will be sold on Chinese market and global markets. Keesing and Lall (1992) argued that producers in developing countries are expected to meet requirements that frequently do not (yet) apply to their domestic markets. This creates a gap between the capabilities required for domestic market and those required for the export market, which raises the degree of monitoring and control. LG Display should take attention to the local demand, enlarge the market share in China by effectively using China's policy of boosting domestic demand and taking advantage of Chinese consumer's highly favorable responses to Korean brands.

4.3.4 Effective management of human resources

In the context of MNCs' complex organizational structures, managing human resources requires careful balance of the qualities such as freedom and order, dispersion and integration, empowerment and control (Evans and Doz, 1992).

To manage human resource effectively, it is essential to have responsive flexibility to deal with local needs. In Dec 2011, thousands of Chinese workers took part in a strike after their bonuses were cut to one-third of last year's amount at LG Display's Nanjing factory. The workers had accused the firm of awarding higher bonuses to Korean staff at the unit, rather than local hires. It is a lesson for LG Display to note that the mentality of workers has changed a lot. Five or ten years ago, those employees are just luck to find a job because there was an oversupply of labor. But now it is the opposite. There is a labor shortage, so the workers have more bargaining power. One way can be used is that Chinese managers are in charge of sales and human resources and mangers from Korea take care of production and finance.

4.3.5 Strengthening the R&D capability

Despite the bearish market, leading Chinese LCD suppliers such as BOE and CSOT have been expanding outputs helped by substantial government backing. BOE decided to invest $5.3 billion to build its third eighth-generation LCD plant, CSOT plans to expand its annual LCD capacity. Another LCD-making rival in Korea, Samsung, is also scheduled to start its advanced LCD panel plant in Suzhou, China, from the latter half of 2013. Chinese firms' moving to expand production and Samsung's setting up manufacturing facilities in China is expected to weigh on LG Display, which is already hit by slow growth in television sales from the cloudy economic situation in major markets, including Europe to the United States.

Against this backdrop, it is necessary to strengthen the technology R&D capability. Through continuous innovation based on localization of R&D, products which fit

local customers will come into existence. This relates to customer-focused strategy, as localization of R&D is necessary for satisfaction of local customers. Localization is about independence from the Korea Head Offices. This must include R&D's independence as well. R&D center will enhance design capabilities in information technology, communications and digital media, as well as research works relevant to the local and global market. It also helps to better meet the demands of Chinese consumers.

The biggest opportunity China offers LG Display following the nation's entry to the World Trade Organization was not its huge market or cheap labor, but its large pool of talented professionals who are capable of inventing and developing first-class products.

It is notable that the form of governance is dynamic and can change as an industry evolves and matures. Although LG Display is one of the major makers, with a particular expertise in LCD panel industry right now, the fast growing of Chinese panel makers is narrowing the once wide competitive gap. The rise of China's LCD panel makers may change the industrial structure, accelerate the governance type changing from hierarchy to other types such as modular, relational, or captive.

For LG Display, to safeguard the technological lead, ongoing concerns about strategy changing is necessary. For example, the production of non-core products can be transferred to China by investing more production lines, by so doing, the company can focus on upgrading their technologies. It will be able to significantly reduce distribution, labor, and tax costs for better production cost competitiveness. To provide closer and more efficient services, more A/S centers can also be set in China.

5. Conclusion

In the context of globalization, the productions of commodities are not limited within a single firm and have been carried out in inter-firm networks on a global scale. Accordingly, the eidos of global value chain has become one of the most important approaches to analyze the dynamic structure of international trade. It is necessary for international trade participants to understand the concept of global value chains, how global value chains function in specific case. In global value chains, governance system is an important instrument. Effective governance can improve the efficiency and performance of value chains, and increase the competitive advantages of the parameters involved. The global value chain framework specifies three types of network governance (modular, relational, and captive) along with the two traditional modes of economic governance (markets and hierarchy). The five types are usually determined by three important variables includes the complexity of transactions, the codifiability of transactions, and the competence of suppliers.

Global value chains can have a variety of governance structures in specific industries and different stages of value chains. This paper focuses on the LCD panel industry and tries to explore the governance strategy of LG Display's new plant in China. As one of the largest LCD panel marker, in spite of the depression in the

global LCD panel markets, LG Display still decided to build a new manufacturing facility in China because of the big LCD TV market in China and the increased tariffs. The construction of the new plant will form a new stage of value chain. How to governance this new chain is a big issue faced by LG Display. This paper proposed some suggestions as follows: enhance cooperation with local government authority, foster strategic coupling with domestic firms, utilize the opportunity brought by the policy of Chinese domestic demand expansion, effective management of human resources, strengthen the R&D capability.

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