

# Port's Successful Global Supply Chain Strategies

-Focusing on the case of Dubai port-

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항만의 성공적인 글로벌 공급사슬 전략  
-두바이항의 사례를 중심으로-

한철환

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Key Words: Global Supply Chain, Global Production Network, Port-FEZ bundle, Dubai port

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## Abstract

Today's individual firms no longer compete as solely autonomous entities, but rather as supply chain. As such the competitive position of a port is not only determined by its internal strengths but also it is also affected by its links in a global supply chain. In other words, port competitiveness is becoming increasingly dependent on external coordination and control of the whole supply chain.

The main purpose of this paper is to examine how a port embeds itself into supply chain in order to strengthen its competitive position by focusing on Dubai port case. This paper found that Dubai port used three phases-insertion, integration and dominance-as a strategies for how it can embedded into global supply chain successfully. Dubai's global supply chain strategies give some implications for the further development of the Port of Gwangyang. First, the Port of

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Gwangyang should fully utilize symbiotic relationship with Gwangyang Free Economic Zone. Second, the integration between Korea Container Terminal Authority and GYFEZ can be recommended for fast decision-making and providing a one-stop-service. Finally, Gwangyang should pursue an aggressive supply chain strategy, aims at dominance in the regional port network through port alliance with small and medium ports in neighboring area.

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## I . Introduction

Globalization of world economy as well as the introduction of the just-in-time business approach by the manufacturers generated new demands for the maritime transport sector. While globalization, namely, the new spatial division of labor increases the demand for international transport, the principle of just-in-time manufacturing demands increased efficiency and flexibility along the entire supply chain and the optimization of logistics services along different modalities.

The international logistics companies such as shipping companies and terminal operators responded to these market environments in various ways during the last decades. Through the horizontal integration strategy by way of M&A, strategic alliance and joint-ventures, they have been able to create economies of scale, to spread risk and to reduce operation costs. Especially, as stated by Slack (2004), the horizontal integration strategy has resulted in three developments, that is reconfiguration of container network services, increase of vessel capacity and changing pattern of port selection in international container shipping industry. At the same time the logistics service providers have pursued the strategy of vertical integration along the transport chain, in order to expand their scope of service, to reduce transaction costs and to offer 'door-to-door transport' to meet the demand of their customers for 'one stop shopping' and just-in-time delivery. As a consequence, the bargaining power of shipping lines, in terms of tariffs, terminal lease concessions and service provision has enhanced considerably vis-à-vis port authority that control development rights within the port area but that are themselves constrained by their physical immobility and political responsibility to the public.

What are the consequences for the competitive strategies of port authorities and operators? As argued by Robinson (2002), a port in the modern world has to be understood as a location where third party logistics service providers generate, share and compete over value with other players within the supply chain. Consequently, the port authority or operator's competitive advantage is not only based upon operational

efficiency or location, but increasingly on the degree to which it is embedded in supply chains, is able to enhance the efficiencies within these supply chains, and is able to extract value from them.

However, there has been very little research on what lies behind the capability of some port operators to become successful global supply chain actors. Furthermore, many scholars have referred to the importance of port and terminal integration in the supply chain. Authors have stressed the importance of agility to the port environment, which involves being proactive along supply chains, facilitation of intermodal integration, as well as organizational integration and partnership between ports and users. Despite the importance of these issues, little has been offered in terms of conceptualizations and empirical evidence of what really is meant by port/terminal integration in the supply chain (Song & Panayides 2008).

This paper aims to examine how a port embeds itself into supply chain in order to strengthen its competitive position by focusing on Dubai port and the transformation of its local port authority into a global terminal operator.

This paper is structured as follows. The next section reviews the literature on port and global supply chain. In the third section provides Dubai's supply chain strategy as a case study. And some implications for Gwangyang port will be presented in the fourth section. Finally, the limitation of this study and further research are suggested as a conclusion.

## II. Literature Review

Nowadays ports play an important role as members of a supply chain. In this role, the port is considered as part of a cluster of organizations in which different logistics and transport operators are involved in bringing value to the final consumers. In order to be successful, such channels need to achieve a higher degree of co-ordination and co-operation. The determination of the parameters that encompass the extent of integration of ports/terminals in global supply chains has, therefore, become of great importance for ports.

Scholarly work on the integration of ports in the supply chain has been limited. Among the recent academic debates on the port strategy has centered on the emergence of global supply chain (Robinson 2002). Robinson (2002) argues that ports are logistical nodes embedded with value-driven chains. As a third party service provider, ports provide value to shipping lines, stevedores and inland transporters, and

doing so, to themselves. Robinson said "the role of ports and the way in which ports position themselves in the new business environments must be defined within a paradigm of ports as elements in value-driven chain systems, not simply as places with particular functions." Thus the role of port authorities is to contribute to cost minimization for actors operating in logistics chains and, in doing so, provide the conditions to become embedded in global supply chains. At the same time, ports still pursue their own public objectives of maximizing cargo handling, and deal with public duties related to the environment, safety and security. This implies that ports are, besides value-creating elements for private logistical parties, crucial territorial nodes that produce positive and negative social costs for national and local economies and communities. Therefore, ports are not only embedded within networks or chains, but also within a particular territorialized institutional framework (Henderson et al 2002).

Probably one of the most recent empirical work has been undertaken by Carbone and De Martino (2003) who adopted a case study to investigate the contribution of the port of Le Havre to value creation in an automotive supply chain. They argued the competitive position of a port is not only determined by its internal strength (efficient cargo handling and hinterland connection) but it is also affected by its links in a given supply chain. As a consequence, the risk for ports of losing important customers can derive not only from deficiencies in port infrastructures, terminal operation and inland connections, but also from the customer's service network reorganization and its entry into new partnerships with logistics service providers, which may be using a different hub. In other words, port competitiveness is becoming increasingly dependent on external co-ordination and control of the whole supply chain. They adopted SCM approach in analysis of the port of Le Havre in Renault's supply chain to find out how port operators are involved in a given supply chain. The most suitable variables identified were 'relationships between the port operators and the focal firm', 'supplied services that add value', 'information and communication technologies', and 'performance measurement indicators common to supply chain partners'.

The recognition that ports are increasingly integrated in supply chains is illustrated in the studies by several scholars. Paixao and Marlow (2003) introduced 'agile port' as a fourth generation ports concept to cope with today's market uncertainty. They defined a agile port as a port which can be proactive rather than reactive to market uncertainty and insisted port operators must adopt new management strategies. Agility is one such strategy that will help ports to adjust to the new economy.<sup>1)</sup> Marlow and

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1) Agility implies flexibility and the development of a structure that allows for rapid response

Paixao (2003) introduced lean port performance indicators which focus on qualitative aspects in port operation, by using the logistics concepts of 'lean' and 'agile' port. It is therefore implied that port performance depends to a large extent on logistics measures of cost and responsiveness. Bichou and Gray (2004) indicate that adopting a logistics approach to the measurement of port performance is beneficial to port efficiency because it directs port strategy towards relevant value-added logistics activities. Hall & Robbins (2007) analyzed the port of Durban's insertion into global automotive supply chain. They showed how the port's strategy for network insertion with Toyota became frustrated by national and capital city political interests and policy that ultimately favored BMW.

More recently, Song & Panayides (2008) tried to identify the parameters of port supply chain integration, develop measures for assessing the extent of seaport (container terminal) integration in global supply chains, and investigate the relationship between port supply chain orientation and port competitiveness. By way of literature review, they identified the parameters to make-up the concept of port integration in supply chains: use of technology for data sharing, relationships with shipping lines, value added services, relationships with inland transport providers, transport mode integration and channel integration practices and performance. And their results suggested that possible need for a re-conceptualization of what constitute port performance and how port performance should be evaluated and assessed. They insisted that the evaluation of port performance and port competitiveness by traditional port efficiency-related measures and techniques did not included qualitative factors such as value added services, customization, responsiveness, technology for data sharing and relationships with other participators in the supply chain. Thus it can be stated that throughput as a proxy for port efficiency may not be sufficient to measure aspects relevant to port performance in the global supply chain era.

However, recent studies on the integration of ports in the supply chain have some limitations. First, although most of studies emphasized the importance of port integration in global supply chain, there is no explanation on how a port can insert itself into global supply chains. Second, several studies (Marlow & Paixao 2003, Bichou & Gray 2004, Song & Panayides 2008) mainly focused on the relationship between the port performance and the port integration in global supply chain. Third, Carbone &

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to changes in customer demand. In other word, it is the ability to respond rapidly to markets that are driven by sudden changes in customer demand and, by doing so, enable businesses to grow in competitive markets of continuous and unanticipated change (Yusuf et al 1999)

De Martino (2003) and Hall & Robbins (2007) adopted supply chain or logistics approach in analysis of a particular port in automotive industry's supply chain as a case study to find out how port operators are involved in a given supply chain.

Today the port authority or operators' competitive advantage is not only based on operational efficiency or physical conditions, but increasingly on the degree to which it is embedded in supply chains, and able to extract value from them. So this paper try to find out what factors condition the successful supply chain strategies of a port. With respect to this question, Jacobs & Hall (2007) insisted that the strategic supply chain choices of a port authority or operator are conditioned by the territorial institutional framework in which the dominant actors in a port operate. This framework constitutes the context for strategic action by various port actors, including shippers, carriers, port operators and public authorities. In turn, as these actors provide critical logistics services, ports become sites at which global supply chain may become territorially embedded. In other words, they insisted that the nature of the territorial relations of the port conditions the supply chain strategy of key port actors, and consequently the port actors' ability to become embedded in global supply chain.

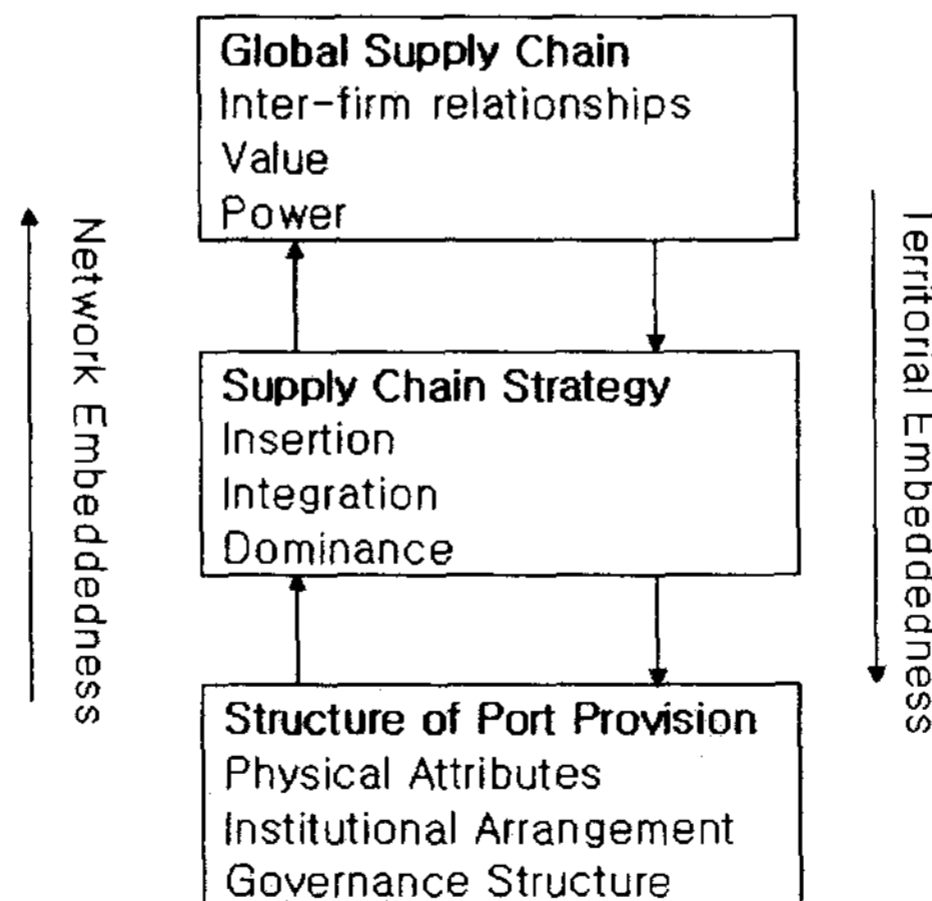
Then what do port actors want to achieve with respect to supply chain?

Hall & Robinson (2007) make a distinction between insertion, integration and dominance as strategic goals of port authorities and operators, carriers, and other supply chain services providers. First, port actors seek to insert themselves in supply chains as it provides them with access to critical resources such as technology, markets, capital, knowledge and expertise. In one sense, being inserted into one or more supply chain is the necessary precondition for a port (or any transportation hub) to become a site of economic activity; however, insertion has become a more complex and unstable goal for ports that find themselves in competition with each other to serve the same GPNs and hinterland territories. Over the years, port authorities and operators have pursued the goal of insertion by improving their landside connections; by offering financial incentives (e.g. customized reductions on tariffs) and lease concessions (e.g. dedicated terminals) to attract more shipping lines and port calls; and by networking with other ports and setting up regional trade offices (Notteboom and Winkelmanns, 2001). Second, actors that are inserted in supply chains may seek to integrate activities within the supply chains in order to reduce overall transaction costs and provide services more efficiently. One reason why shipping lines have recently been engaged in vertical and horizontal integration strategies which effectively extend their control within the logistics chain, is so that they can reduce uncertainty, transactions and transport costs. One role for port authorities is to contribute to cost

reduction for actors operating in logistical chains providing by information system and efficient hinterland connection. Third, actors operating in supply chains seek dominance, that is, the ability or power to extract value from logistics activities on a sustained basis. To some degree all actors within a supply chain are in competition with each other over the extraction and capture of value created by logistical operations (Cox et al. 2002). One strategy for dominance is to secure control over a scarce competency or asset such as the ability to handle niche cargo; exploiting economies of scale is another strategy for many transportation actors in the container/intermodal age. However, these resource-based dominance strategies are necessary but not sufficient for the sustained extraction of value. This implies that dominance in a supply chain is both a position relative to others and to key resources, as well as a set of practices with regards to those relationships and resources.

Jacobs & Hall (2007) presented how a port can insert itself into global supply chains successfully. They suggested the embeddedness of ports and global supply chain based on the concept of Global Production Network (GPN).

<Figure 1> The embeddedness of ports and global supply chain



Source : Jacobs & Hall (2007), p. 331.

Global production networks can be defined as the globally organized nexus of interconnected functions and operations through which goods and services are produced, distributed and consumed. Firms operating in GPNs are characterized by their links with other members of the GPN regardless of their country of origin or

local anchoring. The durability and stability of these formal and informal relationships determines the actor's individual network embeddedness as well as the structure and evolution of GPN as a whole. Network embeddedness involves inter-firm relationships as well as the relationships between firms and governmental agents at different spatial scales. GPNs do not simply locate themselves in a particular place. Rather, they have histories of origin that condition their global expansion, and once a firm physically locates itself in another place, it is enabled and constrained by the economic activities and socio-cultural dynamics that already exist in that place. In other words, firms and GPNs are constantly becoming territorially embedded. Territorial embeddedness considers the extent to which an actor is anchored in particular territories or places. This embeddedness will manifest itself physically, institutionally and politically. For analytical reasons Jacobs & Hall (2007) distinguished three categories in the structure of port provision which in reality are closely inter-related. The first category refers to the actual physical condition of the ports, i.e. the quality of the port's infrastructure, superstructure and development potential on the port's land. The second category relates to institutional arrangements which regulate the use, ownership and development of port land and the infra/superstructure. It includes property rights, land use planning, port tariffs, environmental and safety/security stipulations. The third category concerns the way port governance is structured, referring to the division of responsibilities between the public and private sector and between the different administrative-territorial levels of the state. Port governance structures play a key role in the way these institutions and organizations interact in the provision of the physical attributes of the port. Obviously the physical attributes of the port are an important factor influencing insertion into a given supply chain. Without the appropriate infra-and superstructure and sufficient capacity, or a suitable location, no port will be able to attract cargo flows on a sustainable basis. However, network embeddedness is not only achieved by providing the right physical conditions, but also needs to be supported by institutional arrangements and governance structures which allows for further integration of the port in the supply chain.

### III. Dubai's Global Supply Chain Strategies

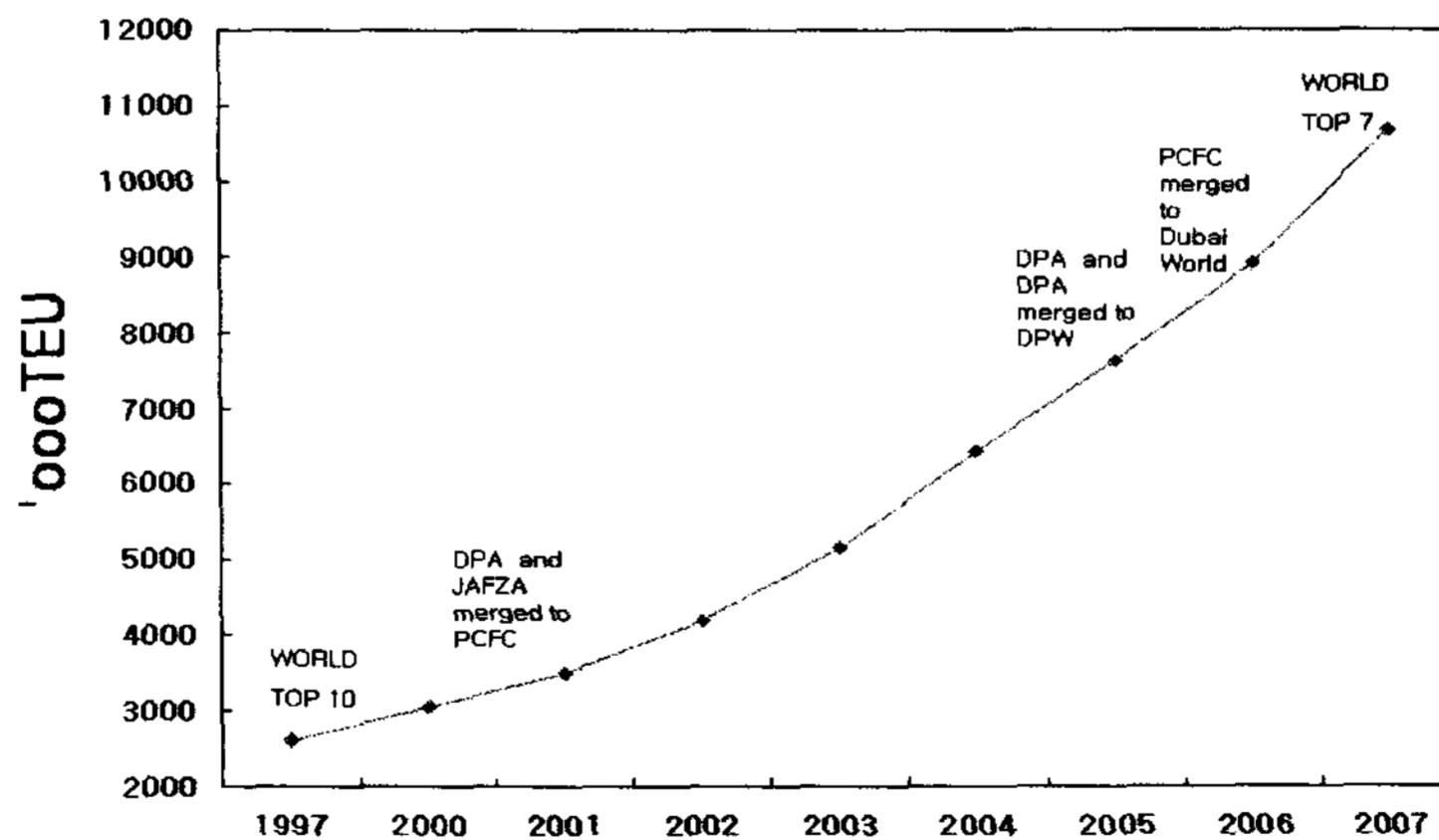
#### 1. Structure of Dubai port provision



For centuries Dubai has been known as 'the city of merchants'. During the fifties and sixties it became an increasingly busy trading post for the entire Gulf region. Port Rashid was completed in 1972. The port's location near to the city center, its all-new infrastructure and Dubai's thriving business community made it an instant success. By 1978 the number of berths was increased up to 35, including five berths large and deep enough to handle the largest container vessels. In 1976, the late ruler of Dubai, Sheikh Rashid, gave instructions for an even more ambitious project: the construction of the world's largest man-made harbor at Jebel Ali. Jebel Ali Port started its operation in 1979. Jebel Ali Port and Free Zone merged with Port Rashid in 1991 to form Dubai Ports Authority(DPA). Formally established in September 2005, DP World has emerged from the corporate integration between Dubai Ports Authority and DPI Terminals, to become one of the largest global port operators to date.

Today, Dubai is the Middle East's main transportation hub despite the fact that new regional competitors emerged in the 1990s, most notably Salalah and Aden. Dubai port ranked as 7th world top container port having handled 10.65 million TEU in 2007 which represents a 19% increase in throughput, over 2006. And DPW is world's 4th global terminal operator, operating 43 overseas marine terminal across 28 countries.

<Figure 2> Key Milestones of Dubai Port



### 1) Physical conditions

With regard to the physical condition, Dubai port is by far superior to their regional competitors. The container terminal area at Jebel Ali offer 115ha and Port Rashid offer 69ha. Control of all the port land lies in the hands of the ruler of Dubai who has

gifted the freehold to DPA. Within the port of Dubai, DPA has a monopoly with no intra-port competition from other terminal operators. DPA not only owns the infra but also superstructure at both ports. The major facilities of Dubai ports are shown in <Table 1>.

An integral part of Jebel Ali port is its Free Zone, which functions as a cluster for value added logistics and manufacturing. Since JAFZA started its operation in 1986, it has posted more than 340 times growth in its number of companies growing from 19 in 1985 to about 6500 in 2007. Outstanding logistics infrastructure is one of Jafza's key strengths. Situated between Jebel Ali Port and the upcoming Jebel Ali International Airport, the world's largest cargo airport, Jafza is the only free zone in the world to be located between the two major logistic enablers. With a six lane highway Jafza will facilitate the transportation of goods (custom bound) from sea to air in just 20 minutes. A range of state-of-the-art facilities are provided at Jafza, which include pre-built modern warehouses ready to be leased, office space in various sizes to accommodate the requirements of any company of any size, and plots of land for large-scale operations such as manufacturing and extensive warehousing

<Table 1> Container Terminal Facilities in Dubai Port

Item	Jebel Ali Port	Port Rashid
No of Container Berth	16 (Draft 17m)	1 (Draft 13m)
CY Area('000m <sup>2</sup> )	1,006	615
CFS Storage('000m <sup>2</sup> )	218	71
Container Crane	397	97
Transfer Crane	1287	-
Straddle Carrier	-	37

Source : Based on DPW homepage(www.dpa.co.ae)

## 2) Institutional arrangements

Dubai ports can be best understood as a public service port, since all the land, infra and superstructure are in hands of DPA. As the state agency in charge of Dubai port and its terminal operation, DPA decides on the port dues and the terminal tariffs.

The institutional arrangements at the JAFZA also confer competitive supply chain advantages. The competitive advantages of JAFZA are as follows. First, outstanding logistics infrastructure which is situated between Jebel Ali Port and the upcoming Jebel Ali International Airport, the world's largest cargo airport is one of JAFZA's key strengths. Second, JAFZA provides a wide range of commercial incentives, from a

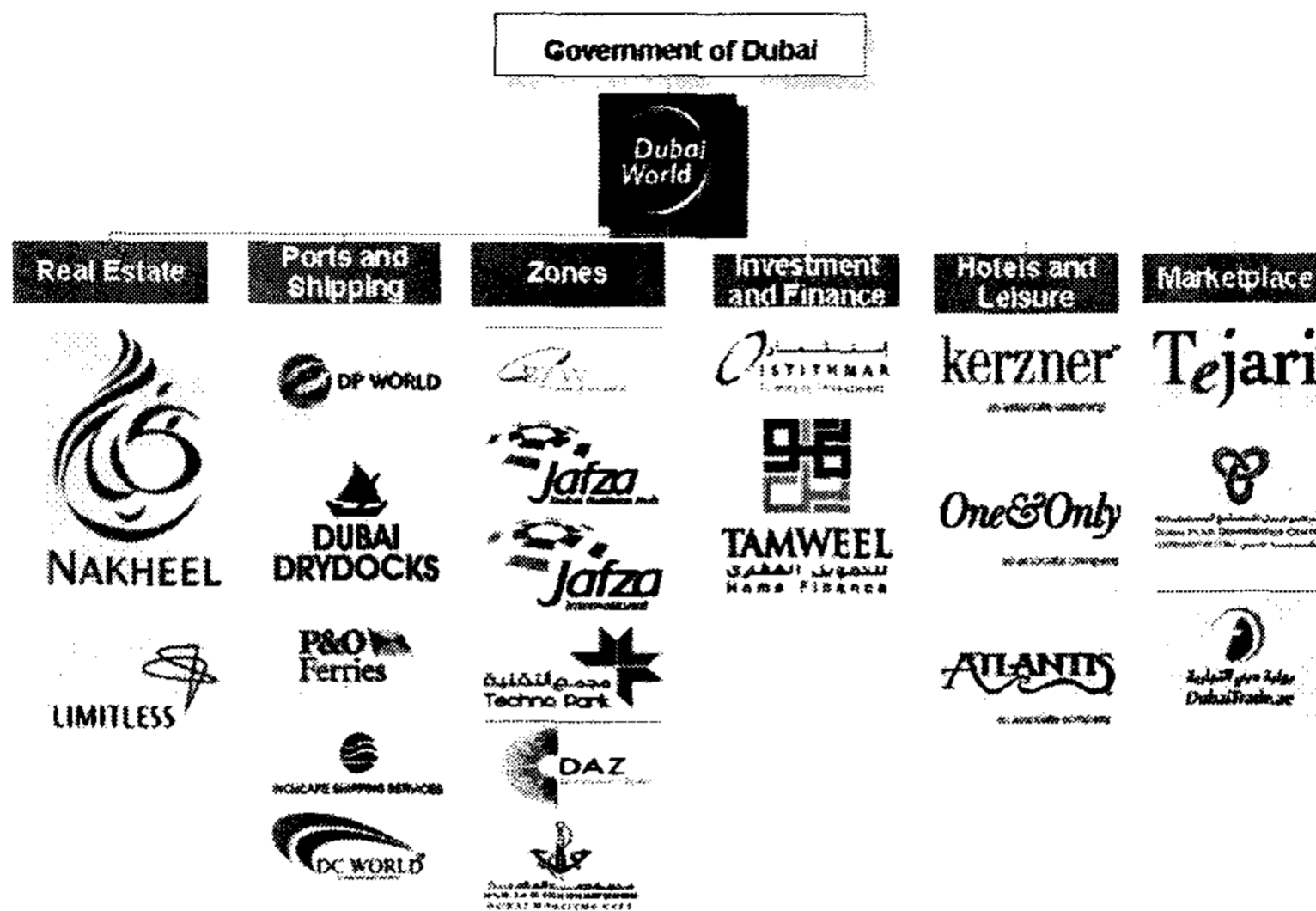
100% foreign ownership, zero corporate and income taxes for a period of 50 years to exemption from local labour restrictions, 100% repatriation of profits and capital, no foreign currency restrictions and no imposition of duties on imported or exported goods within the Free Zone. As regards labor condition, the dominant point is that labour unions are not tolerated in the Emirate. As such, DPA can implement work and technological changes with relative ease as they face no union opposition. Stevedore labour is provided by the Dubai Labour Supply Company (DulSCO), a locally based limited liability company with strong government ties. Much of the unskilled and cheap labour is recruited in India and Pakistan and trained in Dubai. Tough immigration laws and hiring-and-firing at will make the labour force extremely vulnerable and powerless. With no civil rights and no collective agreements, DPA enjoys no resistance from organized labor and with competitive labor costs. As regards security, Dubai was the first port in the region to join the Container Security Initiative (CSI) in 2004, later to be followed by Salalah and Colombo. Currently, Dubai is the only port in the Gulf that is allowed to handle containers that are directly bound for the United States. This is a considerable competitive advantage over the other ports in a region troubled by various armed conflicts during the first Gulf War(1991-92) and the second Gulf War(2003) that ultimately result in higher insurance rates for shipping goods. As a result of the Gulf War, the Dubai became the transshipment hub in the Middle East region for logistical supply of the Allied forces in Iraq and the transshipment of materials for the reconstruction.

### 3) Governance Structure

One of the Dubai's major institutional advantage is its strong corporatist leadership. The ruler of Dubai and vice-president of the UAE, currently Sheikh Mohammed, uses considerable decision-making power. He is surrounded by a small group of local elites (the Director-Generals) who are in charge of Dubai's governmental departments and the state controlled enterprises. Currently, Sultan Ahmed bin Sulayem controls Dubai World, which is a holding company that manages and supervises DPA and Jebel Ali Free Zone Authority (JAFZA) as well as diversified portfolio of businesses and projects such as property development & hospitality, maritime, financial services, multi commodities and retail. Such a governance structure of Dubai World ensures swift decision-making over port development projects since there is virtually no political opposition from environmental or community pressure groups, or labour unions. Through this strong leadership, Dubai can perform an aggressive and increasingly

globally-oriented supply chain strategy when it began to face competition from other ports in the region in the 1990s.

<Figure 3> Governance Structure of Dubai Port



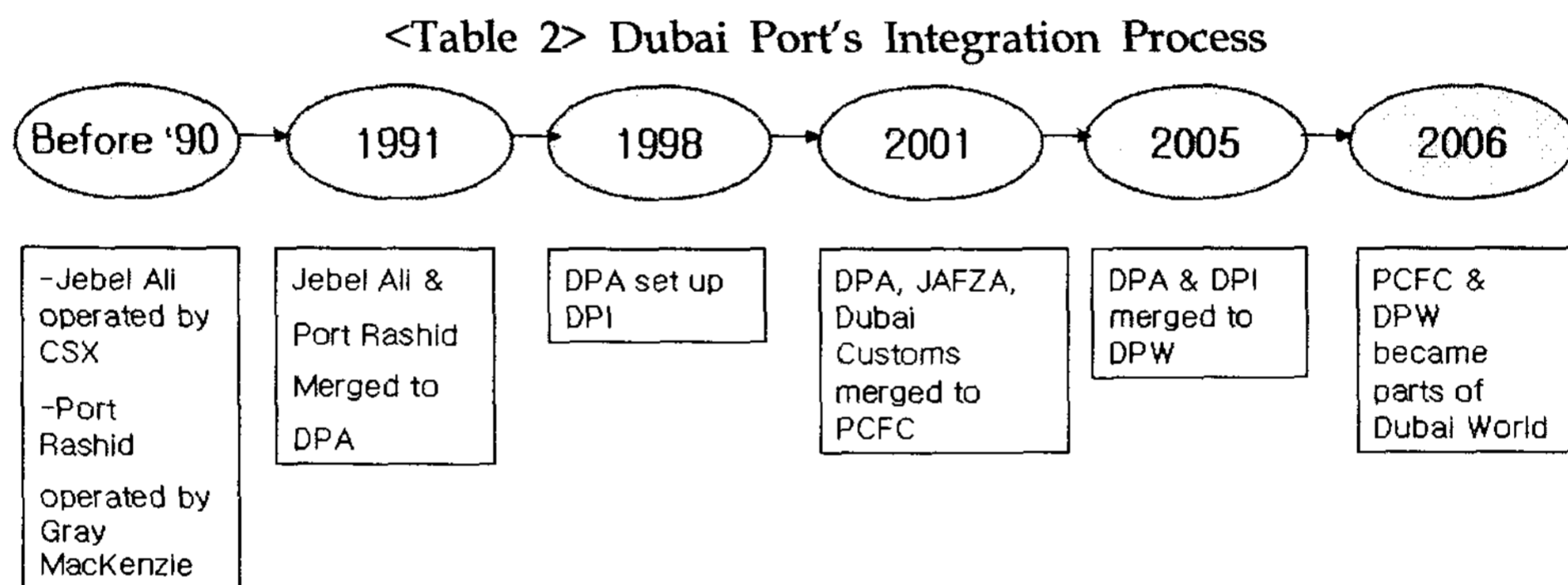
## 2. Dubai's Global Supply Chain Strategies

Based on the concept of Hall & Robinson (2007), Dubai's global supply chain strategy can be divided into three phases: insertion, integration and dominance.

As a first phase, Dubai insert itself into global supply chain through the formation of Jebel Ali port and Free Zone cluster. After the construction of Port Rashid (1972) and Jebel Ali port (1983), Dubai created Jebel Ali Free Zone in 1985. The Free Zone and the Port clearly have a win-win relationship. The Free Zone has ensured the Dubai port's focus on transshipment, and the proximity of the port has attracted numerous value added activities into the Free Zone. Almost two thirds of Dubai's trade volume is re-exported, with exporters and manufacturers benefiting from the tax-incentives in the Free Zone. Jebel Ali Free Zone hosts the regional trade offices of such global consumer product manufacturers to cost-effectively distribute their brands and products to fast growing markets in the region. As such, the Jebel Ali 'Free Zone-port bundle' allows Dubai to tap into global outsourcing trends and to insert themselves in the global production chain (Wang and Olivier 2006, p. 1487). Clearly,

the success of Jebel Ali as a port is based less on Dubai's domestic growth than on its ability to handle transshipment bound for India and Middle East region.

Second phase is a constant integration of various port and port related business since 1990s and ultimately into one umbrella, Dubai World. <Table 2> shows Dubai's integration process. Specially, DPA, JAFZA and Dubai Customs were merged to form the Ports, Customs & Free Zone Corporation (PCFC) to increase operational efficiency in 2001. This integration accommodates the supply chains' preference for a 'one-stop-one-shop' when interacting with port operators and public authorities. An additional advantage is that custom duties directly flow to the PCFC instead of the state treasury. In 2006, the PCFC became part of an even larger holding company named Dubai World which also includes a number of other operations.



Third phase is Dubai's dominance in global supply chain through the expansion of port operation to regional and further to global dimension. In this phase, Dubai's position has changed from a local port operator to global terminal operator. At the end of the 1990s, the entry of established global operators in the regional market posed considerable threats to Dubai's leading hub status. In response, DPA set up an international division in 1998, named DP International and rapidly started to expand abroad. Dubai's major expansion projects are shown in <Table 3>. After DPI and Jebel Ali Free Zone International took over the management of the Port of Djibouti, DPI also acquired the lease concession of Aden's former PSA terminal in 2005, effectively eliminating the potential threat of Yemen's to Dubai's regional hub status. DPI has a clear dominance strategy to attract shipping lines through very aggressive investment within its competitive Middle East port range. After that, DPI expand oversea terminal portfolio to Indian Subcontinent and European market. Especially, DPW made a great

epoch in its global expansion history by subsequent acquisition of two global terminal operators, CSX World Terminal in 2004 and P&O Ports in 2005. With the acquisition of the international business operated by CSXWT, Dubai Ports took over the management of nine container terminals worldwide including world's second busiest containerport, Hong Kong. The acquisition provided DPI the opportunity to capitalize on the world's fastest growing markets in China and Southeast Asia. About a year after DPI, now renamed as Dubai Ports World, acquired P&O Ports and further strengthened its position in India and East Asia and penetrated the Australia and European port industry.<sup>2)</sup> These acquisitions made DPI a genuine global terminal operator.

<Table 3> Dubai's Expansion to Oversea Terminals

Year	Countries & Terminals
1997	South Container Terminal(Saudi Arabia)
2000	Djibouti CT
2002	Visakhapatam CT(India)
2003	Constantza (Romania)
2004	DPA acquired CSX World Terminals -Hong Kong(CT3, CT8), China(Tianjin, Yantai, Qingdao), Korea(PNC), Australia(Adelaide), Germany(Germersheim), Dominican Republic(Caucedo), Venezuela(Puerto Cabello)
2005	Aden CT(Yemen), India(Cochin, Vallaradam), Turkey(Yarimca)
2006	DP World acquired P&O Ports -India(Nhava Sheva, Mundra, Chennai), Pakistan(Port Qasim), Sri Lanka(Colombo), Russia(Vostochiny), China(Qingdao, Shekou), South East Asia(Manila, Laem Chabang, Surabaya), Argentina(Rio de Plata), Canada(Vancouver), Australia(Frementle, Brisbane, Sydney), Mozambique(Maputo), France(Le Havre, Marseille, Fos), Belgium(Antwerp), U.K(Tilbury, Southhampton)

Source : Drewry, *Annual Review of Global Container Terminal Operators*, 2006.

#### IV. Implications for Gwangyang Port

Dubai's global supply chain strategies can be divided in three phase. At first phase, Dubai insert itself into global supply chain through the formation of Jebel Ali port and Free Zone cluster during the 1980s. At second phase, Dubai integrated ports

2) However, the takeover of P&O Ports' portfolio in US((New York/New Jersey, Philadelphia, Baltimore, Miami, New Orlean) has been blocked by the American Congress in early 2006 out of national security reasons.

organization with various port-related organizations to provide one stop service to its customers since 1990s. At third phase, Dubai dominated its position in global supply chain through the development from a local port operator to a global terminal operator during the second half of 1990s. Through this phase, Dubai port can eliminate its potential threats from neighboring ports in advance and strengthen its global port network as a genuine global terminal operator.

Such a Dubai's global supply chain strategy could give some implications for the further development of the Port of Gwangyang in Korea.

First, as the success of Dubai is based less on its domestic growth than on its ability to handle transshipment bound for Middle East and Indian Subcontinent, the Port of Gwangyang, which has relatively small economic bloc in the back area, has to attract transshipment cargo in the short term. For this aim, the Port of Gwangyang should fully utilize symbiotic relationship with Gwangyang Free Economic Zone(GYFEZ). Almost two-thirds of Dubai's trade volume is re-exported, with exporters and manufacturers benefiting from the tax incentives and value added logistics services(VAL) in Free Zone. The typical VAL activities are assembling, labelling and repacking of goods that are produced in India, China, and Southeast Asia and destined for the European and North American market. In addition, Free Zone hosts the regional headquarters of global consumer product manufacturers as Sony, GE, Philips, LG to cost effective distribute their brands and products to the fast growing markets in the region. Therefore, Free Economic Zone-Port bundle concept allows the Port of Gwangyang to tap into global outsourcing trends and to insert in the global production chain in the Northeast and Southeast Asian regions.

Second, the integration of port and port-related organizations is also very important for securing fast decision-making for port construction, operation and management and providing a 'one-stop-service' to customers. In case of Gwangyang, the integration between Korea Container Terminal Authority(KCA) and Gwangyang Bay Area Free Economic Zone Authority(GYFEZ) could be considered. Even though they are controlled by different jurisdiction of central government, strategic integration of two organizations' operation and responsibility could obtain synergy effect in function, economic and spatial aspects.

Last but not least, as fierce competition from the rival ports in domestic as well as foreign market and the emergence of global terminal operators, Gwangyang's vision as a hub port in the Northeast Asia is being considerably threatened. Thus the Gwangyang port should pursue an aggressive supply chain strategy, aiming at dominance in the regional port network. For this aim, the Gwangyang port tries to

acquire management contracts and operating rights across the region, especially China and Southeast Asia. As a prior phase for penetration into overseas port business, port alliance with neighboring ports could be a useful method.

## V. Conclusion

One of the most important changes in modern business management is that individual firms no longer compete as solely autonomous entities, but rather as supply chain. As such the competitive position of a port is not only determined by its internal strengths like efficient cargo handling and hinterland connections, but also it is also affected by its links in a global supply chain. As a consequence, the risk for ports of losing important customers can come not only from deficiencies in port infrastructures, terminal operations and inland connections, but also from the customer's service network reorganization and its entry into new partnerships with logistics service providers, which may be using a different hub. In other words, port competitiveness is becoming increasingly dependent on external coordination and control of the whole supply chain. As Robinson (2002) argued that ports are elements embedded in value-driven chain system, today's ports should be able to deliver value to its customers in supply chain system, not simply as places with particular functions. Thus a port should be recognized as a member of a supply chain.

The main purpose of this paper is to examine how a port embeds itself into supply chain in order to strengthen its competitive position by focusing on Dubai port case. This paper used the concept of Hall & Robinson (2007), which distinguished three phases(insertion, integration and dominance) as a strategies for how a port can integrate into global supply chain through a case study of the development of Dubai Port Authority, and the rise of Dubai Ports World. Through the case study on the global supply chain strategy of the Dubai port, the paper gives some suggestions for the Gwangyang port: first, using Free Economic Zone and Port bundle strategy to insert in the global production chain in the Northeast and Southeast Asian regions, second, integration between Korea Container Terminal Authority(KCA) and Gwangyang Bay Area Free Economic Zone Authority(GYFEZ) to secure fast decision-making and provide one-stop-service, and third, port alliance with the Northeast Asian ports to aim at dominance in the regional port network.

The limitations of this paper are as follows.

First, even though the Dubai port case is a useful example for how a port embeds



itself into global supply chain successfully, more case studies are needed for finding out the exact factors affecting a port's global supply chain strategy. Second, empirical studies on the results of a port's global supply chain strategy should be done. The next study will deal with these subjects.

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<요약>

## 항만의 성공적인 글로벌 공급사슬 전략 -두바이항의 사례를 중심으로-

한철환

기업경영의 글로벌화와 JIT 시스템의 보편화는 기업들로 하여금 전체 공급사슬에 있어서 효율성과 신속성 제고를 요구하고 있다. 이 같은 환경변화는 항만의 경쟁전략에 있어서도 새로운 접근을 요구하고 있다. 즉 글로벌 공급사슬 확대에 따라 항만의 경쟁력은 과거 입지, 시설, 운영효율성 등과 같은 내부적 요인들뿐만 아니라 항만이 공급사슬에 어느 정도 착근되어 있고, 공급사슬상에서 얼마나 효율적인 서비스를 제공할 수 있으며, 나아가 이 같은 공급사슬로부터 어떻게 가치를 창출할 수 있는가 여부에 달려 있다. 본 논문은 항만이 경쟁입지 강화를 위해 공급사슬에 항만이 통합될 수 있는 방안을 검토하고자 한다. 이를 위해 지역항만공사에서 글로벌터미널운영업체로 전환한 중동의 허브항만인 두바이항의 사례를 검토함으로써 광양항에 대한 정책적 시사점을 도출하는 것이 목적이다.

두바이항은 먼저 제벨알리항과 제벨알리자유무역지대를 클러스터화함으로써 글로벌 공급사슬에 성공적으로 편입한 이후, 항만과 항만관련사업들을 통합함으로써 항만개발, 관리, 운영에 있어서 신속한 의사결정체계를 구축함과 동시에 고객들에게 원스톱서비스를 제공하고 있다. 이어 두바이항은 인근지역 항만에 대한 개발 및 운영권을 보유함으로써 잠재적 경쟁자들을 제거하는 동시에 글로벌 항만운영업체들을 인수·합병함으로써 지역항만운영업체에서 글로벌항만운영회사로 발전해 나가고 있다.

이 같은 두바이항의 성공적인 글로벌 공급사슬전략은 국내 항만 특히 신생항만으로서 배후지역이 활성화되어 있지 못한 광양항에 다음과 같은 시사점을 제공한다.

첫째, 광양항은 인근 광양만권경제자유구역(GYFEZ)과의 상호공생관계를 심분 활용할 필요가 있다. 이 같은 항만과 배후경제권과의 연계(Port-FEZ bundle)를 통해 광양항은 글로벌 생산네트워크에 성공적으로 편입할 수 있는 발판을 마련할 수 있을 것이다. 둘째, 신속한 의사결정과 고객에 대한 원스톱 서비스를 제공하기 위해서는 한국컨테이너부두공단과 광양만권경제자유구역청간 통합운영방안을 적극 고려해 볼만하다. 마지막으로 국내외 항만의 거센 도전에 직면해 있는 광양항으로서는 보다 공격적인 공급사슬전략을 추진해 나가야 하며 이를 위해 중국, 일본 중소형 항만과의 항만얼라이언스를 통해 역내 항만네트워크상에서의 우위를 점해 나가야 할 것이다.

□ 주제어 : 글로벌 공급사슬, 글로벌생산네트워크, 항만클러스터, 두바이항