

The Structure of Alliance Network in Regional Tourism Business : A Conceptual Analysis from the Perspective of the Duality of Technology

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Abstract

The purpose of this study is to investigate the evolution of regional tourism resources from the perspective of business ecosystem network. A regional tourism structure changes due to various factors such as natural resources, facilities, festivals and events, public resources, and etc. An exploratory analysis was conducted to examine the interaction between resource characteristics and alliance complexity in the regional tourism industry. In the process, the duality of technology provides an insight into the interaction among several players within an alliance network which include regional attractions and tourism industry. As a result, we identified four types of tourism alliance network : functional, organizational, resource-oriented, and artificially-allied. The managerial implications are also discussed.

Keywords : Business Ecology, Alliance Network, Co-Evolution, Regional Tourism, Tourism Resources,
Tourism Industry

1. Introduction

A company's success depends largely on the collective soundness of entities that influences the overall business process spanning from the creation to the delivery of products [Iansiti and Levien 2004]. This view on business as ecosystem has gained more attention, as industry structures are becoming more and more complicated and the degree of competition is getting higher these days. Moore [1998] defines business ecosystem as an economic community supported by a foundation of interacting organizations and individuals encompassing communities of customers, suppliers, lead producers, competitors, financing, trade associations, standard bodies, labor unions, governmental, quasi-governmental institutions, and other stakeholders. The level of complexity further increases as each member of a business network tries to make strategic thrust to create new market and efficient supply channels.

A strategic alliance network is a subset of a business ecosystem network, and thus, has a narrower scope. A strategic alliance network is formed based on collaborative and formalized relationship through voluntary arrangements among organizations [Gulati, 1998]. While a business ecosystem network system includes competitors of a focal firm, for instance, a strategic alliance network does not. Strategic networks in the public sector as well as the private sector at all levels (region, city, province, and nation) represent global competitiveness of citizens and entrepreneurs' services within the geographical boundary. Gulati [1998] identifies five key is-

ssues of the networked alliance: form of a network, network governance, exogenous or endogenous factors to networks, network performance, and the performance of firms entering the network. The perspective focusing on the co-evolution of a network focuses specifically on the structure of a network. This view may be considered as a good way of explaining how the electronically interconnected business environment evolves.

Regional tourism industries need various regional resources including attractions, facilities, foods and beverages, and cultural artifacts in order to create competitive tourism services. Thus, regional destination marketing organizations (DMOs) try to link regional tourism products to customers and tourists within the regional strategic network.

Provincial governments and local administrations have relied on natural and historic resources as well as artificial resources. Business and service resources are usually located around these attraction areas. These resources finally form a regional business ecosystem.

Public tourism organizations use these tourism resources and business ecosystem to promote their cities through co-evolution of the region's economy. However, the relationship between the resources and business network and the way this ecosystem co-evolves has gained little academic attention.

The major research questions of this paper are as follows :

- What are the key resources of tourism and what types of co-evolution exist in tour-

ism? (the structure of business eco-systems and co-evolution)

- How does the alliance network within a region co-evolve? (the strategy of an alliance network, focusing on destination marketing in the tourism industry)

2. Co-evolution of Alliance Network in Tourism

A strategic alliance network not only influences on, but also co-evolves along with the strategy of a firm. Building on March [1991], Levinthal and March [1993], and Lewin et al. [1998], Koza and Lewin [1998] elaborate the co-evolutionary process model of strategic choices. According to them, the evolution of an alliance network is a function of firms' adaptive strategies within the network. The evolution is further related to three morphological attributes; alliance-absorptive capacity, control, and identification.

Lewin et al. [1998] view the evolution of new organizational forms as the outcome of the co-evolution of competitive environment, firm intentionality, and institutional environment of a firm under various environmental uncertainties. According to them, two important types of evolutionary period are involved : periods of population variation and periods of organizational mutation (emergence of new forms). Their co-evolution perspective provides a rich insight into the research on strategic alliances in a tourism network.

A business network is a set of relationships producing an emergent organization that is characterized by informal social relationships

among industry players [Powell et al., 1996; Koza and Lewin 1998]. Researches on social networks consider alliance networks as "networks of learning" where the learning is the evolutionary process of the social network.

It is probably useful to distinguish the emergent from intended resources in tourism. Emergent resources are new resources in regional tourism properties, while intentional resources are rather stable resources in regional tourism properties. In stable industries such as investment banking and accounting, intentional network structures are common. These are industries where the business model, production function, and the direction of change are well understood. Here the collaboration tends to be formal with the network intentionally created and designed to pursue strategic intents of the member firms. In such industries, it is possible to monitor and measure the relative contributions of the members to the network [Koza and Lewin 1998].

In emerging industries, collaboration produces informal relationships that may lead to emergent network outcomes (perhaps mediated by a rational agent).

The regional tourism industry is composed of a set of players that provide services to tourists and consumers based on tangible and intangible resources with a certain geographic area. DMOs try to induce tourists to increase their expenditure by providing more attractive products. The expansion of alliance network may increase consumer's expenditure by extending the time and scope of traveling and experience. Different from manufacturing industries, the tourism industry ecology includes the attraction resources

shared by all regional members. Public organizations help DMOs' in promoting products, by mobilizing shared resources, to increase the number of visitors and revenue to vitalize regional economy.

3. Duality of Regional Tourism Resources

The duality of technology highlights that technology is the product of human action and physical construction made by actors working in a given social context. That is, technology is socially constructed by actors through attaching different value and meaning to various features of the technology they emphasize and use. On the other hand, technology turns into a part of organizational resources and properties once developed and deployed. It tends to become 'reified and institutionalized as a part of structural properties of an organization' [Olikowski 1992]. User agents and the structure present ongoing interaction. We can apply this perspective to the tourism industry by suggesting that human agents and structures within the tourism business ecosystem present ongoing interaction based on the technology or tourism resources.

Olikowski [1992] presents that this 'structural' model of technology is comprised of the following components :

- human agents-technology designers, users, and decision-makers
- technology-material artifacts mediating task execution in the workplace
- institutional properties of organizations-organizational dimensions (such as structural arrangements, business strategies, ideology, culture, control mechanisms, standard operating procedures, division of labor, expertise, communication patterns) and environmental pressures (such as government regulation, competitive forces, vendor strategies, professional norms, state of knowledge about technology, and socio-economic conditions).

Provincial and local government organizations adapt natural and historic resources (e.g. mountain, river, culture, religion, museum, etc.) and select and develop the artificial resources (e.g. theme park, convention center, events and festivals, movie and drama, and etc.) in response to consumer preferences and tourism market trends. Additionally, business and service resources (e.g. restaurants, rental car, lodge, shops, etc.) may sprout around the attraction area or throughout a city.

Recent developments in information technologies and information systems have triggered an increase in the number of products. The scope of activities and regional resources used for tourism has been expanded at the following three levels. First, at the resource level, combinations are made among natural and historic resources, artificial resources, and business and service resources (for example, Airtel, HotelPack). Second, at the regional level, combinations are made by connecting different regions within a nation (for example, Korea Visiting Product-Seoul and Jeju, etc.). Third, at the na-

tional level, tourism products are developed by combining attractions in two or more countries (for example, BeSeTo Product-Korea Seoul, China Beijing, and Japan Tokyo).

A more interesting phenomenon is that the emerging information technologies (IT) lead to the development of visible tourism products out of invisible and ambiguous resources. In view of evolutionary research, IT such as database systems, content management systems, and others seem to play a key role in managing the process of variation, selection, and retention of tourism information about resources.

Lansiti and Levein [2004] analyze the industrial ecology of Wal-Mart and Microsoft using two dimensions; the complexity of relationship and the level of turbulence and innovation in the creation and delivery of products.

In tourism, the complexity of relationship can be defined as the scope of resource network. The complexity of relationship in an alliance network of emergent resources is high compared to the complexity of intentional resources. The level of turbulence and innovation is defined as the tangibility of resources. The level of turbulence and innovation of a tangible resource is low, while that of the intangible resource is high.

In the tourism industry, DMOs' strategy is to choose a partner (private or public organizations) to promote co-developed products, which is created by transforming their core regional resources. DMOs' strategy focuses not only on current resources and products, but also on new ones. DMOs' strategy is related to

the value of resources as well as to the stake of their shareholders. Moreover, the choice of specific resources affects regional economy, people and the market.

4. Conceptual Model and Methodology

The resource-based view of organizational strategy [Bharadwaj 2000; Grant 1991] asserts that the complexity of organizational relationship depends on the nature of organizational resources (human IT resources), while the level of turbulence and innovation depends on the nature of tangibility of resources (e.g. physical IT infrastructure vs. knowledge, customer orientation, etc.).

With regard to the co-evolution of alliance network, Koza and Lewin [1999] find that the firm strategy and the strategic intent toward alliance co-evolve along with changes in the competitive, technological, and institutional environment of the firm. As the strategy evolves, the initial intent for alliance will also change (Ariiio and de la Torre 1998). Similarly, alliance outcomes affect the strategy of the firm in response.

Developments in resources and products lead to the evolution of business ecology of regional tourism industries as well as that of alliance network, resources, and organizations capabilities.

We developed a 2x2 conceptual model by combining the two dimensions of the resource-bases of business ecology.

- Complexity of relationship : Organizational/
Individual scope and activities of alliance

network (complexity of the relationship in alliance network of emergent resources is higher than intentional resources)

- Tangibility of resource : A level of turbulence and innovation-visibility of resources (a turbulence and innovation of a tangible/visible resource is lower than an intangible/invisible resource)

In co-evolution types of alliance network in the tourism ecosystem are as follows :

- Type I emergent resource (multi-external) + intangible/invisible resource
- Type II emergent resource (single-external) + tangible/visible resource
- Type III intentional resource (multi-internal) + intangible/invisible resource
- Type IV intentional resource (single-internal) + tangible/visible resource

A web linkage analysis using google.com was conducted to find the results of keyword search associated with tourism from May 1 to 7, 2009. A number of links including incoming link and direct network were analyzed. In the

literature, the organizational ecology research is based on longitudinal data (a number of visitors) and shares essential variable definitions and measurements across studies [Lewin and Volberda, 1999]. As a result, we finally selected four cases in Korea, and analyzed them longitudinally in terms of the number of visitors which was found from the tourism statistics in Korea (source : <http://www.tour.go.kr>). We also conducted contents analysis based on the secondary data from newspapers. The issue cases from newspaper articles were chosen by 4 researchers in KCTI (Korea Culture and Tourism Institute) within last 5 years.

5. Analysis Results

5.1 Type I. Organizational alliance network : Emergent and intangible resources

The Busan tourism website (<http://tour.busan.go.kr>) showed 12 links searched for 'Pusan International Films Festivals' and 6 links searched for 'PIFF.'

PIFF (Pusan International Films Festival) has started from 1996 by Busan City (provincial level)

<Table 1> Four types of alliance network in co-evolution

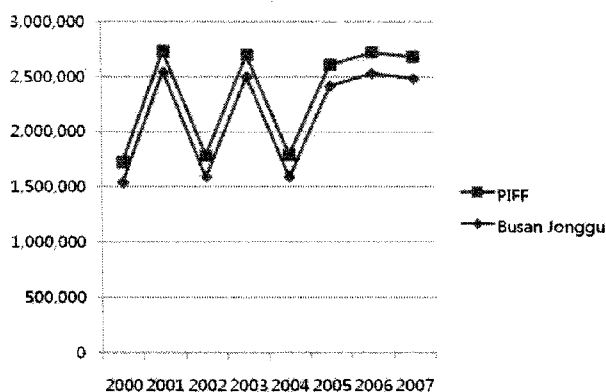
Level of turbulence and innovation	High (Intangible or invisible Resources)	Type III	Type I
	Low (Tangible or visible Resources)	Type IV	Type II
		Low (Alliance network of intentional resources)	High (Alliance network of emergent resources)
Complexity of relationship			

which is the second largest city in Korea. Busan has boosted up as a movie city with the movie 'Friend' screened in 2001. Busan planned the movie festival to be a global tourist attraction for regional economic value. The alliance network of PIFF consists of organizational alliance structure among Busan and Jong-gu (local government), the ministry of culture, sports, and tourism (MCST), ASIA movie committee, Korea movie association, citizens (volunteers), and etc. PIFF has created 200,000 visitors per year and become one of the most famous movie cities in Asia.

This is an example of festival/event cities with the intangible tourism product. Recently, Busan metrcity government decided the major financial investment to build the movie complex and convenience facilities to support the event.

From the perspective of the duality of technology, the key component of Busan is composed of the following factors :

- Key resource : movie industry (technology : T)
- Alliance network : Korea Actor Union (HA), ASIA Film Market (HA), ASIA Movie



<Figure 1> Number of visitors to Busan (Jong-gu) and PIFF

Academy (HA), Movie Maker Union(HA), PIFF organization (HA), ASIA Cinema Fund and Public financing assist (Institutional Properties : IP)

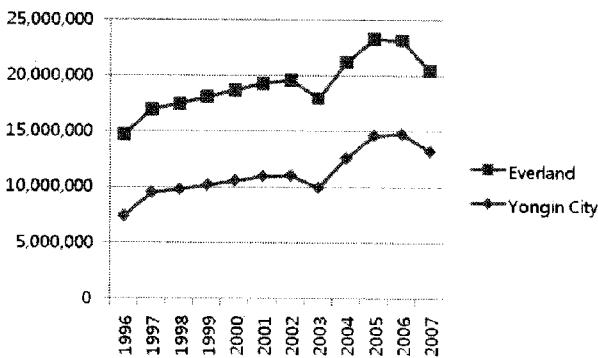
- Regional alliance network : movie infrastructure, commercial facilities and market, hotels, restaurants, natural resources (Haiwondae Beach and etc.), citizens

Local governments should keep their eyes on developing an emergent resource of alliance network to develop new tourism products. The co-evolution of alliance network among various organizations is a key resource to make a new product in tourism business ecosystems. PIFF is an example of an intangible product developed by the co-evolution of multi-organizational alliance network for emergent resources (Type I).

5.2 Type II. Artificial alliance network : Emergent and tangible resources

The Yongin tourism website (<http://tour.yonginsi.net>) showed 160 links (included 113 board messages) searched for 'Everland'.

Succeeding to 'Yongin Nature Farm Village' during 20 years, Everland and Caribbeanbay Waterpark (Samsung Everland) have opened in 1996 which are located in Yongin city in Korea. As the private firm re-developed its theme park, Yongin city has the globally competitive theme park and the related supporting infrastructure (resorts, distribution complex, hotel/lodging, golf club, etc.). Everland and the water park attract approximately 8 million visi-



<Figure 2> Number of visitors to Yongin city and Everland (theme park)

tors to the city per year. Its key resources are various entertainment facilities, festival, and globally competitive service.

In views of the duality of technology, the key components of Yongin city are as follows :

- Key resource : theme parks including Everland and water park (T)
- Alliance network : Samsung Everland (HA)- Entertainment facilities and festivals (T), service academy (HA)
- Regional alliance network : Regional resources, Korea Folk Village

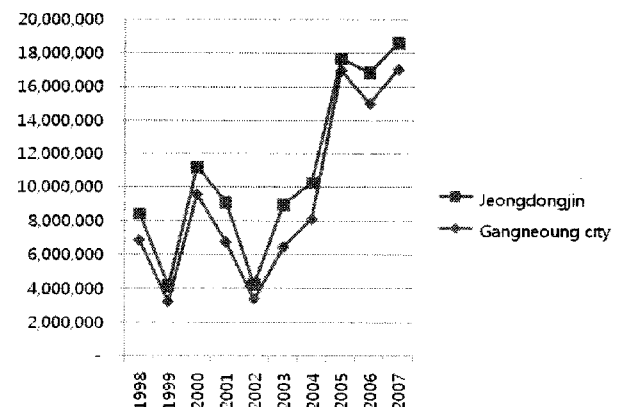
This is an example of cities with the tangible tourism product. Yongin city (local government) has the great resource and macro alliance network with Everland. Everland as a private sector focuses on business as one of the leading firms of business ecology, and Yongin city as a public sector focuses on the global image as the tourist attraction. In short, the Everland product is networked with the regional resources. This is co-evolution between organization and tangible resources. Yongin city allied with Everland resources which are the tangible

products through the co-evolution of the artificial alliance network for emergent resources (Type II).

5.3 Type III. Functional alliance network : Intentional and intangible resources

The Gangneoung tourism website (<http://www.gntour.go.kr>) showed 37 links searched for 'Jeongdongjin.'

Jeongdongjin (the name of train station) in Gangneoung City is located in the east coast of Korean peninsular. This place is popular for the scenes from drama 'Sandwatch' in 1995. Nowadays, exposing places in dramas and movies is one of the most effective methods to develop and promote regional tourism resources. Jeongdongjin was the first case of this kind. Before appearing in the drama, Jeongdongjin was just one of small train stations along the coast. It was not an important tourism resource of the city. After the drama, however, Jeongdongjin has attracted approximately 2 million visitors per year with allying with various local tourism resources including a sculpture park, restaurants, lodgings, and etc.



<Figure 3> Number of visitors to Gangneoung city and Jeongdongjin

From the perspective of the duality of technology, the key components of Gangneoung city are structured as follows :

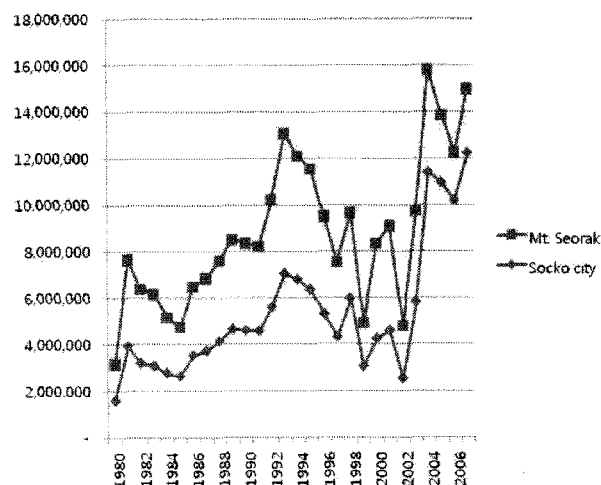
- Key resource : drama (T : intangible resource)
- Alliance network : Korea Railroad(HA), regional commercial/tourism associations
- Regional alliance network : Gangwon (province) and Gangneoung (local) government (HA), Commercial facilities and market, lodging, restaurants, natural resources (beach and etc.), citizens

Jeongdongjin dramatically changed from a local train station to a major tourist attraction among the city's various tourism resources. Based on an intangible resource (drama), Gangneoung city offers the tourism products by successfully managing co-evolution between Korea Railroad Cooperation (public sector) and regional commercial associations. In sum, Jeongdongjin is an intangible product based on the co-evolution of organizational alliance network for intentional resources (Type III).

5.4 Type IV. Resourced alliance network : Intentional and tangible resources

The Sokcho tourism website (<http://sokcho-tour.com>) showed 355 links (included 224 board messages) searched for 'Mt. Seorak'.

Sokcho City and Mountain of Seorak (Mt. Seorak, 1,708m) are located in the east coast of Korea. This area is known as one of the best attractions for vacation, since Mt. Seorak in



〈Figure 4〉 Number of visitors to Sokcho city and Mt. Seorak

Sokcho city is one of the best mountains in Korea. Mt. Seorak is managed by Korea National Park Organization (KNPO) under the supervision of the Ministry of Environment (ME). Sokcho city has tried actively to ally with Mt. Seorak and KNPO in the organizational level. Mt. Seorak is a key product for the regional tourism industry ecology including hotel, resort, lodging, restaurants, facilities, etc.

In views of the duality of technology, the key components of Sokcho city are structured as follows :

- Key resource : nature-Mt. Seorak (T)
- Alliance network : Korea National Park Organization (HA)
- Regional alliance network : regional commercial union (HA), commercial facilities and market, hotels, restaurants, natural resources (beaches, lakes, and etc.)

These natural resources in the region have largely affected the regional tourism industry. Therefore, organizations (typically public sec-

tor) managing the natural resources are closely related with local governments, tourism facilities, people, and infrastructure in the alliance network. Therefore, Mt. Seorak is the tangible product based on the co-evolution of 1 : 1 organizational alliance network for emergent resources (Type IV).

5.5 Alliance network for co-evolution in four types

As results, we found the structure of the co-evolutionary organization's link and the performance for the four types. We further found the four types of organizations allied with web linkages between organization and technology as resources (see table 2). This study also reveals the link structuring forms of the organizations in WWW (see table 3).

Public organizations link their resources through the WWW virtual activities. Zammuto et al. [2007] argue that virtual collaboration enables the members to share and integrate others'

<Table 3> Incoming structure and direct network for co-evolution in WWW

Type	Organization	Google.com Incoming links	Google.com Keywords (direct network)
Type I	Busan	11,800	77,900
	PIFF	19,100	42,700
Type II	Yongin	996	24,500
	Everland	24,700	28,600
Type III	Gangneoung	565	2,690
	Jeongdongjin	64	582
Type IV	Sokcho	342	3,020
	Mt. Seorak	18	765

knowledge. A virtual organization is formed through the media such as virtual teams [Cramton 2001; Fiol and O'Connor 2005; Hinds and Mortensen 2005; Majchrzak et al., 2000], online electronic networks of practice [Wasko and Faraj 2005], or new patterns of collaboration [von Hippel and von Krogh 2003].

This study found the new types of web organization for co-evolution. A virtual organ-

<Table 2> Dualism between organization (human agents) and technology for co-evolution

Type	Organization	Organization and Technology as Resources
Type I	Busan	www.busan.go.kr
	PIFF Committee	www.piff.org
Type II	Yongin	www.yonginsi.net
	Everland	www.everland.com
Type III	Gangneoung	www.gangneung.go.kr
	Jeongdongjin	www.jeongdongjin.co.kr
Type IV	Sokcho	www.sokcho.gangwon.kr
	Mt. Seorak	seorak.knps.or.kr

<Table 4> Virtual organizations and the number of linkages for co-evolution

Type	Technology	Virtual Organizations	Target Search Links
Type I	busan.go.kr	tour.busan.go.kr	18
	www.piff.org		
Type II	www.yonginsi.net	tour.yonginsi.net	160
	www.everland.com		
Type III	www.gangneung.go.kr	www.gntour.go.kr	37
	www.jeongdongjin.co.kr		
Type IV	www.sokcho.gangwon.kr	sokchotour.com	335
	seorak.knps.or.kr		

ization directs the visitors to the origins of public information about a region's culture and tourism. In this way, these websites link between the public sectors and the other.

6. Implications and Future Research

In the relationship between technology and organizational forms and functions, Technology is the key determinant of the organizational structure [Zammuto et al., 2007; Scott 1992]. Expanding the Internet environment, organizations have been changing their structure in the contingency. The duality of technology for the regional resource-based views is not just choice of strategy but co-evolution of alliance network structuring in the tourism business ecosystem.

The ecosystem-based perspective provides a number of useful implications for managers. First, this study reaffirms the importance of interdependency in business. A firm's performance is increasingly dependent on the other firms which are not under the firm's direct control. This provides meaningful implications for strategy, operations, and even policy and product design [Iansiti and Lewin 2004].

We approached a model of strategy as ecology based on Iansiti and Levien [2004]. They state that a company's choice of ecosystem strategy—keystone, physical dominator, or niche—is determined primarily by the type of a company or its goal. The choice also can be affected by the business context in which it operates, more specifically, the general level of turbulence and the complexity of its relationships with others in the ecosystems.

In the views from a public sector, tourism resources in a region are important assets. Each of region, province, and country chooses the right resources strategically and attracts tourists and visitors to its boundary. In the resource views, an emergent resource is necessary to make new scope and activities in alliance networks. On the other hand, it is difficult to expect turbulence or innovation from an invisible resource, because it is basically human and culture based product. In this study, we classified various business environments into the four alliance network structures in the tourism industry.

Duality of technology for regional tourism resources is different from what kinds of re-

<Table 5> Co-evolution of four alliance networks in Tourism Ecosystems

Level of turbulence and innovation	High (Intangible or Invisible Resources)	Functional alliance network	Organizational alliance network
	Low (Tangible or Visible Resources)	Resourced alliance network	Artificial alliance network
		Internal(low) (Alliance network of intentional resources)	External(High) (Alliance network of emergent resources)
Complexity of relationship (Human resources)			

sources are developed, selected, and maintained in tourism industry ecosystem from the perspective of co-evolution. Furthermore, it is desirable for the concept of dualism to adopt destination marketing strategy.

This study is limited in the number of cases for statistical analysis and in lack of building a model for contents for the practical co-evolution. Future research could build specific contents for each of the four types to provide vivid evidence on their organizational performance and relationships among the players.

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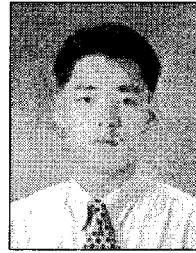
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