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## Article

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## Analysis of MICE Competition Among International Conference Cities: Using Niche Theory

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### ABSTRACT

**Purpose:** The purpose of this study is to understand the competition among international conference cities in South Korea by applying the theory, which is useful for understanding the relationships among individual (industry) groups competing for limited resources.

**Design/methodology/approach:** In this study, data on MICE events (government meeting, corporate meeting, association/group meeting, etc.) held in 2019 in 10 international conference cities including the hosting organizations, event topics, event scales, and conference facilities were completely enumerated, and analyses were attempted.

**Findings:** As a result of the breadth analysis, Changwon (host organization, event topic), Daejeon (event topic, event scale), and Goyang (conference facility) were found to have strong specialized natures. Meanwhile, as a result of the overlap analysis, it was found that Daegu and Gyeongju were in competition with each other according to hosting organizations, Jeju and Gwangju, and Busan and Daejeon according to the scales of events, and Seoul and Daegu, and Changwon and Incheon according to the types of events, Daejeon and Goyang according to event topics, and Changwon and Daegu, and Changwon and Seoul according to conference facilities.

**Research limitations/implications:** Through the findings of this study, implications helpful for the establishment of differentiation strategies for international conference cities were provided. Therefore, although efforts were made to collect data close to complete enumeration, the possibility that there may be missing data cannot be eliminated.

**Originality/value:** This study is meaningful in that presents strategies that help establish differentiation strategies for each International conference cities.

*Keywords: Competitiveness, Theory, International Conference City, MICE(Meeting, Incentive, Convention, Exhibition)*

## I. Introduction

The international conference industry has very large effects on the tourism industry along with economic, social, and cultural ripple effects and provides great benefits to the host country (Byun & Kim, 2021; Lee &

Do, 2015; Barbieri, Mahoney, & Palmer, 2008; Dwyer & Mistilis, 1999; Dwyer, Mellor, Mistilis, & Mules, 2000; Kotler, 2002). Various countries of the world recognize the international conference industry as a key means of national development and are promoting various policies and strategies for the industry. In South Korea, the international conference industry is one of the 17 new growth engine industries and was selected as one of the six major tourism and leisure industries in 2009 (Lee & Yoon, 2013). The international conference industry

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plays an important role in the tourism industry to the extent that 11 international conference cities, three international conference complex districts, and 14 integrated facilities for international conferences were selected as of 2019 (Ministry of Culture, Sports and Tourism, 2019), and various support systems for the industry are in operation.

Thanks to such diverse support and strategies at the national level, South Korea ranked 3<sup>rd</sup> in the world for hosting international conferences in 2013, and thereafter achieved the growth to rank 2<sup>nd</sup> in 2015 and 2019, and 1<sup>st</sup> in two consecutive years of 2016(997 conferences) and 2017(1,297 conferences). In addition, according to the UIA report (2018) Seoul ranked 3<sup>rd</sup> and Busan 10<sup>th</sup> in 2016 in the global international conference city ranking (A+C type), and the domestic international conference industry achieved remarkable outcomes in a short period of time to the extent that major cities in South Korea ranked high (Seoul 2<sup>nd</sup>, Busan 6<sup>th</sup>, Jeju 7<sup>th</sup>, Incheon 12<sup>th</sup>, etc.) in the numbers of international conferences held in major cities in Asia-Pacific.

In particular, among the strategic projects promoted to strengthen the competitiveness of international conference holding regions, strategies such as introducing an international conference evaluation system, expanding representative unique venues, and resolving regional imbalances well indicate that uniform strategies for the entire country are no longer necessary for the promotion of the international conference industry and show the importance of the establishment of strategies through differentiation reflecting the characteristics and strengths of regions. Meanwhile, to the extent that the Global MICE Insight (2018) analyzed the remarkable growth rate of the tourism and event industry in the Asian region and the increase in demand for interesting venues as venue trends in its 2018 MICE Industry Trends and Prospects, recent conference participants regard the specificity(differentiation) that can be experienced in the relevant area as important rather than simply selecting the conference destination.

Meanwhile, since 2019, the world has been severely hit socially and economically by the unexpected situation of the corona pandemic (Strielkowski & Wang, 2020),

and the tourism industry in particular is one of the industries that have suffered the most. The aviation, travel, and hotel sectors, as well as the MICE industry, cannot be an exception, and in particular, the international conference industry for which the participation of people of various nationalities can be said to be essential cannot even obtain a chance to hold an international conference (Bonifati et. al., 2021).

Prior to the corona pandemic, the domestic MICE industry went through a period of growth and reached the point where South Korea was positioned as a MICE leading country, and the present has been recognized as a time when it is necessary to develop differentiated products that can compete in the international community (Seong, 2014; Sung & Lee, 2015). That is, the international conference industry should now go beyond competition between countries and should have regional competitiveness and prepare unique strategies in the situation of fierce competition of the domestic international conference industry that has reached saturation (Lee & Yoon, 2014). This can be said to be the ultimate way to go ahead in the competition between countries consequently. In addition, as non-face-to-face international conferences are starting to become active after the corona pandemic, new strategies are emerging in the international conference industry.

In other words, place attractiveness was one of the most important elements in the case of the existing international conference venues (country, city), but the activation of non-face-to-face international conferences made other elements more important, and this suggests that strategies different from existing strategies to attract international conferences are necessary. Therefore, in order to adapt to the new environment (post-corona) and to ensure steady growth of the international conference industry, specialized strategies by city should be established by identifying the competitive composition and relationships between cities based on various elements related to holding international conferences before doing anything else. That is, by comparing and analyzing various types of conferences held in international conference cities, identifying in what types (meeting, exhibition, convention) and characteristics (scale, topic, host organization, venue, etc.) a certain city is specialized and what strengths and weaknesses the city has by comparing and analyzing

various types of conferences held in international conference cities can be said to be very important.

However, after the international conference industry was recognized as an important field, although related studies have been remarkably increasing quantitatively (Byun & Lee, 2016), studies that analyzed the competition between international conference cities are very insufficient and some studies that attempted to analyze conference cities and convention venues in competition with each other (eg, Kim, 2010; Lee & Kim, 2007) have the limitation that they did not break away from the form of simple comparison.

Therefore, in analyzing competitiveness, this study is intended to analyze the strengths of competing cities with regard to the certain resources for which the competing cities compete (e.g., the degree of holding conferences for a certain topic, the degree of holding conferences of a certain scale, etc.) considering the degree of resources shared by all competing cities. In addition, in order to overcome the lack of studies on the analysis of the competitiveness of existing international conference cities and the limitations of the study methodologies used in the analysis of competitiveness, this study is intended to analyze the competition among domestic international conference cities using the niche theory that enables the analysis of competition for limited resources in a certain competitive environment from various perspectives (niche breadth, niche overlap).

## II. Literature Reviews

### A. Previous studies related to international conference cities(industry) and their limitations

Today, the international conference industry is required to secure competitiveness between regions beyond competition between countries, and having overall attractiveness and competitiveness as a venue for international conferences is the ultimate way to lead competition between countries (Byun & Kim, 2021).

Research on international conferences in Korea about 10 papers were retrieved with ‘international conference (convention) city competition’ through KCI paper search (as of May 2021), but most of them were studies conducted with only certain convention centers or certain cities, and it was identified that only two or three studies analyzed competition among international conference cities.

When the domestic study trends in the field of international conferences are concretely reviewed, it can be seen that most of the studies analyzed the selection attributes of certain cities or centers (eg., Chun, 2014; Jang & Yun, 2017; Kim & Lee, 2006; Kwon & Lee, 2006) or participants’ satisfaction with service quality (eg., ; Choi, Kim & Lim, 2017; Lee, 2006; Sun, Ko, & Yang, 2013), and derived policy tasks and development plans of certain cities through case analysis (eg., Choi & Cho, 2011; Jeong, Kwak, & Yun, 2009; Kim, 2006). Some studies that examined competitive relations (eg., Hwang & Kim, 2001; Kim, 2010; Lee & Kim, 2016; Lee & Kim, 2007) were found, but those studies simply conducted comparison and analysis centering on certain several cities or centers through the venue selection attributes so that relative competitive relations between domestic international conference cities were not grasped through the form of pairwise comparisons. Therefore, since existing studies were conducted focusing on venues’ ability to hold conferences, the levels of competitiveness by city based on the characteristics of conferences actually held could not be derived leading to the problem that differentiated strategies or development directions cannot be presented.

The reasons for the bias and absence of studies as such are first, that the studies were conducted in the early and mid-term when quantitative growth of the international conference industry was promoted so that researchers could not but be interested in deriving selection attributes and strategies focusing on strategies for competition between countries and marketing (Byun & Lee, 2016). Second, it is considered that great meanings were not given to the analysis of competition between cities in the past because international conferences were held intensively in the capital area. However, since the domestic international

conference industry is reaching saturation and international conferences are being activated nationwide, it is judged that competitiveness analysis should be attempted now in order to establish strategies for development of international conferences specialized by city. Third, another reason may come from the difficulty of data collection. This study will attempt analysis based on the data on events by city/center that have been held thus far, but it should have been difficult to attempt such a study in the past since such data have been constructed not long ago, and it is thought that the problem that the collection of data on diverse forms and characteristics (topic, scale, type of meeting, host, etc.) of international conference cities requires a long time might have hindered the attempt of studies.

Therefore, this study aims to analyze the state of competition among international conference cities in South Korea, which has not been studied despite that the international conference industry pursues qualitative growth and the competition is gradually becoming fierce, through the characteristics of conferences actually held in international conference cities to understand what kind of competitive advantages the relevant cities have by the characteristic and type of conferences and what competing states the cities being analyzed maintain. Through the foregoing, strategies for characterization and differentiation by city will be established to derive useful implications for the continuous development of the international conference industry hereafter. As a framework for concrete analysis to achieve the purpose of study as such, this study will apply the niche theory known to be useful when analyzing competition and market positioning among two or more entities that use limited resources together (Joon & Hwan, 2016) to analyze the intensity and direction of competition among entities in the same industrial group, that is, international conference cities thereby understanding the mutual competition.

## B. Niche theory

### 1. Concept of niche theory

Competition refers to an environment in which industries or organizations use the same resources and is related to ecological similarity. That is, competition occurs when resources are limited, and ecological similarity exists (Byun & Lee, 2006; Byun et al., 2020; Byun & Kim, 2021; Jung, 2013). In ecology, competition is the struggle for scarce resources, and the intensity of competition is determined by the degree to which two species compete for the same scarce resource (Milne & Mason, 1990). That is, the niche theory is an analytical framework that explains and describes competition based on a common environmental resource pattern for a certain period of time and was developed from the theory of population ecology indicating that each entity adapts itself to a given environment for its own survival (Dimmick, Patterson & Albarran, 1992). It is a theory indicating that when a new entity flows into a space in which a certain group resides, competition occurs as the new population tries to consume the resources that have been consumed by the original group together with the original group, and that eventually, depending on the degree of competition between the two groups, the two groups coexist or one of the group is replaced by another group (Byun et al., 2020; Dimmick, Chen, & Li, 2004; Lee, 2009; Park, 2013).

### 2. Prior studies that applied the niche theory

The niche theory is known as an effective analysis method (Cheong, Jin, Kim, 2014; Milne & Mason, 1990) to identify mutual competition between entities in a single industrial group that perform similar functions and has been widely used to apply ecological logics to media in order to analyze competition among media that perform similar functions in the same market (eg., Baek, Lee & Kim, 2011; Ha & Fang, 2012; Jeong & Yoo, 2015; Kang, 2002; Li, 2017; Kim, 2020; Sarrina, 2001; Seol, Park, Lee & Yoon, 2012; Song, Kwon & Ryu, 2020). On reviewing cases where the niche theory was applied to other fields than the field of media,

it can be seen that Milne and Mason (1990) applied the niche theory to explain brand competition, considered brands as competing species, and stated that brands require various resources to survive including raw materials, production facilities, skilled management, exposure to the market, and customers. Milne, McDonald, Sutton and Kashhyap (1996) applied the niche theory to understand competition for sports and fitness from demographic perspectives and derived implications for sports managers and marketers that were more objective and helpful for the establishment of positioning strategies.

Meanwhile, in the field of the tourism industry, Baek et al. (2011) attempted to analyze tourism information media users' satisfaction before traveling and during traveling separately with smartphones, computers, and publications in order to examine the competitive relations according to the satisfaction from various angles. They set cognitive and emotional accessibility as the dimension of satisfaction in their analysis. Okazaki and Hirose (2009) attempted a comparison analysis of satisfaction with the use of media for tourism information search according to genders using the niche theory, and Byun & Lee(2020) used the niche theory to analyze the competition among Low-cost carriers. Byun, Kim and Lee (2020) used the niche theory to analyze the competition among global distribution systems(GDSs) and used the dimension of service quality as the dimension of satisfaction. In addition, Lee & Yoon (2014) applied the niche theory to analyze competition among domestic MICE cities with nine cities, and Byun & Kim (2021) attempted a study that applied the niche theory to MICE event host organizations, scales of events, and topics of events to analyze the competition among domestic convention centers with 10 convention centers.

#### ① Niche Breadth

Niche breadth is a measure of how widely the events held in each city are distributed among the characteristics of international conferences regarding the characteristics of international conferences as a resource. Therefore, if the niche breadth is wide, it can be seen that various types of events are being held, and if the niche breadth is narrow, it can be seen that the events are concentrated on certain types. To measure this, the study conducted

by Dimmick & Rothenbuhler (1984) was applied to make the following calculation formula.

$$B = \frac{1}{\sum_{h=1}^n Ph^2}$$

B = niche breadth  
h = types of resource  
(conference characteristics)  
Ph = ratio of dependence on resources  
(ratios of holding by characteristic)

#### ② Niche Overlap

Niche overlap indicates the degree of similarity between two populations (Dimmick, 2006). That is, whereas niche breadth shows how diversely a certain entity can use limited resources, niche overlap refers to the degree to which the use of resources overlaps and the degree to which two populations compete for or depend on the same resources and enables the estimation of the degree of competition between the two populations (Jeong & Yu, 2015).

$$da, b = \frac{1}{\sum_{h=1}^n (Pah - Pbh)^2}$$

da,b = distance between  
populations a and b  
(degree of competition  
between cities)  
h = type of resource  
(characteristics of  
international conferences)  
Pa(b) = Ratios by resource type  
of population (ratios of  
holding by characteristic  
of each city)

### 3. Analysis of competition among convention centers and application of the niche theory

The niche theory applies the phenomenon of niche transformation that when a new entity enters the market, it is in fierce competition with other entities, but over time, the entity that does not acquire competitiveness will switch(specialize) in the direction to avoid the niche overlap to the media industry. Therefore, it is mainly used in the study of competition among media (Kang, 2002), and studies that applied the niche theory can be found very rarely in the field of tourism. The niche theory is useful when analyzing competition

and market positioning among two or more entities that use limited resources together (Joon & Hwan, 2016) and enables understanding competing relationships more broadly in that it is an analysis that shows the strengths and weaknesses of each entity by relatively comparing individual populations in competition with each other thereby enabling not only the understanding of the overall competition structure but also the prediction of the degree and direction (supplementation and coexistence) of competition among entities.

Therefore, unlike the existing fragmentary competitiveness analysis studies, this study will apply the concept of the niche theory, which performs the evaluation of competitiveness based on the pairwise relationships between resources to set the scales, topics, and host organizations (Government, association/organization, corporation, etc.), event types (meeting, convention, exhibition), conference facilities, etc. as resources and grasp competition among international conference cities for those resources. That is, in this study, the degree and point of competing or complementary relations for MICE between domestic international conference cities will be considered, focusing on niche breadth and niche overlap of the niche theory.

### III. Methods

#### A. Study topics and data collection

This study intends to observe the niche breadth and niche overlap among international conference cities within the industry according to the numbers of events held by characteristic (scale, topic, organizer, type of meeting) in order to examine the characteristics of one population termed the international conference industry. In order to verify the issues as such, literature research and data from 2019 (data announced by Korea National Tourism Organization, MICE Bureau data, event calendars by convention center) were primarily collected through each website. Since each data source does not contain all the information required in this study, missing information (e.g., the scales that are not

indicated in the event calendars by center are indicated in the data presented by the Korea National Tourism Organization) was supplemented and integrated by cross-checking the three pieces of data information and through additional keyword search and data collection through official documents requesting for information to individual centers and CVB, when necessary. The collection and purification of the entire data was carried out from October 2020 to March 2021, and a total of 49,309 collected data were re-established and used for the final analysis.

The cities that will be analyzed in this study are limited to a total of 10 cities. Among the 11 cities designated for international conferences in South Korea, Pyeongchang was judged inappropriate to apply this study due to the peculiarity of being a 'gun' unit. Therefore, the study was conducted with 10 cities, which are Seoul, Busan, Daegu, Jeju, Daejeon, Gwangju, Changwon, Incheon, Gyeongju, and Goyang. Therefore, based on the discussion written above, the following research projects were established.

- ▶ **Research Project 1** : How are the niche breadths among international conference cities (host organization, event scale, topic, type, conference facilities)?
- ▶ **Research Project 2** : How is the niche overlap among international conference cities (host organization, event scale, event, type, conference facility)?

Competitive relations among domestic international conference cities were identified by conducting niche analysis using the final refined data. The criteria for data collection and classification for analysis were classified as shown in <Table 1> based on previous studies.

**Table 1.** Criteria for classification of data for analysis

Characteristics of International Conferences	Classification criteria	References
Event type	Meetings, conventions, exhibitions	Classification of K-MICE, Seong (2014), Lee & Yoon (2014)
Host Organization	Government meetings, business meetings, association/group meetings, etc.	
Event scale	Number of participants (less than 100, less than 300, less than 500, 500 or more)	
Conference facilities	Specialized conference facilities, semi-conference facilities, small and medium-sized conference facilities, hotels, etc.	
Event topic	Economy, Finance, Science and Technology, Transportation/Tourism, Education, Defense/Security, Corporate/Management, Agriculture/Fisheries/Food, Culture/Art, Social Science, Sports/Leisure, Media, History, Medicine, Natural Science, Information and Communication, Politics/Law, Religion, Housing/Construction, Fashion/Textile, Marine, Environment, Others	

## B. Analysis method

Niche analysis was conducted based on the data completed through the primary and secondary refinements of the collected data, and data analysis was conducted as shown in <Table 2> and <Table 3> below referring

to Byun & Kim (2021) and Lee & Yoon(2014). To obtain the niche breadth value, the number of events held at each center was divided according to the characteristics of international conferences (host organization/ scale/events and types/conference facilities), and the number of events belonging to each characteristic

**Table 2.** Example of calculation applied with the niche theory (niche breadth)

Classification of events held in city 'A' by topic	Out of the total number of events held in city 'A'	$B = \frac{1}{\sum_{i=1}^m P_i^2}$ <p>Niche breadth of city A by the formula = <math>\frac{1}{(a1)^2 + (a2)^2 + (a3)^2 + \dots + (an)^2}</math></p>
Topic 1 = Economics	Ratio of events held belonging to topic 1 (a1)	
Topic 2 = Finance	Ratio of events held belonging to topic 2 (a2)	
Topic 3 = Science and Technology	Ratio of events held belonging to topic 3 (a3)	
:	:	
:	Ratio of events held belonging to topic n (an)	
Nature of host n		

B : niche breadth value

Pi: The ratio of the number of events held corresponding to topic i to the total number of events held in Center A

Note) The formula for ratios of events by the scale of international conferences, event type, and the nature of host is the same as above.

**Table 3.** Example of calculation applied with the niche theory (niche overlap)

Out of the total number of events held in city 'a'	Out of the total number of events held in city 'b'
Ratio of events held belonging to host organization 1 (a1)	Ratio of events held belonging to topic 1 (b1)
Ratio of events held belonging to host organization 2 (a2)	Ratio of events held belonging to topic 2 (b2)
Ratio of events held belonging to host organization 3 (a3)	Ratio of events held belonging to topic 3 (b3)
:	:
:	:
Ratio of events held belonging to host organization n an	Ratio of events held belonging to topic n (bn)
Niche overlap value of international conference cities 'i', 'j' obtained using niche overlap formula	
$da, b = \frac{1}{\sum_{h=1}^n (Pah - Pbh)^2} = \text{niche overlap (d a,b) } = (a1-b1)^2 + (a2-b2)^2 + \dots + (an - bn)^2$	

da,b : niche overlap between international conference cities 'a' and 'b'

Pah : ratio of events held by host organization 'h' to the entire events held in international conference city 'a'

Pbh : ratio of events held by host organization 'h' to the entire events held in international conference city 'b'

Note) The formula for ratios of events by the scale of international conferences, event type, and the nature of host is the same as above.



held in a certain city was divided by the total number of events belonging to the relevant characteristic held to calculate the relevant ratio of events held.

To calculate niche overlap, the numbers of events held by the characteristic (event type, host organization, scale, event topic) of international conferences were divided by the total number of events held to calculate the ratios of events belonging to the relevant characteristics and the difference between the ratios of events held in relevant cities to the entire events held was obtained utilizing the values calculated as such and the resultant value was squared(see Table 3). The sum of these squared values is the niche overlap value, which means the degree of the relative distance between two cities. Smaller values mean that the two cities bare closer and that the competition between the two cities is fierce.

## IV. Results of Analysis

### A. General characteristics of samples

A total of 49,307 cases were collected through the data collection method presented above. The topics of the events were divided into a total of 22 types, the number or host organization was 4, the number of event scales was 4, the number of types of events was 3, and the number of types of conference facilities was 5 <Table 4>.

### B. Niche breadth analysis

► **Research project 1:** How is the niche breadth between international conference cities?

Niche breadth is the degree to which a certain entity satisfies the dimension of specific satisfaction of the consumer and means how diversely the entity utilizes each characteristic dimension. The larger the value,

**Table 4.** Entire data analysis

Characteristics		No. of events	Characteristics		No. of events
Host Organization	Government meetings	2,958	Economy/Finance		
	business meetings	29,345	Science/Technology	1,664	
	association/group meetings	8,414	Transportation/Tourism	2,678	
	etc.	8,590	Education	1,290	
			Defense/Security	7,080	
			Corporate/Management	289	
Event scale	less than 100	29,263	Agriculture/Fisheries/Food	15,419	
	less than 300	13,679	Culture/Art	613	
	less than 500	3,897	Social Science	1,262	
	500 or more	2,468	Sports/Leisure	2,105	
			Media	270	
Event type	Meetings	37,568	History	156	
	Conventions	10,414	Medicine	307	
	Exhibitions	1,325	Natural Science	2,887	
	etc	49,307		769	
			Information/Communicati	850	
Conference facilities	Specialized	8,944	on	1,128	
	Semi-conference	5,400	Politics/Law	212	
	Small & medium-sized	19,402	Religion	701	
	hotels	11,157	Housing/Construction	86	
		4,404	Fashion/Textile	643	
			Marine	1,051	
			Environment	7,847	
			Others		
TOTAL		49,307	TOTAL		49,307

the larger the number of generalist characteristics, and the smaller the value, the larger the number of specialist characteristics.

### 1. Analysis of niche breadth according to host organizations

The niche breadth values according to host organization (n=4) have a value between 1 and 4, whereas the closer to 4 the niche breadth is, the wider the resource utilization is, so that the possibility to obtain general users is relatively high, the closer to 1 the niche breadth is, the narrower the resource utilization is, so that specialized users are obtained. <Table 5> shows the results of analysis of niche breadth between convention centers by host organization.

When the present situations of holding by host organization were examined, it was found that Changwon, Busan, and Incheon had the relatively highest rates of holding corporate meetings, and Daejeon(27%) showed higher ratios of other characteristics compared to other regions. Although Seoul had the highest ratio of corporate meetings(44.9%), the ratios of cooperative/group meetings(25.5%) and others(23.8%) were identified to be relatively even. According to the results of niche breadth analysis, the niche breadth value of Changwon (1.582) was the smallest, indicating that the events are specialist ones concentrated on a certain holding

period. On the other hand, the niche breadth value of Jeju(3.177) was shown to be the largest and this can be interpreted as indicating that the possibility for the characteristics of host organizations of the events held to be generalist is higher compared to other cities.

### 2. Analysis of niche breadth by scale of holding

As for the present situations of holding by event scale, the number of events held with fewer than 100 participants was the largest. By city, Daejeon(77.2%) and Busan(77.1%) showed high ratios of small events, while Incheon(45.8%) and Jeju(40.9%) showed relatively high ratios of small and medium-scaled events(100-299 participants). According to the results of the niche breadth analysis, the niche breadth value of Daejeon(1.584) was the smallest indicating that the events may be specialist ones concentrated on a certain scale of holding. On the other hand, the niche breadth value of Goyang (3.455) was shown to be the largest and this can be interpreted as indicating that the possibility for the characteristics according to the scales of events held to be generalist is higher compared to other cities.

**Table 5.** Present situations of holding and niche breadth values by host organization

	Government meetings	business meetings	association/group meetings	etc	niche breadth
Gyeongju	229(0.074)	2032(0.657)	475(0.153)	353(0.114)	2.106
Goyang	148(0.081)	954(0.523)	300(0.164)	422(0.231)	2.772
Kwangju	221(0.074)	1665(0.559)	394(0.132)	694(0.233)	2.558
Daegu	461(0.073)	4207(0.669)	863(0.137)	751(0.119)	2.053
Daejeon	246(0.044)	2959(0.531)	855(0.153)	1505(0.270)	2.622
Pusan	314(0.033)	6863(0.739)	1203(0.129)	899(0.096)	1.741
Seoul	763(0.056)	6062(0.449)	3440(0.255)	3212(0.238)	3.054
Incheon	311(0.072)	3160(0.734)	348(0.080)	484(0.112)	1.774
Jeju	233(0.149)	694(0.445)	436(0.279)	195(0.125)	3.177
Changwon	32(0.033)	749(0.7835)	100(0.010)	75(0.078)	1.582

\* Note1) Parentheses ( ) are the holding ratio, and digits below the two decimal places were rounded off.

\* Note2) Niche breadth value range: 1~4

**Table 6.** Present situations of holding and niche breadth values by event scale

	less than 100	less than 300	less than 500	500 or more	niche breadth
Gyeongju	1896(0.613)	718(0.232)	308(0.099)	167(0.054)	2.254
Goyang	604(0.331)	667(0.365)	287(0.157)	266(0.145)	3.455
Kwangju	1426(0.479)	1187(0.399)	155(0.052)	206(0.069)	2.521
Daegu	3620(0.576)	1831(0.291)	496(0.079)	335(0.053)	2.347
Daejeon	4298(0.772)	1026(0.184)	131(0.023)	110(0.019)	1.584
Pusan	7161(0.771)	1515(0.163)	290(0.031)	313(0.033)	1.602
Seoul	7606(.564)	3626(0.269)	1663(0.123)	582(0.043)	2.451
Incheon	1873(0.435)	1973(0.458)	207(0.048)	250(0.058)	2.467
Jeju	681(0.437)	638(0.409)	122(0.078)	117(0.075)	2.699
Changwon	98(0.102)	498(0.520)	238(0.249)	122(0.127)	2.777

\* Note1) Parentheses ( ) are the holding ratio, and digits below the two decimal places were rounded off.

\* Note2) Niche breadth value range: 1~4

### 3. Analysis of niche breadth by event type

When the present situations of holding by event type were examined, it was shown that Gyeongju (82.6%) and Jeju(73.4%) had the high ratios of the type, convention, while Daegu(93.3%), Daejeon(89.9%) and Seoul(87.6%) had the high ratios of the type, meeting. According to the results of the niche breadth analysis, the niche breadth value of Daejeon(1.122) was the smallest indicating that the events may be specialist ones concentrated on a certain type of events. On the other hand, the niche breadth value of Changwon (2.0423) was shown to be the largest and this can be

interpreted as indicating that the possibility for the characteristics according to the types of events held to be generalist is higher compared to other cities.

### 4. Analysis of niche breadth by event topic

When the present situations of holding by event topic were examined, corporate/management(15,419 cases) appeared the most frequently followed by miscellaneous topics(7,847 cases) and education(7,080 cases). As for the present situations by city, Daegu showed a high ratio of holding events with the topic of business/management(42.0%), and Gyeongju showed

**Table 7.** Present situations of holding and niche breadth values by event type

	meeting	convention	exhibition	niche breadth
Gyeongju	526(0.170)	2554(0.826)	9(0.002)	1.403
Goyang	1304(0.714)	408(0.223)	112(0.061)	1.770
Kwangju	2389(0.803)	469(0.157)	116(0.039)	1.489
Daegu	5861(0.933)	410(0.065)	11(0.001)	1.143
Daejeon	5005(0.899)	27(0.004)	533(0.095)	1.122
Pusan	7011(0.755)	2130(0.229)	138(0.014)	1.603
Seoul	11812(0.876)	1405(0.104)	260(0.019)	1.283
Incheon	2673(0.621)	1565(0.363)	65(0.015)	1.929
Jeju	393(0.252)	1114(0.734)	21(0.013)	1.658
Changwon	594(0.621)	302(0.315)	60(0.062)	2.042

\* Note1) Parentheses ( ) are the holding ratio, and digits below the two decimal places were rounded off.

\* Note2) Niche breadth value range: 1~3

**Table 8.** Niche breadth between international conference cities according to the numbers of events held by event topic

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Niche breadth	4.459	5.749	5.977	4.270	6.629	4.584	7.752	4.570	9.336	3.346

\* Note) Niche breadth value range: 1~22

a higher ratio of holding events with the topic of transportation/tourism(20.3%) compared to other cities. In addition, Changwon(51.0%) and Incheon(36.7%) showed high ratios of miscellaneous topics. The event topics in this study were divided into a total of 22 ones, and accordingly, the range of niche breadth values should be  $1 \leq X \leq 22$ . According to the results of niche breadth analysis, the niche breadth value of Changwon(3.346) was the smallest, indicating that the events may be specialist ones concentrated on certain event topics. On the other hand, the niche breadth value of Jeju(9.336) was shown to be the largest and this can be interpreted as indicating that the possibility for the characteristics of event topics to be generalist is higher compared to other cities.

#### 5. Analysis of niche breadth by conference facility

When the present situations of holding by conference facility were examined, Goyang(51.8%) had the highest

ratio of holding events at specialized conference facilities, Incheon(32.4%) had the highest ratio of holding events at semi-conference facilities, and Daejeon(66.1%) had the highest ratio of holding events at small and medium-scaled conference facilities. Jeju showed a higher ratio of holding events at hotels (41.8%) than other facilities, and Gyeongju showed a relatively high ratio of holding events at miscellaneous facilities(59.3%). According to the results of niche breadth analysis, the niche breadth value of Goyang (1.928) was the smallest, indicating that the events may be specialist ones concentrated on certain conference facilities. On the other hand, the niche breadth value of Incheon(3.944) was shown to be the largest and this can be interpreted as indicating that the possibility for the characteristics of conference facilities to be generalist is higher compared to other cities.

**Table 9.** Present situations of holding and niche breadth values by conference facility

	Specialized	semi-conference	small& medium-sized	hotels	etc.	niche breadth
Gyeongju	113(0.483)	0(0.000)	30(0.009)	1113(0.360)	1833(0.593)	2.069
Goyang	1208(0.518)	0(0.000)	112(0.061)	504(0.276)	0(0.000)	1.928
Kwangju	1322(0.343)	71(0.023)	659(0.221)	922(0.310)	0(0.000)	2.912
Daegu	754(0.321)	705(0.112)	2468(0.392)	2355(0.374)	0(0.000)	3.107
Daejeon	444(0.493)	226(0.040)	3683(0.661)	1212(0.217)	0(0.000)	2.027
Pusan	1113(0.303)	989(0.106)	4513(0.486)	1202(0.129)	1462(0.157)	3.290
Seoul	3001(0.355)	1972(0.146)	7033(0.521)	1471(0.109)	0(0.000)	2.815
Incheon	674(0.253)	1396(0.324)	225(0.052)	1339(0.311)	669(0.155)	3.944
Jeju	213(0.292)	41(0.026)	212(0.136)	652(0.418)	440(0.286)	3.415
Changwon	102(0.413)	0(0.000)	467(0.488)	387(0.404)	0(0.000)	2.416

\* Note1) Parentheses ( ) are the holding ratio, and digits below the two decimal places were rounded off.

\* Note2) Niche breadth value range: 1~5

### C. Niche overlap analysis

► **Research Project 2:** How is the niche overlap among international conference cities?

The niche overlap indicates the degree to which two entities depend on the same resource, and it directly reveals the competitive relationship between entities by comparing the similarity of functions between entities. If the niche overlap is high, two entities are in a competitive alternative relationship using similar resources, and if the niche overlap is low, it means that the two entities are in a complementary alternative relationship because the resources they depend on are different from each other. In this respect, the niche overlap is the index of substitutability or complementarity between two entities, and it best shows the functional alternative relationship in a narrow sense. Since niche overlap values are expressed as inverse numbers, it can be interpreted that the higher the value, the lower the degree of niche overlap, and the lower the value, the higher the degree of niche overlap.

#### 1. Analysis of niche overlaps according to host organizations

Niche overlap analyses were conducted and a result of the niche overlap analysis according to host organizations, the niche overlap value between Daegu and Gyeongju was shown to be the smallest at 0.000 so that competition between the two cities can be

regarded to be the fiercest. On reviewing the present situation of holding as written above, it can be seen that the ratios of corporate meetings are very high in the two cities so that it can be identified that the competition between the two cities is fierce according to host organizations. On the other hand, the niche overlap value between Changwon and Jeju was shown to be the largest(0.161), indicating that the competition was relatively the weakest.

#### 2. Analysis of niche overlaps by event scale

As a result of the niche overlap analysis according to the scales of events, the niche overlap values between Jeju and Gwangju, and between Busan and Daejeon were the smallest at 0.001, indicating that these cities were in competition. On the other hand, the niche overlap value between Changwon and Busan was the largest at 0.184, indicating that the competition between these cities was weak. On reviewing the ratios according to the scales of event as written above, it can be seen that Jeju and Gwangju, and Busan and Daejeon showed similar ratios by scale, indicating that these cities were in competition for the scales of events. On the other hand, Changwon (52.0%) showed a high ratio of small and medium-sized events(100-299 participants), while Busan(77.1%) showed a high ratio of small-scale events (fewer than 100 participants people) indicating that competition between the two cities was weak as the niche overlap value according to the scales of events was high.

**Table 10.** Niche overlap between international conference cities according to the numbers of events held by host organization

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Gyeongju	-	0.032	0.024	0.000	0.041	0.009	0.069	0.011	0.067	0.021
Goyang			0.002	0.035	0.003	0.068	0.014	0.066	0.035	0.097
Kwangju				0.025	0.004	0.053	0.028	0.048	0.052	0.076
Daegu					0.043	0.007	0.077	0.007	0.076	0.017
Daejeon						0.074	0.018	0.072	0.056	0.103
Pusan							0.120	0.004	0.123	0.003
Seoul								0.127	0.022	0.160
Incheon									0.129	0.006
Jeju										0.161
Changwon										-

**Table 11.** Niche overlaps between international conference cities according to the numbers of events held by event scale

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Gyeongju	-	0.029	0.030	0.004	0.009	0.010	0.002	0.054	0.032	0.111
Goyang			0.018	0.020	0.067	0.069	0.021	0.028	0.013	0.033
Kwangju				0.013	0.049	0.057	0.023	0.004	0.001	0.057
Daegu					0.016	0.019	0.003	0.029	0.014	0.087
Daejeon						0.001	0.018	0.077	0.057	0.176
Pusan							0.020	0.088	0.065	0.184
Seoul								0.042	0.023	0.086
Incheon									0.004	0.049
Jeju										0.044
Changwon										-

### 3. Analysis of niche overlaps by event type

As a result of the niche overlap analysis according to event types, the niche overlap values between Seoul and Daegu and between Changwon and Incheon were shown to be the smallest at 0.005, indicating that these cities were in competition. On the other hand, the niche overlap value between Daejeon and Gyeongju was the largest at 1.216, indicating that the competition between these cities was relatively weak.

### 4. Analysis of niche overlaps by event topic

As a result of the niche overlap analysis according to the event subject, the niche overlap value between

Daejeon and Goyang was the smallest at 0.007, indicating that these cities were in competition. On the other hand, the niche overlap value between Incheon and Goyang was the largest at 0.773, indicating that the competition between these cities was relatively weak.

### 5. Analysis of niche overlaps by conference facility

As a result of the niche overlap analysis according to the conference place, the niche overlap value between Changwon and Daegu and between Changwon and Seoul were the smallest at 0.023, indicating that these cities were in competition. On the other hand, the niche overlap value between Daejeon and Goyang was the largest at 0.705, indicating that the competition between these

**Table 12.** Niche overlaps between international conference cities according to the numbers of events held by event type.

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Gyeongju	-	0.664	0.850	1.162	1.216	0.699	1.021	0.418	0.015	0.469
Goyang			0.013	0.076	0.083	0.004	0.042	0.031	0.477	0.017
Kwangju				0.027	0.036	0.008	0.009	0.076	0.637	0.059
Daegu					0.014	0.059	0.005	0.186	0.911	0.164
Daejeon						0.078	0.016	0.213	0.958	0.175
Pusan							0.030	0.036	0.508	0.028
Seoul								0.132	0.787	0.112
Incheon									0.273	0.005
Jeju										0.314
Changwon		-								

**Table 13.** Niche overlaps between international conference cities according to the numbers of events held by event topic

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Gyeongju	-	0.158	0.126	0.197	0.125	0.224	0.149	0.054	0.157	0.070
Goyang			0.010	0.009	0.007	0.013	0.013	0.773	0.024	0.203
Kwangju				0.018	0.012	0.025	0.021	0.055	0.029	0.174
Daegu					0.024	0.296	0.034	0.095	0.052	0.249
Daejeon						0.030	0.011	0.052	0.020	0.162
Pusan							0.037	0.126	0.044	0.297
Seoul								0.073	0.018	0.181
Incheon									0.105	0.042
Jeju										0.232
Changwon										-

**Table 14.** Niche overlaps between international conference cities according to the numbers of events held by conference facility

	Gyeongju	Goyang	Kwangju	Daegu	Daejeon	Pusan	Seoul	Incheon	Jeju	Changwon
Gyeongju	-	0.753	0.567	0.519	0.801	0.489	0.734	0.316	0.127	0.588
Goyang			0.075	0.426	0.705	0.532	0.455	0.386	0.382	0.508
Kwangju				0.147	0.336	0.240	0.195	0.226	0.194	0.195
Daegu					0.104	0.094	0.099	0.191	0.155	0.023
Daejeon						0.069	0.063	0.491	0.400	0.067
Pusan							0.039	0.270	0.229	0.112
Seoul								0.276	0.243	0.023
Incheon									0.124	0.331
Jeju										0.206
Changwon										-

cities was relatively weak.

## V. Conclusions and Implications

The purpose of this study was to examine the competition among domestic international conference cities that are rapidly growing leading to increasingly fierce competition from multilateral aspects to predicts the future development directions of individual international conference city through the foregoing thereby deriving implications helpful for the future growth of the international conference industry. To

comprehensively consider the competitive relationships among 10 international conference cities in South Korea, this study was intended to examine the cross-relationships in terms of niche breadth and niche overlap. Therefore, this study applied the niche theory, which helps predict and analyze the viability of entities in competition by grasping the competitive relations among entities that perform similar functions using limited common resources from diverse aspects. The results of the study are summarized as follows.

First, niche breadths of international conference cities were analyzed and according to the results, as for the present situations of holding according to the host organizations, the niche breadth value of Changwon (1.582) was shown to be the smallest, indicating that the

events may be specialist ones concentrated on a certain holding period. On the other hand, the niche breadth value of Jeju(3.177) was shown to be the largest, indicating that the possibility for the characteristics of host organizations of the events held to be generalist is higher compared to other cities. In the results of the analysis according to the scales of events, the niche breadth value of Daejeon(1.584) was the smallest, indicating that the events may be specialist ones concentrated on a certain scale of holding. On the other hand, the niche breadth value of Goyang(3.455) was shown to be the largest, indicating that the possibility for the characteristics according to the scales of events held to be generalist is higher compared to other cities. In addition, in the results of the analysis according to the types of events, the niche breadth value of Daejeon (1.122) was shown to be the smallest indicating that the events may be specialist ones. On the other hand, the niche breadth value of Changwon(2.042) was shown to be the largest and indicating that the possibility for the characteristics to be generalist is higher compared to other cities. According to the results of niche breadth analysis, the niche breadth value of Changwon(3.346) was the smallest, indicating that the events may be specialist ones concentrated on certain event topics. On the other hand, the niche breadth value of Jeju(9.336) was shown to be the largest and this can be interpreted as indicating that the possibility for the characteristics of event topics to be generalist is higher compared to other cities. Finally, on reviewing the present situations of holding according to conference facilities, it can be seen that the niche breadth value of Goyang(1.928) was the smallest, indicating that the events may be specialist ones concentrated on certain conference facilities. On the other hand, the niche breadth value of Incheon(3.944) was shown to be the largest and this can be regarded to be indicating that the possibility for the characteristics of conference facilities to be generalist is higher compared to other cities.

When the results of niche breadth analysis were put together, Daejeon showed the smallest niche breadth values according to event types and event scales, indicating that the event type was specialized in meetings and the event scale in small events (fewer

than 100 participants). Changwon showed the smallest niche breadth values according to event topics and host organizations and it was identified that Changwon was specialized in corporate meetings. Goyang showed the smallest niche breadth value for the present situation of holding according to conference meeting facilities thereby showing a specialized nature, while showing the largest niche breadth value for event scales thereby showing a general nature. Therefore, it is understood that Goyang is well utilizing KINTEX, a specialized conference facility, and it is considered that the strength as a city located in the capital area also has influence. Therefore, this study became an opportunity to reconfirm the growth potential of Goyang as a city specializing in international conferences.

Meanwhile, Jeju showed the largest niche breadth values according to the host organizations and event topics, which means that Jeju is attracting a wide range of events regardless of the host organizations or event topics, and it is assumed that this is because the regional characteristics of Jeju Island provide the attractiveness of the place. In addition, on reviewing the present situations of holding by conference facility, it can be seen that more events were held at hotels than at specialized conference facilities. This is one of the characteristics of Jeju Island, which has a variety of accommodations, and appears to be a result of appeal of the advantage that conferences and stays are possible at the same place. Therefore, Jeju should make good use of such advantage and continue marketing efforts to hold more diverse events.

Second, niche overlap analyses were conducted, and, in the results, the niche overlap values according to the hosting organization were the smallest between Daegu and Gyeongju(0.000) and the largest between Changwon and Jeju(0.161). That is, the ratios of corporate events were shown to be high in Daegu and Gyeongju, indicating that competition is fierce in that area, and it is understood that competition between Changwon and Jeju for certain host organizations is relatively weak. The niche overlap values according to the scales of events were shown to be the smallest between Jeju and Gwangju(0.001), and between Busan and Daejeon(0.001) and the largest between Changwon



and Busan(0.184). In particular, the ratios of small events in Busan and Daejeon are overwhelmingly high, which means that the two cities are specially fiercely competing for small events. On the other hand, competition between Changwon and Busan is understood to be relatively weak because Busan holds a lot of small events, while Changwon holds small and medium-scaled events(100-299 participants). The fact that Changwon and Busan are not in competition with each other although they are geographically close is positively evaluated. The niche overlap values according to the types of event were shown to be the lowest between Seoul and Daegu and between Changwon and Incheon at 0.005, and the largest between Daejeon and Gyeongju(1.216). In particular, Daejeon was shown to be concentrated on holding meetings, while Gyeongju was shown to be concentrated on conventions, indicating that competition between these two cities is weak. The niche overlap values according to event topics were shown to be the smallest between Daejeon and Goyang (0.007), indicating that these cities were in competition, and the largest between Incheon and Goyang(0.773), indicating that the competition between these cities relatively weak. Finally, the niche overlap values according to conference facilities were shown to be the largest between Changwon and Daegu and between Changwon and Seoul at 0.023, and it is understood that these cities are in competition with each other because the ratios of events held at medium-scaled conference facilities are high. The niche overlap value according to conference facilities was shown to be the smallest between Daejeon and Goyang(0.705). The reason is understood to be the fact that Goyang has a high ratio of events held at specialized conference facilities and a low ratio of events held at small and medium-scaled conference facilities, while Daejeon has a relatively high ratio of events held at small and medium-scaled conference facilities.

When the results of analysis were put together, although it was identified that some cities showed specialized natures, but the values according to host organizations(7 cities), the scales of events(8 cities), conference facilities(6 cities), and the topics of events were shown to be generally higher than the average

values, indicating that the cities are not laying out differentiation strategies, and these result are consistent with previous studies(Lee & Yoon, 2014). This can be interpreted as showing the results of the domestic international conference industry's strategies that focused on quantitative growth thus far. Since such strategies can consequently intensify domestic competition and weaken international competition, it can be said that effort to identify the strengths of each city and implement specialized strategies is indispensable. In addition, it is necessary for international conference cities that are shown to be in competition with each other in the results of niche overlap analysis to well grasp what they can differentiate from the competing cities to lay out competitive advantage strategies or agonize over ways to complement each other for coexistence because excessive competition may produce the reverse effect to lower the quality of events. For example, cities equipped with specialized convention facilities have expertise and favorable conditions unlike cities that do not have specialized convention facilities. Therefore, such cities should make good use of the foregoing. However, in attracting small and medium-scaled meetings, such cities may be equipped with competitiveness through collaboration with hotels and small and medium-sized conference facility companies. It will also be necessary to consider ways to develop unique venue in the region to increase the attractiveness of our region, which is differentiated from others.

Therefore, such cities should well grasp the strengths and characteristics of the event topics, scales, and facilities held by them to attempt differentiated marketing and attraction strategies. In addition, as the number of non-face-to-face and hybrid meetings is increasing due to COVID-19, a quick response according to the foregoing will be a way to increase competitiveness relatively.

Through this study, theoretical and practical implications are presented as follows.

First, the existing studies in the field of international conferences examined the service quality and satisfaction of international conference venues or convention centers, analyzed selection attributes, or reviewed competition for attraction at the national level, and the degree of

attraction strategies of only certain cities. However, this study expanded the scope of study compared to existing studies by analyzing the competitive relationships between international conference cities. Second, since this study applied the niche theory to evaluate competitiveness based on pairwise relationships between resources existing in the market unlike existing studies that evaluated competitiveness (absolute evaluation), the theoretic contribution of this study can be argued. In addition, as an analysis method that can suggest future strategies through the form of competition (supplementation and replacement), it has expanded the theoretical background of studies in the field of international conferences and presented new study directions to future researchers.

Along with academic contributions, the results of this study provided meaningful implications to each local government's manager of MICE and persons in charge of convention centers in South Korea from a practical aspect. First, by identifying the degrees of resource utilization and overlaps between international conference cities through niche analysis, this study presented what positions individual international conference cities occupy in the international conference industry market and in what direction the cities should go hereafter. Specifically, slogans and branding that can contain the value of the city should precede the characteristics of each city, and infrastructure should be established to hold hybrid international conferences. In addition, each local government should identify the characteristics of the city and implement support and policy measures according to the type of MICE and the size of the MICE. Differentiation strategies should be attempted through killer content development, such as discovering international conferences and discovering unique venue that can be linked to local industries as well.

Second, if the continuous growth of the international conference industry is assumed, the results of this study can be used as meaningful results in establishing strategies to differentiate/characterize from regions preparing to enter new markets or existing international conference cities. It is necessary to re-establish the value of the international conference industry and induce active cooperation with local residents and local industries

to promote development as a leading city for international conference.

Despite that meaningful implications were derived through this study; this study has several limitations. First, this study has a limitation of the scope of the study as the analyses were limited to 10 domestic cities. Second, although efforts were made to collect data close to complete enumeration, the possibility that there may be missing data cannot be eliminated.

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