Exploring the Relationship between Competitive Rivalry and Firm Performance in the Travel Industry: The Product Architecture Perspective

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Abstract: *The study adopted the concepts of competitive dynamics theory and product architecture to explore how a travel agency responds to the competition to acquire competitive advantages. Qualitative research method was used in the study and twelve travel agency executives were interviewed to collect primary information. Secondary data was also referenced to strengthen the validity and reliability of the research content. The major findings of the study are: (a) the competitive behaviors are different among organizations in different scales; (b) the continued product innovation and creation with integral co-innovation type products are more important than the module symbiotic type products which only fall into price competition; (c) the integral co-innovation type products can meet most customers' needs and create values. These findings offer valuable information about how travel products should be developed to better respond to the increasing competition in the travel industry and provide a scope of application for the relevant issues for future research.*

Keywords: *product architecture, integral co-innovation, modular symbiosis, market commonality, resource similarity*

1. INTRODUCTION

The business form of the travel industry in Taiwan has been extremely diverse. However, because of the high homogeneity of the products offered, the industry has been competing on "price," leading to a substantial reduction in profit margins for all companies (Chen, Chen, & Shen, 2008). Most prior research works analyzed the competitive behavior patterns on the basis of the industrial structure to explain this type of competition. However, the competitive actions of the suppliers are being overlooked. This needs to be mended because companies are continuously taking offensive and defensive actions in the market to seek competitive advantages.) Many researchers believe that understanding the competitive rivalries between competitors is very important in making correct strategic decisions (e.g., Porter, 1980,1985; Smith, Grimm, Gannon, and Chen, 1991; Chen & MacMillan, 1992; Chen & Miller, 2015).

According to Schumpeter's creative destruction theory (1950), companies take necessary actions/responses to pursuit market opportunities and such reactions can determine the company's performance and future success. In the increasingly fierce competition environment, the rapidly changing competitive conditions make companies try very hard to keep up with the industry leaders instead of striving for sustaining competitive advantages. Therefore, to better understand the competition conditions and competitive behaviors in the travel industry in Taiwan, this study adopts Chen's (1996) Dynamic Competition Rivalry Model with the architecture perspectives suggested by many researchers (e.g., Ulrich, 1995; Baldwin & Clark, 2000; Fujimoto, 2001; Liu, 2005) to explore how a travel agency responds to the competition (including quantity and speed) and the effects of the competitors' reactions within different market commonality and resources similarity.

2. LITERATURE REVIEW

2.1. Product Architecture

Architecture is a concept that describes the interdependency relationships between the constituting elements for system designs (Ulrich, 1995). Existing studies show that the choice of a product architecture during the new product development (NPD) process is a crucial strategic decision for a manufacturing firm (Yin, Kaku & Liu, 2014). Product architecture definition plays an increasing crucial role for enhancing product customizability, easing after-sale management, and reducing manufacturing costs (Fiorineschi, Frillici, Rissone & Cascini, 2015).

The concept of the inter-related elements is closely related to the industrial development and enterprise competitiveness (Fujimoto, 2001). From the interaction level of the constitute elements, the product architecture may be separated into two types of modules with closed or open functions (Ulrich, 1995; Fujimoto, 2001). Table 1 presents such a classification. In general, the products in the module type category are with higher degree of standardization and regulations while the products in the integrated type are in need of further coordination and compromise (Fujimoto, 2001). The creation of a product must satisfy both enterprises (product uniqueness and differentiation) and customers (meeting the demand, enhancing values, willingness to pay) and when both product uniqueness and customer values are high, the added value are significantly higher too (Nobeoka, 2007).

Table1. *Classification of Product Architecture*

	Integrated Type	**Module Type**
Closed functions	1. The relationships between the product's structural elements and process are more complex. 2. Interface relationship among the structural elements is very complex with no order at all. 3. No interface relationship with the public	1. Process is relatively simple. 2. Interface relationship among the structural elements is simple. 3. No interface relationship with the public
Open functions	May exist theoretically but very difficult to exist in practice	1. Simple process 2. Simple interface, rules to follow 3. Information is open to the public (There is an interface relationship) 4. Formation of industrial standards

Source: *Liu et. al., (2005), Aosima, (1998), Fujimoto (2001)*

2.2. Travel Products

2.2.1. Travel Products Implications

There are various definitions for travel products (Xu, 2010). The research report released by US Travel Data Center has suggested forty-three kinds of relevant definitions (Cook, 1975). This shows the lack of agreement about the definition of travel products among researchers. However, from tourists' view, travel products are the products related to the entire trip from beginning to the end, including entertaining, leisure, and activities for all kinds of purposes (Gu, 1985). Lee (2008) suggested that travel products are all kinds of products and services provided to the travelers. According to Smith (1994), travel products can be divided into five categories such as physical equipment, service, hospitality, freedom of choice, and participation. These include tangible facilities, intangible service, and other attractive attributes (Chen, 2003; Romero & Tejada, 2011). In sum, travel products, either tangible or intangible, include physical facilities, services, and activities arranged for different types of purposes, such as leisure, entertainment, culture, and health. Travel products are to satisfy a traveler's demand to provide memorable travel experience (Yung & Chen, 2012).

2.2.2. Types Of Travel Products

Travel products are integrated composite products including landscape, facilities, transportation, image, price and other factors (Middleton, 2000). The travel products in this research are referred to as the products in a travel package. Chen, Sung, and Lin, (1995) defined travel package as one that can establish the ties between the related facilities, activities and services at a single sale price. For example, a group package may include airline tickets, accommodations, ground transportations, and attraction admissions. A travel package combines many different travel products with attractive, rich, and comprehensive contents to provide travelers convenience and value (Lin, 2003). The products in a

travel package are in many levels with a wide range of inter-relationship.

Thus, Yung and Chen (2012) divide the travel agencies in Taiwan into *Consolidated* and *Class-A* travel agencies. Consolidated travel agencies (CTA) are of big scale with financial, man power, and resources and are excel at integral co-innovation type of travel products. CTA can create multiple values and provide travelers deeper added values and meanings (Nobeoka, 2008). Class-A travel agencies (CATA) are of smaller scale with limited resources and tend to provide modular symbiosis type of travel products that mainly provide superficial and functional values with limited or no meanings (Nobeoka, 2008). Both types of travel agencies strive to exploit and assemble new products, refine the existing products to be more delicate, or redefine the creativity of the travel products offered within different scales and situations (Yung & Chen, 2012).

2.3. Competitive Dynamics

Competitive dynamics refers to the sum of competitive action and responses from the competitors in a specific market. It is a competitive action between enterprises in the form of a series of market-oriented competitive actions and responses (Lin, 2006). The competitive response is defined as the counteraction with clearly observed and discerned content a company adopts to enhance or protect its competitive position (Porter, 1980; Chen & MacMillan, 1992). Chen (1996) propose market commonality and resource similarity to analyze the situation between interfirm rivalry, likelihood of competitive attack, and the response or organizational performance effects of the rivalry. The competitive actions and responses in the same market among enterprises constitute the essence of dynamic competition.

D'Aveni and Gunther (1994) state that in the dynamic competitive world, advantage and actions can not last forever. The rapid changing environment will create many opportunities for enterprises. The competitive advantage may last very short and companies must constantly introduce a variety of actions striving to create sustainable competitive advantages. Depending on the expected competitive response and the threat to the main market, competitors may or may not take competitive response. When competitors continuously join the competition battle, the competitive advantage is reduced. However, if the number of competitive response is small, the competitive actors can continue to enjoy exclusive or quasi-exclusive dominance (Porter, 1980; MacMillan, 1980).

2.4. Market Commonality and Resource Similarity

2.4.1. Market Commonality

Market commonality refers to the degree of market overlapped by the competitors. Market commonality expresses the degree of direct competition and is composed of two factors. One is the degree of common strategy and the other is the degree of common market. If a vendor takes a competitive action with high market commonality, the action will be seen as a threat (Dutton & Jackson, 1987). Porter (1980) believes that enterprises are likely to respond to competitive actions when they feel that such actions may affect the firm's performance.

2.4.2. Resource similarity

Resource similarity refers to the degree of the similar strategic resources a specific competitor has (Chen, 1996). If enterprises' resources are different, their competitive capabilities and forms are different. On the other hand, if their resources are similar, their strategic capabilities and competitive weakness are similar. However, if the enterprise has a unique strategy with diverse resources, then the strategic decision made will be more variable and the competitive action and responses taken will be greatly affected by the similarity in resource.

Resource-based theory suggests that sustainable competitive advantages are determined by a firm's internal resources and capabilities (Barney, 1991; Chen, 1996). If responding to competitive actions requires significant resources and substantial reorganization, then the possibility for a firm to make the response is low and the speed of response is slow as well (Chen & McMillen, 1992; Chen & Miller, 1994).

2.4.3. Relationship between Market Commonality and Resource Similarity

Tversky's (1977) early study of similarity characteristics suggests an asymmetric view on studying

similarity and contends that two subjects should not be regarded as symmetric by their similarity. Chen (1996) believes that market commonality is a stronger indication than resource similarity for the prediction of other firm's competitive actions and responses. Furthermore, because of the competitive asymmetry of market commonality and resource similarity, the possibility of competitive action from A to B is different from that of B to A. The possibility of seeing competitive responses in the similar situation is small as well.

2.4.4. Organizational Performance

An enterprise's performance is the final outcome of the action taken and is one of the important elements to measure the enterprise's operational results. The competitive actions and responses in the market have a decisive effect on a company's performance (Porter, 1980). The company that makes the actions or responses early can have a better performance by getting the lost market from the companies that respond late (Smith, et al., 1991). The more the responses are gotten from the competitive actions, the worse the financial performance would be (Chen & Miller, 1994). Both small and large companies need to have different competitive strategies to succeed in the industry (Woo & Cooper, 1981, 1982).

3. RESEARCH METHOD AND DESIGN

3.1. Research Method

Qualitative research method was used in this study and the primary data was collected through semi-structured interviews with twelve travel agencies. In addition, the interaction and acknowledgment of the researchers and the interviewees helped achieve an objective analysis, deduction, and conclusion. The secondary data was collected for analysis as well to strengthen the integrity and richness of the research content. Qualitative research can deeply enter into the research territory to observe the phenomena with a whole new viewpoint without the burden from the past (Murphy, 1992) to thoroughly explain the phenomenon to produce a complete and integrated description of the issues questionable (Patton, 1990). Buchanan, Boddy, and McCalman (1988) indicated that the researchers can use an opportunistic approach as much as possible to collect necessary information. Moreover, in order to increase the diversity and the credibility of the study, some brief interviews with some experts in the travel industry were also conducted to gain clearer and better ideas about the candidates for the interviews.

3.2. Research Subjects

In this study, eight CTA's and four CATA's were selected for the interview. The interviewees are all high-level managers or executives of the agencies. These interviewees have the experience of working in the field for 10 to 20 years. Four of the CTA's have more than 900 employees and the other four agencies have around 90 people. The four CATA's are small with 10 to 15 employees. Four of the CTA's provide travel products that cover many regions of the world while the other four mainly focus on the Japan area which is also the main business domain for the four CATA's. Field interviews help understand how travel agencies create the differentiations by applying different products, the differences between responses and competitive actions taken by the agency, and the effects/relations between response condition and organizational performance.

3.3. Derivation of the Propositions

The travel agencies in Taiwan design and provide travel products based on the organization scale. The travel agencies in different organizational size have different product structures and thus enact different competitive actions and responses to deal with the competition. The travel products offered by the travel agencies in Taiwan can be either general or exquisite (Chen et. al., 2008; Yung & Chen, 2012). From the product architecture theory, CTA's focus more on developing exquisite and customized travel products that fit into the category of integrated type. On the other hand, CATA's are good at offering general travel products that are in the category of module type (Yung & Chen, 2012). Chen (1996) believes that when a company has similar market commonality for competitive actions, the possibility for the company to take the competitive response quickly is higher. Therefore, the first proposition is obtained:

With respect to integral type products, the modular type products have higher degree of similarity in the market commonality and when facing the competitive actions, the possibility

for the firm to take competitive response (including response speed and response frequency) is higher as well.

Integral type products are of co-innovation and are more diversified in resource requirement. While in the process for taking advantage of market competition, the companies can utilize such heterogeneity to initiate the competitive action and prohibit the competitive imitation (Collis, 1991). On the other hand, module type products are symbiotic and similar in the product resources and the companies have the greater potential to take a competitive response. The second proposition can then be deducted:

With respect to integral co-innovation travel products, the agencies with module type products will have higher possibility to choose competitive response when facing the competitive actions due to the resource similarity.

The more the companies take competitive actions, the better their performances are (Young, Smith, & Grimm, 1996) and the competitive action and response have a significant impact on a firm's performance (Chen & Hambrick, 1995). For example, the companies initiating attacks and those with early responses can grab the market lost from the companies with late responses (Chen & MacMillan 1992). In addition, the companies with higher market share would have better performance too (Smith, 1994) and the more responses are seen reacting to competitive actions, the worse the financial performance will be (Chen & Miller, 1994). Hence, the third proposition is arrived:

With respect to integral co-innovation travel products, the agencies with module type products will have higher possibility to choose competitive response when facing the competitive actions but will also have worse financial performance.

4. ANALYSIS AND DISCUSSION

4.1. Verification of the First Proposition

Travel products vary in accordance with the provision of airline seats, the status of the area for travel, seasonal differences, market segmentation, degree of value addition, etc. and thus are often arranged differently. According to product architecture theory, such a difference can be viewed as either integral co-innovation products or module symbiotic products (Yung & Chen, 2012).

4.1.1. Integral Co-Innovation Product

Integral co-innovation products are the refined and customized products. In the process of product presentation, services and design and close communication and coordination across organizational are required. The energy required and the coordination process are very complicated for product idea, attractions combinations, accommodation choices, and tour arrangements.

First, according to the interviews with the CTA's, the difference between the refined and customized products is the general products. For example, *"In accordance with the different requirements of the customers, the customized products should coordinate and integrate with the local. The price is relatively inflexible and the company should pay attention to product quality... When these are different from the general arrangement, the competition will be less. However, the need to communicate with guests and interact with the locals will be complex. The local attractions, foods, hotels, transportations, etc. all need to be considered and arranged."*

Second, the relationships between CTA's and other travel agencies are being discussed in the interviews. For example, *"Focus on different demographic and market segment… we have close relationships with airlines, hotels, and the locals. Small businesses are not easy to enter this block, and we have absolute advantages… When taking competitive actions, the issues considered will be broader and the factors to compromise are much more. Thus, the responses from the trade are slower and fewer…"*

Moreover, regarding the competitive response level, the CTA's state that *"Because the market is different, it is difficult for a CATA with limited capability to respond to our offensive actions."* In addition, the CATA's admit that *"..... The cost is relatively high. We have problems in man power, sales force, and other issues. It is hard to keep up…"*

Thus, it is clear that the refined and customized travel products are designed to meet customers' demands. Such products have large difference in content, market segment, and low commonality. For

the agencies offering integral co-innovation products, before initiating the competitive actions, the agencies need to do market investigation and analysis for a long period of time. Not only the time spent is more but also the products are more complicated. Therefore, when the competitive actions are seen, the speed of responses from competitors are slow. In addition, because of the different market segmentation, the actions taken to respond are also more difficult for the competitors.

4.1.2. Module Symbiotic Type Products

Module symbiotic type products present only the superficial values (Yung & Chen, 2012). This type of products is for the general travel needs and is regularly offered by most travel agencies. Because of fewer content changes and high product similarity, module symbiotic type products are easy to copy. Most travel products on the market are this type of products. According to the information provided in the interviews, the differences in the general or common travel products are not obvious.

> *"General/popular travel is for routine group travel and has no special arrangement but with the difference in price... the action we use most is price cuts – just to sale in a lower price. It is easier to gain customers in a price war with similar products. These products are similar and the choices are limited to fewer airlines, hotels, and similar shopping stations."*

In addition, the interviews also suggest that when compared with the refined and customized products, the travel agencies offering the general/popular products have simpler relationships with their partners and have a profound response effect on the competitive action.

> *"At different time points, we will promote the sales with lower-pricing strategy… customers do not care for the quality but regard the price as the main factor. When the opponent lowers the price, we will follow immediately. Anyway, the cost is about the same, the assembly of a tour package is simple. It is easy to copy and all we need to do is to re-arrange the itinerary."*

It can be seen from the interviews that module symbiotic type products are more standardized. Therefore, there is no need to put too much effort to coordinate and negotiate and thus the cost is low. Focusing on the general/popular products with price-oriented feature, the module symbiotic type products are similar in content and in market segment. Because low-price strategy can attract a consumer's interest and further increases the market share, these types of products with low cost can greatly affect the management. The competitors, therefore, in order to keep the current market share will quickly respond to the opponent's attack as such response does not greatly affect the organizational structure.

In summary, integral co-innovation travel product are refined and customized products that are developed based on consumer profiles and have low market similarity. Responding to other company's competitive actions is more difficult. In contrast, competitors can frequently take competitive actions easily in a short time for the module symbiotic type products. Thus, the first proposition is verified.

4.2. Verification of the Second Proposition

According to the resource-based view, an organization is a unique combination of tangible and intangible resources and capabilities. A company can establish its competitive position and advantage using such a unique combination (Conner, 1994; Rumelt, 1984). However, because the resources are "sticky," the strategic choice is limited (Teece, Pisano, & Shuen, 1991). Understanding resources similarity can enhance the competitive advantage because the companies with similar resources may have similar strategic capability and competitive power. Likewise, the companies with a diverse resource combination can have versatile strategic product combinations using their unique resource profiles (Chen, 1996).

4.2.1. Integral co-innovation type products

Integral co-innovation type products are more complicated in structure. The probability of having product similarity is low. When the products are assembled, the cross-organizational coordination and communication to present the uniqueness and differentiation of the products are required. The resources needed are the time spent, the experience, financial coordination, selection of the providers, etc. According to the CTA interviewed, the exquisite and customized travel products have lower

resource similarity comparing with the general/popular travel product. For example, *"When we start the program, we need to work with airlines for charter flights and assemble special tour packages. It is obvious that we need to have adequate resources to do so. Because of the relationships with the locals, the hotel selection, professional characteristics, and resources utilization are obviously very different."*

The CTA's stated further that because of the resource differentiation, the relationships among their partners are more close and complicated. Therefore, the degree of competitive response from their competitors are lower. For example, *"...taking the example of Japan kagaya products, the opponent's follow-up is slow because our resources are richer and more differential, such as the services from the locals, the familiarity of sight, and the control of the hotels... Another example is Naha trip -- we provide different hotels and have a long-term guaranteed contract with the locals. The smaller CATA's cannot copy and respond to us due to their limited resources..."*

On the other hand, the CATA's interviewed also believe that, because of the low resource similarity, it is difficult for them to respond to a competitive action. For example, *"Designing exquisite products needs more resources. However, many resources for us are difficult to acquire, such as airplane seats, local relationships, hotel resources, etc. The strength of the necessary response is thus not big enough when facing a competitive action."*

The companies with diversified resources usually have unique strategic resource profiles. They will select different combinations of competitive decisions and utilize heterogeneous resources to launch competitive actions to prevent competitive imitation or to increase difficulties for imitation (Collis, 1991). Therefore, when a company launches competitive actions, its competitive rivals with unmatched strategic resources will not be able to respond.

4.2.2. Module Symbiotic Type Products

Module symbiotic type products, under the same market condition, are standardized in product structure. They are easy to assemble with a simpler coordination within the organization and are with high resource similarity. The interview results show that for most travel agencies, the general/popular travel products do not have obvious differentiation and their resource similarity is high. For example, *"There is no differentiation. The trip arrangement is same and the tour package similarity is high. Following the market, the product content can be adjusted to meet the low-price demand. The assembly of products can be easily done with some adjustment. As for foods, hotels, transportations, there is no differentiation and the copy or imitation of travel arrangement is not difficult at all."*

However, the general/popular products are of high similarity with simple structure and the relationship with the business partners offering such products is not close. For example, *"Because the products are normalized, everyone has similar capabilities. The tour arrangement is not complicated and the resources, such as the man power and information needed are generally the same. Whatever you have, I have. So, everyone is on the same starting point with same local partners and resources..."*

Finally, for the competitive response, all agencies agree on the following statement: *"As long as someone promotes the market with a lower price, we naturally follow or proceed with PAK style (i.e., strategic alliance) combining with other agencies with the same response. Thus, the number of competitor increases and the competition gets much fiercer."*

When the product architecture is simple, the assembly of travel products is not difficult and the travel agencies do not need to spend too much man power, financial resources, and experiences on the product development. Under the high resource similarity condition, when taking competitive actions, the small companies are more agile without too much obstacles and the responses to competitive actions are more frequent with a faster speed. Therefore, the second proposition is verified.

4.3. Verification of the Third Proposition

From the attacker's point of view, when the number of response is low and the speed of response is slow, the initiator can keep the market share and the profit will not be affected by the increase of the number of competitors. The effect on the firm performance is positive. On the contrary, if the company acceded are many and the speed of response are quick, the firm performance will be greatly affected.

4.3.1. Integral Co-Innovation Type Products

From the information collected in the interviews, it can be seen that the possibility and the number of responses related to the integral co-innovation type products are low and the effect on the financial performance is notably moving toward the positive direction. Most agencies interviewed agree on the following statement even with inconsistent business model: *"Because we operate in distinct market segments with abundant resources, such as finance and manpower, and good relationships with airlines, we can have more airline seat allocations and local supports... Smaller companies will not be able to compete with us and their responses to competition will be relatively slow and even none."*

As indicated above, smaller organizations cannot respond to competitive actions in a timely fashion due to the lack of resources required. In other words, the smaller consolidated and Class-A agencies with different degree of market commonality and resource similarity cannot respond well to the competitive actions from large CTA's who still keep their operational performance in the best advantage.

4.3.2. Module Symbiotic Type Products

Module symbiotic type products are with high market commonality and resource similarity. Therefore, the responses from the competitors are great and the response speed is also quick. The effect on the company's financial performance is obvious. The majority of the agencies state the following worries concerning the general/popular travel products: *"When the general/popular products are in the price war, lower price can win more customers and market share. The profit is actually greatly reduced even with more businesses… When many competitors are joining the lower-price promotion, the profit margin is very low because the cost is the same… the profit is reduced and sometimes is close to or even equal the cost…"*

Smaller Consolidated agencies and Class-A agencies cannot respond to competitive actions quickly and frequently. Therefore, they often have more unfavorable results in firm performance when facing great competition from larger agencies. The more and quick competitive responses are seen from initialization of the competitive actions, the worse the firm performance will be. Therefore, the third proposition is verified.

5. CONCLUSIONS

Qualitative research methodology was used in the study and the product architecture theory and dynamic competition parity model were adopted to explore how the travel agencies in Taiwan react to competitive responses in terms of frequency and speed. In addition, the effects of such reaction on the company's performance when facing competitive actions under different market commonality and different resources similarity were also examined. Some key findings and implications are obtained.

A. Integral co-innovation type products are usually exquisite and customized products existing in a distinct market segment. The design and assembly of product line is more complicated involving more areas with unique resources, low market commonality, and resource similarity. The possibility of receiving responses from competitive actions is low and the effect from such responses on the firm performance is positive.

B. Module symbiotic type products are usually general/popular travel products with normalized product architecture. The design and assembly of product line is relative simple and these types of products are easy to imitate. The market commonality and resource similarity are high and the competitive actions are based on the price without too much differentiation. Therefore, it is found that the responses to the competitive actions are great in terms of frequency and speed. As a result of this situation, the company's financial performance is greatly affected.

C. In the travel industry in Taiwan, the competition behaviors are different among organizations in different scales. Comparing with the larger-scale agencies, the smaller-scale agencies are under more pressure for survival (MacMillan, 1980; Aldrich & Auster, 1986) and the responses given to the competitive actions among competitors are more notable (Chen, 1996).

D. Due to the shorter life cycle of travel products, the continued product innovation and creation with integral co-innovation type products are increasingly important. For the travel agencies that have limited resources to assemble the module symbiotic type products but apply price differentiation

strategy to seek competitive advantages, the effect of scale economy can be great for the short term. However, in long term, this will shorten the life cycle of the travel products even more, start a keen competition, and derail from adding values to the products offered. To avoid this situation, the integration and coordination within the organization are very important.

E. Integral co-innovation type products can meet most customers' needs and can create values. Christensen and Raynor (2003) believe that when the products architectures are highly inter-dependent, the product function can be optimal. In order to provide better products for the consumers, choosing the inter-dependent product architecture instead of normalized products can have a better chance to achieve competitive advantages. Therefore, travel agencies should re-inspect and redefine their market value, re-establish their market boundary, and then, based on different organizational scale, apply different product architecture strategy to form a new market with an operational differentiation. In this scenario, integral co-innovation type products can not only extend the life cycle of the product but achieve the enterprise goal of continuing and sustained growth. Unique travel products with added values that meet customers' demands are important for the product to survive in the competition. Adopting the concept of integral co-innovation to develop travel products is beneficial for travel agencies.

Lastly, unlike most prior research works that studied the manufacturing industry, this study investigates the travel industry in Taiwan from the perspective of product architecture and dynamic competitive parity model. The findings of the study offer valuable information about how travel products should be developed to better respond to the increasing competition seen in the industry in Taiwan. In addition, the study provides a scope of application for the relevant and future research as well.

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