Metaphor-Based Alliance Partners Recommendation for Unique and Attractive Destination Image Building

Yu-Chen Yeh
Dept. of MIS, National Chengchi University
Taipei City 11605, Taiwan
98356004@nccu.edu.tw

Pei-Hung Hsieh
Dept. of MIS, National Chengchi University
Taipei City 11605, Taiwan
mikahsieh@gmail.com

Soe-Tsyrl Yuan
Dept. of MIS, National Chengchi University
Taipei City 11605, Taiwan
yuans@mis.nccu.edu.tw

Abstract

Partner selection is an important issue in alliance formation. A lot of research works have been done in developing the framework or criteria for selecting partners. However, research to date suggests relatively little is known about how to select partners for attractive and unique image building, which is essential to the developments of tourism especially for SME owners in the tourism sector. In this paper, we propose a systematic approach for service providers in tourism industry to identify appropriate partners to form alliances and build their attractive and unique images. This approach employs metaphors as a tool to generate innovative and creative solutions. The system architecture is then provided and elaborated with algorithms and a system scenario. By forming better alliances, SMEs in tourism sector can gain competitive advantages and improve their sustainability and profitability.

1. Introduction

Tourism by its nature is a “connecting business” linking tourists to destinations. Tourists usually expect to attain a holistic experience from a destination, but such an experience often cannot be satisfied by a single small business service provider [15]. In addition, it has been widely recognized that it is important to build unique and attractive destination images for tourism regions [12][20]. Positive, appealing and charming image-building of a destination can serve as a policy and strategic tool in order to attract tourists, economic actors and investments [20]. However, building images might be a difficult job for a single small business service provider. Accordingly, it is valuable for Small and Medium-Sized Enterprises (SMEs) - the primary service providers in many tourism destinations - to work together to build compelling images and develop comprehensive product portfolios by cooperating with each other. Through forming the alliances, SMEs can gain competitive advantages and increase capacity and profitability, thus leading to economies of scale and cost reductions [15].

For creating successful alliances to build the images, alliance partner selection would be a very important step [13]. A number of literatures have investigated how to select appropriate partners in order to form a prosperous alliance. Brouthers proposed a framework for analyzing the likely
success of strategic alliances, called ‘the 4 Cs’, which involves complementary skills, cooperative cultures, compatible goals, commensurate levels of risk [1]. Several studies [16][17] have also identified a series of criteria (e.g., trust, loyalty, complementarity, financial payoff) for selecting partners. While considerable attention has been paid in the past to research issues related to developing the partner selection framework or criteria for the intentions of resource complement [11][17], cost reductions [6][11][13] and knowledge sharing [1][4], there is no work on establishing a systematic approach to identify partner portfolios with the attractive and unique features (e.g., image building in tourism).

Through erecting differential images and forming novel partnerships, new niche markets and new tourism products could be explored and developed. When practitioners deal with this kind of potential partnership discovering process, it’s burdensome for them to identify every possibility of partner compositions for image building. Therefore, this paper aims to discover the alliance partners with alluring image building potential in a systematic and creative way.

Image building is inherently a value co-creation process as indicated in the service-dominant logic. However, past researches in image building often reflect a goods-dominant orientation of value creation [8][12][23]. They viewed the customers as operand resources and focus on making use of different marketing approaches to influence and change how the customers perceive the image of a destination in their image building processes. This perspective somewhat limits the value co-creation opportunities. Image building involves pre-visit and post-visit stages. When a tourist visits a tourism destination, he/she would have intensive interactions with the destination. The image of a destination is then co-created both by tourists and service providers within the destination. From the service-dominant perspective, the images the SME owners would like to create are part of their value propositions as well.

Our approach in the form of an information system enacts as an operand resource which can be leveraged by the SME owners co-creating the value with tourists (i.e., the other operand in destination tourism) in order to identify appropriate partners so as to integrate resources more effectively and propose the compelling value propositions (i.e., destination images).

Our approach uses metaphor as a tool to generate innovative image solutions. Metaphor is a structure of our cognitive system [10] and affects the way we perceive the world, categorize experiences, and organize our thoughts [2], and it’s particularly useful in communicating broad and sometimes abstract concepts such as images and business vision [7]. In addition, metaphor has wide range of applications for helping creativity generation (i.e., product design and architectural design [2][22]). The approach applies the metaphor concept into the image building task in order to develop a generative technique of discovering alliance partners for building the unique and attractive destination images.

The paper is organized as follows. Section 2 provides the related literature. Section 3 presents the main ideas of our method, followed by the descriptions of the method’s system architecture and its component modules. Section 4 then offers a system scenario to demonstrate the contributions of our method. The discussion and conclusions are then provided in Section 5.
2. Related Literature

There have been numerous studies in the literature about the prominence of cooperation and partnerships in the tourism sector [15][18]. The report from Organization for Economic Co-operation and Development (OECD) indicates the success of an individual business often depends on the success of a destination which can be derived from greater cooperation between tourism SMEs in the specific context of local networks and clusters [15]. Through cooperating with others, SMEs are capable to diversify tourism product portfolios to attract tourists and, in turn, improve their sustainability and profitability by making it possible for tourists to stay longer and consume more. Besides, in order to help SMEs best perform in a globe market place, highly integrated destinations with flexible operating network alliances is needed [18]. In alliance formation process, partner selection is undoubtedly an important task for future success.

A lot of research works have been done in developing the framework or criteria for selecting partners while holding the views of resource complement [11][17], cost reductions [6][11][13] and knowledge sharing [1][4]. In resource complement perspective, it is innately superior to have partners with different resources that can provide absent ingredients or capabilities so as to leverage and integrate them to create synergies [11][17]. Nevertheless, some studies argued the “complementary” point of view is insufficient in partner selection. They stated the more differences exist between partners, the more coordination efforts should be paid off [6][11][13]. Meanwhile, knowledge sharing can be another central concern, and learning through cooperation could be one of the efficient and effective ways to gather additional expertise and skills of specific areas [1][4]. No matter which perspectives are held, there is relatively little direction on how to select partners for building the attractive and unique features. However, we believe that it is really worth exploring.

Numerous literatures have highlighted the paramount importance on attractive and unique destination image building in tourism development [12][18]. Destination image, by definition, can be regarded as the perceptions, beliefs, impressions, ideas and understandings one holds of places and it is a simplified, condensed version of which the holder assumes to be a reality [19]. The power of image comes from its predominance on traveler’s tourism destination choices. That is, destinations with attractive, unique, compelling, positive images have more chances to be selected by the tourists [5]. Therefore, attractive and unique image building of a destination can serve as an effective destination positioning strategy, which differentiates a destination from others and then makes a destination more prosperous.

Current trends show the significance of marketing alliance for image building. This concern mainly derived from the argument that it is always possible to find the gap between the destination image and supplied tourist products [3]. More specifically, the proposed destination image may not reflect the reality of a destination owing to the low degree of collaboration and cohesion between businesses which supply the tourism products. If this gap reveals, it may have substantially negative impact on customer satisfaction and tourist selection processes. The other consideration is that tourists unchangeingly pursue a
holistic experience of a destination and some destination images are too complicated to be formed or provided by only one single business. For all these reasons, it is essential for a destination to develop a high level of cohesion, cooperation and coordination network, which can be achieved by the efforts of multiple alliance relationships within a destination. In spite of the importance of marketing alliance for image building being identified in the literature, scant research specifically proposed a systematic approach to identify the appropriate partner compositions for image building. This is also the research gap we would like to bridge.

When dealing with images, it involves high level of abstraction and ambiguity of meanings and ideas. Metaphor, as a result, is a great meaning carrier for defining abstract concepts, such as images, on a more concrete level. Metaphor might be thought of as “understanding and experiencing one kind of things in terms of another [9].” For example, the metaphor, “Friendship (i.e., topic) is a flower (i.e., vehicle),” entails the ideas that friendship is beautiful, friendship can grow, bloom and you can take care of it like a gardener. The abstract nature of friendship is made clearer by defining more concrete characteristics of flower like beauty and vulnerability, which are salient properties of the vehicle (i.e., flower) that can be applicable to the topic (i.e., friendship).

Metaphors have been widely applied to many areas, such as computer science, psychology, the corporate world, and one of the most interesting applications is in design problem solving due to its potential on enhancing creative and innovative thinking [2]. When designers want to develop an innovative solution to a specific problem, the critical first step is to perceive the world in an unorthodox and unconventional way. Morgan once stated “metaphors provide some different ways of thinking about things [14].” That means metaphors can help us uncover the complex and paradoxical characteristics of things, we then are able to manage and design the solutions that we may have not thought possible before. Such ideas have appeared in the vast literature. For instance, in architectural domain, one of the most impressive metaphors ‘less is more’ makes reference to the engineering idea of reducing architectural design to its minimal and basic nature [2]. In product design, metaphors are used to explore the possibilities of product design solutions, and the product designers make their design to reflect the characteristics of metaphors to products on visual level, action level and image level [22]. In business administration, metaphors are regarded as a tool to describe “visions” or organization mission and strategy to gain novel concepts for innovation [7]. In this paper, we believe it is promising to apply metaphors and make them comparable (i.e. computing metaphor) in order to design partner configurations for building destination images because of their creativity and potential on innovative thinking.

3. The Conceptual Framework and the System Architecture

In this section, we provide the main ideas behind our method in the form of a conceptual framework, followed by the presentation of the system architecture and their components that can realize the purpose of the method.
3.1. The Conceptual Framework

The underlying conceptual framework (i.e., the main ideas) of our method is shown in Figure 1 prescribing the interrelationships between computing metaphor, image building, and alliance formation and eventually leading to novel solutions generation. In Figure 1, computing metaphor refers to computationally calculating the measure of salience in comparing metaphors. Since metaphors are great vehicles to carry images and a great tool for innovative solution design, the unique and attractive image building then relies on the selection of appropriate metaphors that can help appropriate alliance partner configurations and the novel solution would be the partner recommendations for a specific SME, which pursues particularly unique and attractive image building. Based on this conceptual framework, the system architecture is developed and exhibited in the following subsections.

![Figure 1. The conceptual framework](image1)

3.2. The System Architecture

The system architecture (see Figure 2) starts with analyzing the goal from the user side (i.e., a SME service provider). Next, the system according to the analyzed results will generate the possible partner candidate sets by the aid of metaphor generation process. Finally, the system turns to evaluate the level of niche for each candidate set and give partner recommendations to users. This system architecture consists of four main modules – goal comprehension module, candidates generation module, niche assessment module and image classification module.

3.2.1 Goal Comprehension Module

Goal comprehension module is designed for comprehending the goal of a SME. The goal here is a high-level image that the SME craves to deliver to public. At the beginning, the user needs to offer a goal in the form of a metaphorical statement and then the metaphor comprehension component is evoked to analyze the statement and extract the latent properties of it. In turn, comparison analysis is conducted to figure out the gap between what the user wants to be and what it is now.

![Figure 2. System architecture](image2)

Once the gap is identified, it can then move to the next stage. In general, goal comprehension module is aimed to identify the image gap between now and future through metaphor comprehension and gap identification process. In order to comprehend metaphors, we adopt a web-driven, case-based approach developed by Veale and Hao [21], which leverages the text of web as a plentiful knowledge...
source (i.e., collective intelligence) to identify what properties are most contextually appropriate to apply to both sides of topic and vehicle. This approach employs Google search engine as a retrieval mechanism for finding properties of words using its APIs that allow the wildcard term * and any possible words. A metaphor statement will be decomposed into processable lexical units first and then the topic and vehicle of the metaphor will be recognized. Next, send the query in the pattern of “as * as vehicle” to Google. By filtering out the meaningless words (including undesired negative terms) through tools like WordNet, we can get a series of terms used for describing the vehicle. For example, if you send a query “as * as chocolate”, you may get some terms after filtering, such as sweet, delicious, wonderful, etc. That implies chocolate can be sweet, delicious and wonderful. More specifically, those words can be the properties of chocolate. Through carrying out a set of similar processes, the salient properties of the specific vehicle that are applicable to the specific topic are discovered. Thus, the properties of a metaphor will be uncovered and the goal (images) is comprehended as well. For more details of metaphor comprehension process, see the algorithm in Figure 3.

Thereafter, the module attempts to catch the missing part of existing images of the SME. The collected images are basically adjectives used for describing a destination or a SME. The image gap can be identified through comparing the existing images with the wanted images by the aid of semantic analysis, which evaluates how close the meanings of two words are. If any of the wanted images cannot be found in the existing images of SME or be found in the existing image with a small level of similarity, that image would be considered as one of the gap images. In other words, gap images are those which are not able to be fulfilled by existing images. The algorithm of gap identification is specified in Figure 4. In sum, the identified gap images will entail what are the elements that should be complemented by others for achieving the goal so that they can serve as the good starting point for partner candidate generation.

3.2.2 Candidates generation module

Candidates generation module aims to attain possible cooperating partners. Based on the gap identified in the last module, hereafter named “supertype”, this module uses it to generate a collection of new metaphors.
Metaphor Comprehension Component

Step 1: Decompose the metaphorical statement into processable lexical unit
Step 2: Identify topic and vehicle of the metaphor statement
Step 3: Send query “as * as vehicle” to Google
Step 4: Get a series of properties of vehicle
   Save the results of query as image vector
   FOR i TO the total number of image elements in image vector
       Send the query “as Image_i as vehicle” to Google
       IF the number of returned results is higher than a specific threshold THEN
           Keep Image_i
       ELSE
           Remove Image_i
       END
   NEXT
Step 5: Verify those properties whether they are applicable to Topic or not
   FOR i TO the total number of image elements in image vector
       Send the query “Topic is as Image_i as vehicle” to Google
       IF the number of returned results higher than a specific threshold THEN
           Keep Image_i
       ELSE
           Remove Image_i
       END
   NEXT
Step 6: Save the rest of image elements in the image vector as the salient properties vector

Gap Identification Component

Step 1: Take the image vector of a specific SME
Step 2: Conduct the similarity analysis
   For each element of salient properties vector, examine its semantic similarity relative to the images of SME.
   Set MaxSimilarity = the highest level of similarity of specific salient property
   FOR i TO total number of salient properties
       MaxSimilarity = 0
       FOR j TO total number of images of SME
           TempSimilarity = Compute the semantic similarity index between Salient_i and Image_j
           IF MaxSimilarity < TempSimilarity THEN
               MaxSimilarity = TempSimilarity
           END
       NEXT
   IF MaxSimilarity > specific threshold THEN
       Tag Salient_i with “fulfilled”
   ELSE
       Tag Salient_i with “unfulfilled”
   END
Step 3: Save all of the properties tagged with “unfulfilled” as the Gap vector

Figure 3. Metaphor comprehension algorithm

Figure 4. Gap identification algorithm
These metaphors are then analyzed by the metaphor comprehension process to ensure every metaphor we generate makes sense and then each metaphor can also be projected to specific business types for possible cooperation accordingly. Once these candidates are identified, goal fulfillment analysis is executed to ensure that cooperating with those candidates can achieve the user’s goal, attaining a series of business types for potential cooperation.

Similar to what the metaphor comprehension process does, the metaphor generation process uses the “gap” as salient properties of metaphors and send the query “as gap as *” to Google. It will return a collection of vehicles that have the “gap” properties. This process involves the filtering work as well. For instance, if the gap properties include sweet and delicious, it will send two queries, “as sweet as *” and “as delicious as *”, to Google and then gathers collections of vehicles that can be depicted as sweet and delicious. The vehicles with those two properties are preferred. After collecting a series of vehicles, this module combines the topic and vehicles to form a complete set of metaphors and uses the metaphor comprehension process to examine the suitability of the metaphor configurations. Once this step is completed, the module then projects the vehicles to some real business types and investigates the level of fulfillment of the user’s goal.

For space limitation, we omit the presentation of the algorithm of the goal fulfillment component. The main steps of this component are two folds: (1) Project vehicles to real business types by engaging the similarity analysis to compare the properties of vehicles attained by the first two components to the existing images of a set of pre-defined business types. Given the assumption of those properties and images being stored in the forms of collections of adjectives, this module then inspects the level of likeness between both sides. As the level of likeness of a particular pair exceeds a specific threshold, the projection relationship is hence established. (2) For each projected real business type, compute its level of goal fulfillment. Since the goal of the SME is to convey a specific image to public through the aid of cooperation, it’s essential to have the anticipated effect of cooperation forecasted when different partner compositions are formed. To this end, the image prediction patterns are accordingly adopted. In addition, whether the goal can be achieved or not is done by computing how many gap images can be fulfilled through the cooperation with the projected business type. The result of this component will then be a set of business types for the SME to cooperate with to achieve the goal.

### 3.2.3 Niche Assessment Module

Niche assessment module is built for evaluating the market potential of each likely partner composition. Niche assessment here involves attractiveness analysis and uniqueness analysis. Attractiveness analysis is to measure the consumer desirability and uniqueness analysis is to examine the degree of differentiation [23].

The notion of attractiveness here refers to the extent of allurement and capacity that can satisfy the needs of customers. In order to assess
attractiveness, the needs of customers are collected and stored in the database, especially emotional needs. This module then tries to match the predicted image based on the results of the last module with the historical needs of customers. We assume that those needs data have been categorized into several needs classes to avoid the complex computation afterwards. The more needs can be satisfied, the higher level of attractiveness is measured. Besides, uniqueness here signifies the extent of image differences between a new partner composition and existing entities perceived by customers.

The dissimilarity analysis is conducted to understand the degree of divergence. For simplicity, this component divides the analysis into three cases: (1) The images of the new partner compositions and the existing ones of the business entity are completely the same. (2) The images of the new partner compositions and the existing ones of the business entity are partially the same. (3) The images of the new partner compositions and the existing one of the business entity are completely different. When the image of a partner composition is evaluated as attractive and unique, this partner composition would be considered to have a market potential. By appraising the niche of each possible partner composition, this module is able to identify the novel partnerships with high desirability and differentiation. To differentiate the three cases, a diversity intensity is associated with each case to indicate the level of uniqueness for the image of a partner composition.

### 3.2.4 Image Classification Module

For the purpose of reducing computation complexity in niche assessment module, image classification module is developed because the niche assessment module involves intensive computation and comparison processes. For example, when evaluating the level of uniqueness, it’s possible to compare the image configuration of a new alliance to all of existing business entities. This process would take considerable time due to the magnitude of data entries. Hence, this module processes the required inputs (e.g., the needs of tourists and the images of businesses) for the niche assessment module in advance. In doing so, cluster analysis is adopted by classifying both the needs of tourists and the images of businesses beforehand so as to make the computation process in the niche assessment module more efficiently and effectively.

In next section, we would like to offer an example to demonstrate the usage scenario of this system architecture and its practicability.

### 4. System Scenario

This example is designed based on a scenario that assumes a SME owner, an agritourism service provider, wanted to build an attractive and unique image for customers through the effort of cooperation. In the beginning, the owner must provide a goal in the form of metaphorical statement to system. He then offered a statement “just like a gramma’s house in the countryside”. This was the image he wanted to convey. This image in Taiwan represents the feelings of pastoral, nostalgic and boisterous. Next, through...
goal comprehension process, the metaphorical statement is comprehended and the gap was identified as the elements, such as the feelings of nostalgic and boisterous. Third, metaphor generation and comprehension processes were executed to yield a series of vehicles that can be depicted as nostalgic and boisterous and those vehicles were finally projected to real business type. We then got sets of business types, such as ox-wagon transportation service and Hakka traditional beverage service. The goal fulfillment analysis was conducted to ensure the candidate cooperation partnerships could achieve the goal of SME owner. Forth, the system started to evaluate the level of uniqueness and attractiveness of candidate partnerships. In the end, the alliance partner recommendation is successfully generated with market potential scores.

This system scenario leads us to believe that leveraging computing metaphor technique can have opportunities to discover interesting solutions and thus making the attractive and unique image building process more feasible and successful (i.e., the SME owner develops its specific image with the niche potential through cooperating with appropriate partners). The scenario can also so extended that the SME owner carries multiple metaphoric images associated with different alliance partnerships in order to increase its competitive advantages in terms of innovation and growth.

5. Conclusion

In this paper, we address the problem of how to assist the tourism SME owners with a useful approach for managing partner selection to build the attractive and unique image. To this end, this paper identifies the interrelationships between computing metaphor, attractive and unique image building and alliance formation and then presents a novel and systematic approach to solve the problem. The method proceeds by the goal decomposition (i.e., metaphor comprehension) and then goal fulfillment (i.e., recomposition by metaphor generation) in order for discover innovative partner compositions for building the images, followed by the evaluation on the attractiveness and the uniqueness. We also offer a system scenario of this method to show its practicability. We believe the method can help SME owners in managing the partner selection tasks for attractive and unique image building in a systematic, efficient and effective way. Future works would include the evaluations of the method theoretically and practically. In addition, the application of our method to the problem of brand building is also worthy of further investigation.

6. References


