VERTICAL DEMAND-SUPPLY BUSINESS NETS IN TOURISM: SOME EMPIRICAL FINDINGS

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Abstract
This paper presents a case study of one vertical demand-supply business net, which operates in the field of tourism business. Theoretical framework for analysis is drawn from Actors-Resources-Activities-model and classification of business nets. The case business net is described in terms of actors, internal activities and information transfer activities between actors. The objective of this analysis is to reveal the connected actors and activities in order to develop management mechanisms and supporting ICT systems to be applied in the business net environment. Generally, the supply-side and business network research in tourism is a less researched area. Further research stemming from this case study includes the refined definition of actors, resource identification and more detailed analysis of the inter-actor relationships in terms of resource ties, actor bonds and activity links.

Keywords: *Business nets, business networks, tourism industry, business network analysis*

Introduction

In recent years there has been a strong development of different web-based e-commerce and e-business solutions in multitude of industries. However, the development has not been so strong in case of SME-driven tourism industry. In Finland, the adoption of e-business solutions has also been slow, even in the major tourism regions like Lapland. There have been several failures in the production of appropriate software solutions for tourism industry, the supply of information systems is low and tourism companies are sceptical of IT benefits in their business.

From this point of departure, there was a research project (ONI, Operative Network Integration), which aimed to model the tourism business operations conducted by interconnected group of companies. This group can be characterized as a vertical demand-supply business net. This model forms the basis for the design of potential information systems to be used in the SME-driven tourism industry.

In initial phase, the research questions were: What are the elements of vertical demand-supply business nets operating in the tourism industry? How are these elements connected to each other? What kind of information is transferred between them? These questions represent preliminary business analysis the process of information systems design.

To answer these questions, a theoretical framework was developed based on business network literature. Recent literature of tourism specific networks was reviewed and the theoretical framework was chosen from The Industrial Network Approach. A qualitative case study of one current business net was conducted. In this paper the theoretical background, research process and research results are presented and discussed. Also, some future research directions are brought forward.

Literature review

In general, the supply-side research of tourism is less advanced than the demand-side. This is attributed to the inadequacies of mainstream economic theories based on standardized commodities. Tourism products and the production processes are heterogeneous and complex. They are based on different kinds of technological know-how, e.g. retailing, tour operations, transport and hospitality. Tourism system should depict firms as functionally and technologically diversified, but interdependent in their aim to satisfy consumer needs. The network approach is suitable for analyzing tourism supply-side, maybe even so that term "tourism network" should be used instead of "tourism industry". (Tremblay 1998) Li & Petrick (2007) suggest that tourism marketing is facing a paradigm shift to relationship marketing, network approach and service-dominant logic.

Gibson et al. (2005) examine local destination networks drawing from the business network lifecycle model (Morrison et al. 2002) and benefits of networks for tourism destinations (Lynch et al. 2000). The life cycle stages of the network are start-up, growth and reinvention and the benefits derived from the networks are related to learning and exchange, business activity and community. Novelli et al. (2005) have studied the role of networks and clusters in tourism innovations. Networks are able to provide firms access to knowledge, resources, markets or technologies. The success of tourism networks is related to network objectives, structure and leadership, resourcing, member engagement and inter-organisational learning (Morrison et al. 2004).

In their study of hospitality service networks, Kandampully & Promsivapallop (2005) describe how businesses are shifting from "generalists" to "specialists" and consequently are looking for complementary competencies from their network environment. This focus on the core competencies is the driving force behind strategic business networking. In her study of tourism policy networks, Dredge (2006) presents different dimensions of the networks: actors, functions, structure, institutionalisation, rules, power relations and actor strategies. These dimensions should be taken into account regarding the management of tourism networks.

According to Tremblay (1998), one of the network types in tourism is the "vertical alliance for tourists from location X". This network connects different competences into a consistent product, requiring time and place synchronization of activities. Sorensen (2004) recognized the tourism production networks consisting of producers and users of different services. Production networks are not centrally coordinated with hierarchical organization or only by market-driven price mechanisms. The coordination exists in interaction between network actors. This network relies on information creation, gathering, application and communications. Information connects different producers of tourism experience. In production networks this information is operative (related to products, bookings, etc.) in nature, guiding the day-to-day operations.

The operation of the supply chain is central in the tourism industry. The products sold are intangible and perishable. The traditional supply chain includes suppliers, consumers, tourist boards, tour operators, travel agents and reservation systems. In other words, the product is a combination of accommodation, transportation, attractions, and a packaging service that binds these components together and sells them directly or through an intermediary to the consumer. (Gratzer 2003) Tourist destination is perceived as a system with inputs and outputs, containing components of attractions, services, infrastructure, and so on. Destination systems are under-researched from the producer's perspective. (Tinsley & Lynch 2001)

Shih (2006) has used network analysis to investigate characteristics of drive tourism destinations and to plan appropriate facilities and services for each destination. Pavlovich (2003) has described the evolution and transformation of tourism destination network. Scott et al. (2008) use Network Analysis to examine structural properties of inter-organizational networks within tourism destinations. The information flows between key actors is basis for their analysis. Tourism involves more collaboration, partnerships and networks than most other economic sectors. In analysis of destination organizations, there are three basic elements: 1) actors, 2) relationships and 3) resources. Network analysis may reveal the weaknesses in destination structures. Stokes (2006) examines strategy formation in events tourism networks with three perspectives: 1) relationships, 2) actors and their positions and 3) structures and processes.

The Industrial Network approach is part of the marketing science and it has been developed by Industrial Marketing and Purchasing Group (IMP). Networks consist of firms and relationships between them. Through these long-term relationships resources are transferred from one party to another in economic exchange. Firms produce or use complementary or competing products/services in the network. (Ford 1990; Easton 1992, Håkansson 1989) This approach has been applied also in tourism related network research, e.g. Komppula (2000), Lemmetyinen (2002), Sorensen (2004), Saxena (2005), Scott et al (2008) and Stokes (2006).

Theoretical background

The model of Industrial Networks contains the following elements: 1) actors, 2) resources, 3) activities and 4) relationships. All the elements together form the network (see figure 1). Actors perform activities and control resources. Activities use resources to transform or transfer other resources (Håkansson & Johanson 1992). The substance of relationship between two actors consists of actor bonds, activity links and resource ties, in a network there are several relationships like this (Håkansson & Snehota 1995).

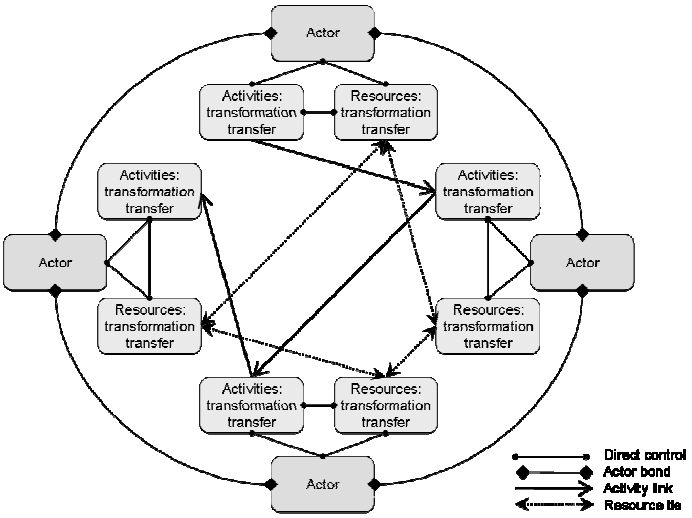

Figure 1. Business network elements.
(modified from Håkansson & Johanson 1992; Håkansson & Snehota 1995)

The actors can be individuals, groups, departments, enterprises or groups of enterprises. Regardless of the organizational level, they are able to determine what activities are performed, how they are performed and what resources are to be used. Actors have exchange relationships with each other and thus access to each others resources. The control of the resources is a key issue; there is a direct ownership over them or indirect access to them through relationships – leading to interdependencies between actors. The activities performed in the network are transformations or transfers in general nature. In transformations a resource is changed in some way by an actor. During transfer the direct control of a resource is shifted from one actor to another. Transfers link the transformation activities of different actors. These activities form cycles and ultimately the logical exchange chain. The resources are used in transformations and transfers. The availability of resources is a key issue: there is a competition for scarce resources and actors try to gain direct control over them. (Håkansson & Johanson 1992)

Actors in networks have relationships of interaction and interdependency. With relationships the actors are able to produce results that they cannot produce by themselves. In a relationship there are connections between actors in following levels: 1) activity links, 2) resource ties and 3) actor bonds. Technological, administrative, commercial and other functions of different actors and connected by activity links. Resources of technological, material or informational nature of different actors are connected by resource ties. The actors themselves are connected by bonds, which affect the way they perceive self and others in network. (Håkansson & Snehota 1995)

Business networks have three layers of structure and content: 1) production layer, 2) resource layer and 3) social layer. These layers are embedded and affect each other in complex ways. Production layer consists of firm actors that perform interconnected production activities. This layer is strongly characterized by the production value chain. Resource layer contains actors that offer resources for firm actors to perform production activities. Human actors (groups and individuals) and their relationships form the social layer of business network. (Holmlund & Törnroos 1997)

It is important to distinct the concepts of business networks and business nets. Business network can be seen as macro-level phenomenon, “industries-as-networks”. At this level the network might be limitless fabric of actors and relationships. Business networks consist of many smaller business nets. These are created consciously for some defined purpose by group of enterprises and/or other organizations. The network has its goals, but also the members of it have their own goals. Members have agreed about the roles and responsibilities for network activities. (Möller et al. 2006)

Möller et al (2006) classify business nets into three categories based on how radical changes of business environment they are aimed to achieve. The first category is the current (basic) business nets, which operate on developed industries with fairly stable value systems. The focus is on the internal and external efficiency of activities, requiring strong coordination, modularized and codified products and components. There is a potential to utilize information systems within the business net. The strategy may be to build efficient demand-driven value nets or to significantly reorganize the value creation system.

Current business nets operating within stable, well-defined value systems can be categorized as vertical demand-supply nets or horizontal market nets. Vertical networks draw on the specialized resources and compentencies of producers in the value chain and aim for

increased efficiency. (Möller & Rajala 2007) Current business nets have to strategic perspectives: 1) demand-driven value network creation and efficiency and 2) significant reorganization of value creation systems. The former one is more common. Advanced product and component specialization creates need for integration services in business nets. Current nets aim for internal and external efficiency and effectiveness. Coordination of net can be managed with information systems, which improve demand-based production, capacity management, response times and transactions cost levels. (Möller et al. 2006)

Research method and process

Case study is a suitable method for business network research. One network can be studied intensively and form a holistic picture of that network by using several sources and informants. Instead of generalization, the goal is more in the comprehensive understanding of the phenomenon. Qualitative case studies enable examination of phenomena that are difficult to detach from their context. (Easton 1992; Halinen & Törnroos 2005; Sorensen 2004)

However, there are several challenges in using case studies in the research of business networks. The problem of network boundaries relates to separating content and context of a business network. The problem of complexity refers to business network structure of multiple actors and links, which makes describing the network not a simple task. The problem of time induces from the dynamic and changing nature of networks and it requires incorporation the dimension of time into research. The problem of case comparisons is related to problems mentioned before, a multiple case study of networks is extremely laborious and comparisons are difficult to make because of high context specificity. This reduces explanatory power and generalizability of network case studies. (Halinen & Törnroos 2005)

The network boundaries can be defined by the research problem, which guides the selection of important elements of network to be studied. Network boundaries can also be defined by actor perceptions of network structure and relevant actors, relationships, activities and resources. Network studies can be carried out by using focal organizations. Relevant close network of a focal company is a clear, although limited, point of departure for business network research. The complexity of network requires rich textual and visual methods of describing the cases and the researchers and network actors should be direct and close interaction with each other. The dynamics and temporality of a network can be captured by describing the network as processes. In order to compare cases, there should be a tight theoretical framework a priori. The informants should be as similar as possible in different networks. (Halinen & Törnroos 2005)

In this research, the target was to study a group of small businesses operating in the tourism industry. The focal company of this group was an incoming tour operator, which acquires different tourism-related services from different producers and packages the services for distribution to foreign markets via tour operators and travel agencies. Incoming tour operator also handles the tourist groups on-site during their trip on behalf of the foreign tour operator. Network is delimited to focal company and relevant partners, which have exchange relationship and participate in production of tourism service components. Network is operating in one destination and there are several other competing networks at the same destination.

The case can be described as a current business net that seeks to improve internal efficiency by enabling coordination and flow of demand-supply information between actors

with a suitable information system. The focus is on the core production network and the vertical distribution structure. Business net is studied through its actors on the production layer and resource layer, leaving out the human actors and social relationships. The core is described as activities and activity links. The actors are dependent of each other in the service process. Key element is also the inter-actor information flows of operative nature, not the explorative product development. Business net and its actor operate by seasonal cycle of regional tourism industry.

The case data was gathered over one year's time, the main source was the focal company and its informants. This was a rich information source due to its role in the business net. Data was also gathered from relevant partners and their informants. Most companies in business net are small or micro enterprises, except the larger hotel/accommodation companies. Informants were in role of owner/manager, sales manager or office manager. The informants were interviewed about company activities and links with other companies and their activities. From interview notes researchers formed the activity matrices combining company activities and internal/external information flows (see Närvänen et al. 2001).

Research results

The key actors in vertical demand-supply business net operating in tourism industry can be characterized as incoming tour operator, accommodation services, programme/activity services and transportation services (table 1, figure 2). All these actors produce a tourism service that is offered to customers, which can be individual end customers (tourists) or distributors (outbound tour operators or travel agents). All the actors have their own primary suppliers. Business net customers and primary suppliers are not analyzed in detail in this case.

Table 1. Tourism business net actors (modified from Saloheimo 2007)

Actor	Description
Incoming Tour Operator	Combining different tourism-related services to a sellable tourism product and distribution of the product to other intermediaries or directly to end consumer
Accommodation services	Service provision for tourist temporary stay in destination
Programme/activity services	Service provision for tourist experience (nature, culture, entertainment)
Transportation services	Service provision for transporting tourist groups between accommodations and programmes/activities

Essential activities that actors perform entail the supply planning, order processing, resource management and preparations, service realization and feedback/maintenance (figure 2). Incoming tour operator triggers many activities by channelling demand to other business net actors. The activities are information intensive and information flows are very dynamic, there are many resource allocations, confirmations, cancellations, rules and conditions etc. During high season when large volumes of tourists are travelling, the management and inter-actor coordination of information flows and activities becomes very laborious.

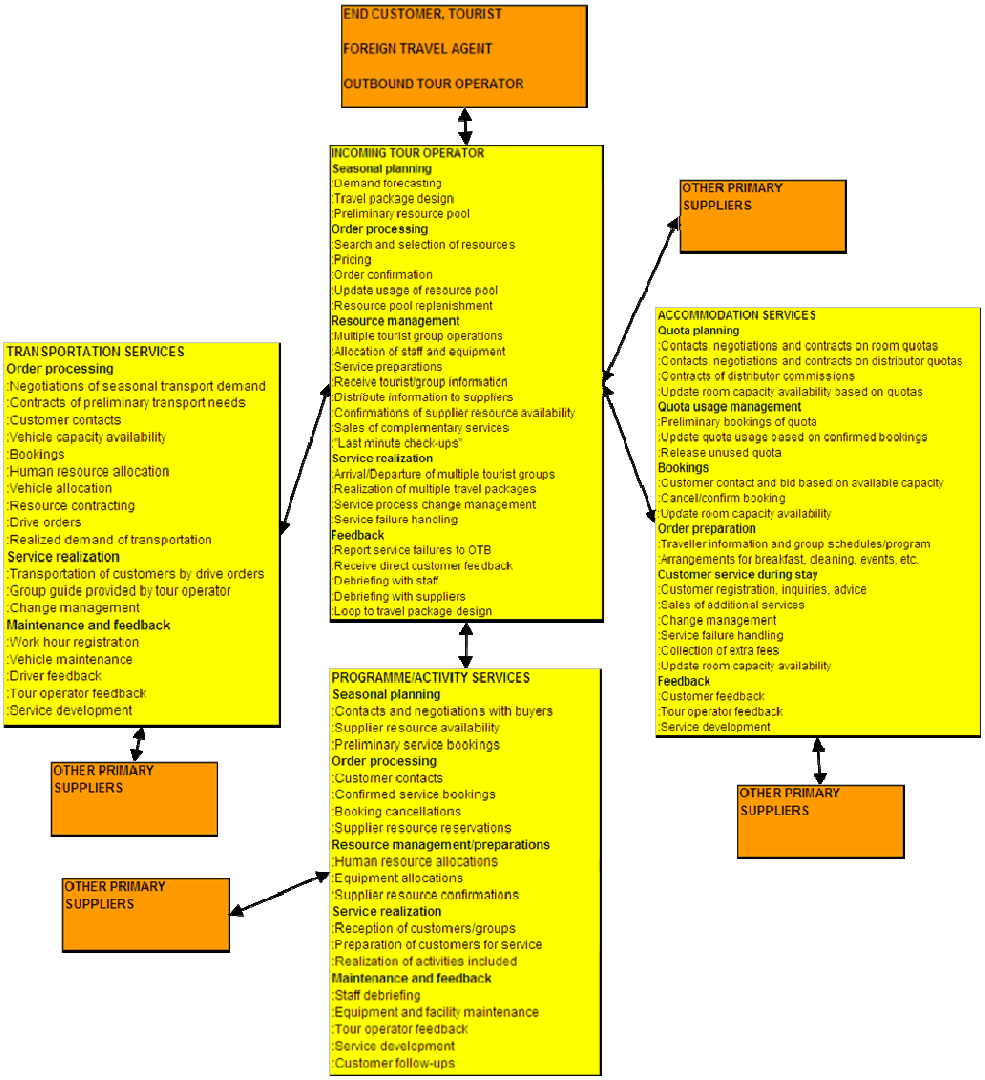

Figure 2. Key actors and activities in tourism business net.

In this case, the relationships between actors are viewed as activity links. These links are analyzed as information transfer between actors and their activities (figure 3).

Figure 3. Information transfer between actors and activities.

In the matrix, the information flows are marked in following manner:

Customers	Information from customer to Actor A	Information from customer to Actor B	
Information from Actor A to customer	**Actor A** Activities	Information from Actor A to Actor B	Information from Actor A to supplier
Information from Actor B to customer	Information from Actor B to Actor A	**Actor B** Activities	
	Information from supplier to Actor A		**Suppliers**

Figure 4. Diagonal matrix of activities and information.

The information transfer activities entail the demand forecasts, preliminary resource allocations, realized demand (orders, bookings), resource management, change management during service preparation/realization and service feedback (service failures, service development). The incoming tour operator is the nexus for information transfer and distribution.

It is notable, that an incoming tour operator has many producers of accommodation, programmes and transport. Likewise, these producers are offering their services to other operators also. In business net depiction, the multitude of firms has been aggregated to actor roles. The firms are competing of resources (room capacity, bus capacity, market access, etc.) in this destination business environment. The configuration of tourism business nets in general may vary considerably in terms of different intermediaries (see e.g. Gratzer 2003). Tourism industry in Lapland is relying on tour operators and the portion of direct consumer sales is considerably smaller.

When the vertical demand-supply business net was analyzed by Enabler-Effect-Map method, several potential benefits of information systems were derived (see more details in Soukka & Saloheimo 2007). These benefits include significant reduction of manual information input and processing, reduction of administrative tasks, improved control information of business, enabling analysis, planning and efficient use of resources in service execution. Information system should be provided by specialized actor in business net, application service provider.

Conclusions

The recent literature of tourism networks research contain many descriptions of networks seem from the theoretical viewpoints of social networks and graph theory. Often these descriptions are structural, revealing the nodes and connections in the network. In order to develop information systems and management tools for tourism business, the networks should be described in a more detailed manner. The model presented in this paper aims to answer this need. The results are context-specific and therefore difficult to generalize or transferred to different context. There is a need for comparable and similar case studies in tourism business to refine and confirm this model.

The essential empirical findings of this study is identification of key actors in vertical tourism demand-supply net, namely the

- Customers (tour operators, travel agents, tourists)
- Incoming tour operators
- Accommodation service producers
- Programme and activity service producers
- Transportation service producers
- Primary suppliers

The other essential finding is the business net activities of:

- Seasonal planning
- Order processing
- Resource management
- Service preparation
- Service realization
- Feedback and maintenance

Third, the information transfer between business net actors is concerning the:

- Service development
- Demand forecasts
- Available resources
- Realized demand
- Resource allocations
- Service process change management, failure resolution
- Feedback

The main contribution of this case study is the documentation of key actors, activities and relationships of information exchange in one tourism industry vertical demand-supply business net. Similar analysis and appliance of Actors-Resources-Activities model is not found in tourism research literature. Future extension of this research should include the analysis of business net resources and actor dependencies of these. Also, the relationships of actors should be analyzed in more depth (e.g. the contractual and social perspective). In addition to information systems, a framework for network management should be developed.

References

1. Dredge, D. 2006. Policy networks and the local organisation of tourism. *Tourism Management* 2006, (27): 269-80.
2. Easton, G. 1992. Industrial networks: A review. In *Industrial networks: A new view of reality.*, eds. B. Axelsson, G. Easton, 1-27. London: Routledge.
3. Ford, D. 1990. Introduction: IMP and the interaction approach. In *Understanding business markets.*, ed. D. Ford, 10-27. Cambridge: Academic Press Limited.
4. Gibson, L., P. A. Lynch, and A. Morrison. 2005. The local destination tourism network: Development issues. *Tourism and Hospitality Planning & Development* 2, (2): 87-99.
5. Halinen, A., and J. Törnroos. 2005. Using case methods in the study of contemporary business networks. *Journal of Business Research* 58, (9): 1285-97.
6. Holmlund, M., and J. Törnroos. 1997. What are relationships in business networks? *Management Decision* 35, (4): 304-9.
7. Håkansson, H., and J. Johanson. 1992. A model of industrial networks. In *Industrial networks: A new view of reality.*, eds. B. Axelsson, G. Easton, 28-34. London: Routledge.
8. Håkansson, H., and I. Snehota, eds. 1995. *Developing relationships in business networks*. London: International Thomson Business Press.
9. Kandampully, J., and P. Promsivapallop. 2005. Service networks: A framework to match customer needs, service offer and operational activities. *Journal of Hospitality & Leisure Marketing* 13, (3-4): 103-19.
10. Lemmetyinen, A. 2002. Network approach in the context of tourism business. Paper presented at 18th IMP-conference, Dijon, France.
11. Li, X., and J. F. Petrick. 2008. Tourism marketing in an era of paradigm shift. *Journal of Travel Research* 46, (Feb 2008): 235-44.
12. Morrison, A., P. A. Lynch, and N. Johns. 2004. International tourism networks. *International Journal of Contemporary Hospitality Management* 16, (3): 198-204.
13. ———. 2002. *International networks - scoping study.* University of Strathclyde
14. Möller, K., and A. Rajala. 2007. Rise of strategic nets - new modes of value creation. *Industrial Marketing Management* 2007, (36): 895-908.
15. Möller, K., A. Rajala, and S. Svahn. 2006. *Tulevaisuutena liiketoimintaverkostot*. Helsinki: Teknologiateollisuus ry.
16. Novelli, M., B. Schmitz, and T. Spencer. 2006. Networks, clusters and innovation in tourism: A UK experience. *Tourism Management* 2006, (27): 1141-52.
17. Pavlovich, K. 2003. The evolution and transformation of a tourism destination network: The waitomo caves, new zealand. *Tourism Management* 2003, (24): 203-16.
18. Saloheimo, M. 2007. Matkailupalveluja tuottavan perusliiketoimintaverkon roolit ja niiden välinenvuorovaikutus. In *Operatiivinen verkostointegraatio - työpapereita tutkimushankkeesta.*, ed. M. Saloheimo, 2-25. Rovaniemi, Finland: University of Lapland Press.
19. Saxena, G. 2005. Relationships, networks and learning regions: Case evidence from the peak district national park. *Tourism Management* 2005, (26): 277-89.
20. Scott, N., C. Cooper, and R. Baggio. 2008. Destination networks: Four australian cases. *Annals of Tourism Research* 35, (1): 169-88.
21. Sorensen, F. 2004. Tourism experience innovation networks: Tourism experience innovations and the role of geographically organised production and information innovation networks. Doctoral dissertation., Roskilde University.
22. Soukka, A., and M. Saloheimo. 2007. Hyötykarttamenetelmän käyttö arvioitaessa informaatioteknologian hyötyjä matkailualan yritysverkostossa. In *Operatiivinen verkostointegraatio: Työpapereita tutkimushankkeesta.*, ed. M. Saloheimo, 26-45. Rovaniemi, Finland: University of Lapland Press.
23. Stokes, R. 2006. Network-based strategy making for events tourism. *European Journal of Marketing* 40, (5-6): 682-95.
24. Tinsley Ross and Lynch Paul. 2001. Small tourism business networks and destination development. *International Journal of Hospitality Management* 20, (4): 367.
25. Tremblay, Pascal. 1998. The economic organization of tourism. *Annals of Tourism Research* 25, (4): 837-59.