DESTINATION NETWORKS
Four Australian Cases

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Abstract: Tourism involves a network of organizations interacting to produce a service. This paper examines the structural properties of interorganizational networks within destinations. Network analysis adopts a whole of destination approach and does not impose predefined groupings on the organization of tourism in a region. Information flows between key agencies provide the basis for analyzing structures and linkages, allowing strategic weaknesses in the cohesiveness of the destination to be addressed by policy and management. The paper outlines four Australian case studies that demonstrate the utility of network analysis by illustrating features such as product clusters, structural divides, and central organizations. **Keywords:** network analysis, destination structure, cohesion. © 2007 Elsevier Ltd. All rights reserved.

Résumé: Réseaux de destination: quatre cas australiens. Le tourisme consiste en un réseau d'organisations qui interagissent pour produire un service. Cet article examine les propriétés structurelles des réseaux interorganisationnels à l'intérieur des destinations. L'analyse de réseau adopte une approche d'une destination toute entière et n'impose pas de groupements prédéfinis sur l'organisation du tourisme dans une région. Les flux d'informations entre les principales agences fournissent la base pour l'analyse des structures et des liens, ce qui permet que les faiblesses stratégiques dans la cohésion de la destination soient abordées par la politique et la gestion. L'article donne un aperçu de quatre études de cas australiennes qui démontrent l'utilité de l'analyse de réseau en illustrant des particularités telles que les groupements de produits, les fossés structurelles et les organisations essentielles. **Mots-clés:** analyse de réseau, structure de destination, cohésion. © 2007 Elsevier Ltd. All rights reserved.

INTRODUCTION

The analysis of networks of objects is a study area for researchers from diverse disciplines, including mathematics, physics, biology, the social sciences, policy, economics, and business. The mathematical analysis of networks is considered to have begun with the Leonhard Euler's paper of 1736, where he proposed a formulation of the renowned

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Königsberg Bridge Problem. This led to the study of graph theory, which provides the rich set of tools and techniques used in network analysis (NA). In the social sciences, social network analysis was developed in the writings of Simmel (1908), the study of groups by Moreno (1934), the social anthropological work of Radcliffe-Brown (1935), and Barnes' (1952) work on the sociology of a Norwegian island parish which is credited with the post-war resurgence of the approach (Wellman 2002). These scholars share a structural view of social interaction highlighting the importance of social organizations, relationships, and interfaces in influencing individual decisions, beliefs, and behavior (Scott 2000). Here, structures are seen as recurring patterns of social relationships rather than focusing upon the attributes and actions of single individuals or organizations (Wasserman and Galaskiewicz 1994:6).

A number of NA research traditions have developed recently, including those found in political science and the study of interorganizational relationships (Berry, Brower, Choi, Goa, Jang, Kwon and Word 2004). This latter paradigm has been used in business and economics and draws upon the competencies-based theories of the firm, where relationships create competitive advantage through shaping and enhancing organizational performance (Tremblay 1998). Here a system of firms is viewed as comprising an architecture of nodes and interconnected relationships where the structure is found to be strongly correlated to function (Albert and Barabasi 2002; Watts 2004). As a result, NA is becoming a standard diagnostic and prescriptive tool for management to improve organizational interaction (Cross, Borgatti and Parker 2002).

The interorganizational paradigm (Podolny and Page 1998; Selin and Beason 1991) discussed in this paper may be contrasted with the policy network research tradition that emphasizes qualitative and ethnographic methods (Rhodes 2002) where the focus is on the dynamic processes of policymaking, implementation, and action derived from a view that the important focus for research is the individual. From this perspective, the approach to NA taken here is seen as positivist and ignores the changing nature of relationships with substantial methodological issues, an argument that echoes the qualitative-quantitative debate encountered in tourism and other fields (Davies 2003; Walle 1997). A more balanced perspective is provided by Dredge (2005) who provides a framework for analysis that embeds the dynamic processes of policymaking within a structural network. From this perspective, the NA approach used in this paper provides information on structural properties of the network as a whole that supplements the study of the relationships among individuals. A second differentiating characteristic is that it does not *a priori* define groups and structures within the destination. Instead, the aggregate network of relationships among actors is used to define a group, cluster, or clique; as Monge writes, ''groups emerge by being densely connected regions of the network'' (1987:242).

The aim of this paper is to illustrate the utility of NA in the study of the structure of destination networks through the use of a number of case studies. The discussion is based on the view that destinations may

be considered as collaborating networks of complementary organizations (Gunn 1997). This investigation uses NA techniques to both visualize and provide metrics for cohesion using characteristics such as density, centrality, and clustering, and enables the comparative study of the development of destinations. It also allows the identification of critical junctures in destinations that cross functional, hierarchical, or geographic boundaries (Cross, Borgatti and Parker 2002). Here the cohesion of a destination interorganizational network, as measured using NA, is seen as an indicator of effectiveness.

DESTINATIONS AS NETWORKS

Many studies have indicated the importance of interorganizational networks in destinations and the importance of collaboration among organizations. Prior ones have indicated that, more than most economic sectors, tourism involves the development of formal and informal collaboration, partnerships, and networks (Bramwell and Lane 2000; Copp and Ivy 2001; Gibson, Lynch and Morrison 2005; Hall 1999; Halme 2001; Saxena 2005; Selin 2000; Selin and Chavez 1995; Tinsley and Lynch 2001; Tyler and Dinan 2001). These interorganizational networks are embodied in destinations which can be viewed as loosely articulated groups of independent suppliers linked together to deliver the overall product. Therefore, destinations represent patterns of cooperative and competitive linkages and are fashioned by both their internal capabilities and those of the external environment (Tremblay 1999). This perspective thus neatly sidesteps the problem of defining the spatial boundaries of destinations (Framke 2002). NA provides an alternative view to that of the ''bounded'' destination, as the degree of the links defines its spatial extent, supporting Thrift's (1996) contention that regions or destinations are not places, but settings for interactions.

In analyzing these systems of destination organizations, there are three basic elements of interest: actors, relationships, and resources (Knoke and Kuklinski 1991). First, actors, called nodes in formal network theory, perform activities in relationship with other players and control resources, exchanging information to facilitate this. In a destination, they are heterogeneous in size and function, consisting of both commercial operators and coordinating organizations such as regional organizations. They cooperate to compete as a direct response to an externally turbulent environment (Tremblay 1999; Wilkinson, Mattsson and Easton 2000). An analysis of the structure of a network of actors provides useful information on the competitiveness of a destination.

The resources that are exchanged among actors represent the second element of a network. These resources may include knowledge or money and in prior studies information flows are commonly used (Novelli, Schmitz and Spencer 2006; Saxena 2005). Examining these helps to define, develop, and more effectively diffuse the flow of knowledge through a network of heterogeneous stakeholders in a

destination. Much of the literature on diffusion of innovations indicates that personal contacts are important for acceptance of new information (Rogers 1983). This relationship indicates what kinds of information are being exchanged, between whom, and to what extent. The pattern of relationships among actors reveals the likelihood that individuals will be exposed to particular kinds of exchanges, and the likelihood of their considering that information to be authoritative. Patterns of forwarding and receipt show how dispatches move around an environment, and how actors are positioned to facilitate or control their flow (Pforr 2006).

Third, relationships may be considered as transactions among actors involving the transformation of resources. In destination networks, a variety of relations can be identified (Jamal and Getz 1995; Pforr 2006). These are the building blocks of NA. Indeed, a network is generally defined by a specific type of relation linking a defined set of persons, objects, or events (Mitchell 1969). Its topology suggests that events closer in space and time to the actor are more influential than distant ones, and so there is a separation of scale and process. The network of linkages in which an actor is embedded may both facilitate and constrain their actions (Granovetter 1973; Kogut 2000). As the number of ties within the group grows, communication becomes more efficient (Rowley 1997) and, conversely, if cliques form there is likely to be less communication among its members.

According to Pavlovich (2003a), such dense ties encourage conformity, acceptable action, and inclusion, and so they encourage destination cohesion. Sparse ties among groups on the other hand can exclude stakeholders and act as bridges to those players who are external to the destination, facilitating importation of new information into the region and underpinning innovation. This can be aided by the presence of international organizations (such as hotel chains) within a network, where other stakeholders can benefit from their links to external players. Buonocore and Metallo (2004) argue this pattern is of strategic relevance for a destination and authorities should nurture relationships using communication and sharing of information. Saxena (2005) considers that knowledge creation is embedded in relationships and networks in a destination.

Therefore, the overall distribution of ties and their local concentration are important parameters and are indicators of cohesion (Haythornthwaite 1996), which is a property of the whole network. It indicates the presence of strong socializing relationships among members, and also the likelihood of their having access to the same information or resources. Overall measures of cohesion, such as density and centralization, indicate the extent to which all members of a population interact with all others. In addition, by identifying areas of a graph that show a higher degree of connectedness, structures such as clusters and cliques can be revealed.

Together, these three elements define a network where the actor is linked together with all of the influencing factors to produce it. Such a system delivers a range of benefits to its members (Welch, Welch, Young and Wilkinson 1998), including scale and scope economies,

such as alliances; coordination of complementary assets, such as marketing synergies (Palmer 1998); and higher strategic benefits where the members share a common vision. There is a similarity between the common goals and organization of corporate bodies and that of a network, with the difference mainly one of scale (Boissevain and Mitchell 1973; Thrift 1996).

The use of NA to understand the properties of a destination can focus on a number of dimensions depending upon the aim of the study. Haythornthwaite lists five principal foci for study: cohesion (grouping actors according to strong common relationships with each other); structural equivalence (grouping actors according to similarity in relations with others); prominence (indicating who is "in charge"); range (indicating the extent of an actor's network); and brokerage (indicating bridging connections to other networks) (1996:330). In this particular study the intent is to examine the cohesiveness of destination networks through use of communication as an indicator of effectiveness. Therefore, this paper examines density, centrality, and clustering to determine the characteristics of four tourism regions in Australia.

Although NA has much to offer the analysis and understanding of destinations, there are a number of methodological challenges facing researchers in tourism and across the social sciences in general. These challenges focus upon, first, the identification of the nodes and the extent (or boundaries) of the network and its membership (Cross, Borgatti and Parker 2002; Jones, Hesterly and Borgatti 1997); second, calibrating the exchanges and the social mechanisms of governance (Burt 2000); and third, displaying and analyzing the architecture of the network (Scott 2000).

It is important to ensure that the scope of any NA is delimited by specification of system boundaries (Thatcher 1998). Determining a boundary for a destination network study may be done by alternatively focusing on the organizations, their relations, or critical policy events (Pforr 2002b) and could highlight actors sharing a common goal or use actors located within geographical limits (Laumann, Galaskiewicz and Marsden 1978:460). The idea of focusing on actors within a geographical area is related to the study of clusters or industrial districts, as these also have a geographical basis (Jackson and Murphy 2006; Tallman and Jenkins 2002). Also, within the bounded destination network, the actors, stakeholders, or nodes must be identified. It may be that all actors within a specified boundary are studied but resource limitations usually mean that sampling is used. One common method is to distinguish between actors on the basis of their degree of influence. Various methods and approaches have been used to identify these key stakeholders including the position approach, reputation method, decision method, or participation/relational methods (Knoke and Kuklinski 1991; Thatcher 1998; Tichy, Tushman and Fombrum 1979). Finally, the transactional content of the interactions among the stakeholders needs to be calibrated. Its different types can be distinguished, such as exchange of affect (liking, friendship), exchange of influence or power, information, and resources, goods, or services. Szarka (1990), for example, discusses three types of linkages among small businesses

based on social interaction, business communication, and transactional exchange.

Network analysis techniques are used to establish the position of stakeholders and the relationships among them using indicators such as intensity of communication, reputation, or resources (Thatcher 1998:399). Moreno (1934) indicates that social configurations have definite structures which can be described as ''sociograms'' to visualize the flow of information within the system. This has led to the development of NA where the relationships among nodes are represented as points and lines and the resulting patterns are described. Later developments led to the identification of groups of individuals with similar patterns of relationships (blockmodels) and to the use of statistical methods such as multidimensional scaling to transform and map relationships into social space (Doreian, Batagelj and Ferligoj 2005; Mohr 1998; Scott 1988).

A visualization approach is particularly attractive as it compactly displays the relevant actors and shows how these relate to each other in the form of clusters or other structures (Brandes, Kenis, Raab, Schneider and Wagner 1999). Relationships can be reciprocal or directed, in which case an arrow is used to indicate the direction of a relationship. This may be positive or negative, indicated with a plus or minus sign. A number of different techniques can be used to display the graphical data, ranging from the use of hand-drawn relational maps to diagrams derived using sophisticated statistical techniques. One conceptually simple heuristic for displaying relationships is the Spring Embedding Technique (Eades 1984; Kamada and Kawai 1989). This is a heuristic for laying out arbitrary networks. The basic idea is to consider the nodes to be repelling rings. Nodes that are linked are joined by a spring and a positioning with low forces exerted on the rings is sought. The resultant diagram is then interpreted visually. A number of computer software packages are available to map relational data (Scott 1996).

In network analysis, the important quantitative characteristics of structure and the cohesion of stakeholders are usually examined in terms of centrality and density. Centrality refers to an actor's power obtained through the structure, as opposed to power gained through individual attributes (Rowley 1997). Centrality has been used to examine concepts such as influence in elite networks (Laumann and Pappi 1973) and power (Burt 1982). Density is a characteristic of the whole network; it measures the relative number of ties that link actors together. A complete system is one in which all possible ties exist (Rowley 1997). Density is calculated as a ratio of the number of relationships that exist compared with the total number of possible ties if each member were tied to every other member. In general, density is calculated as the actual number of links between stakeholders as a fraction of the maximum number of possible connections. Consideration of density is important because highly dense networks, through tighter communication systems and stronger information exchanges, ensure the circulation of institutional norms and produce shared behavioral expectations.

Rowley (1997) provides an important contribution for understanding the relation between density and focal organization centrality, and how this interaction influences the power of the focal organization. According to this model, in low density networks the focal organization may have more power and assume a commander's role as it experiences less unified pressure from stakeholder influences. In very dense systems, the focal organization will display compromising actions because of its needs to conform to stakeholder pressure. These two dimensions, centrality and density, are considered to characterize the optimal network configuration (Granovetter 1985; Uzzi 1997). The focal organization has a critical role within this optimal structure because it is in the central position of this complex relationship set (Buonocore and Metallo 2004).

There are a number of measures of centrality (Borgatti and Everett 2006; Freeman 1979), and betweenness centrality is particularly relevant to this discussion because it considers the extent to which one has control of other actors' access to nodes in the network (Borgatti and Everett 2006:467). Betweenness centrality is high when the focal organization establishes many ties with actors of external networks. In fact, external actors may communicate or exchange resources with other parts of the system only by going through the focal organization, which may control all resource flows among them.

One may also look at the granularity or partitioning of a network into different clusters. Clustering (the formation of link-dense subgroups) of networks has been noted in many real systems (Provan and Sebastian 1998; Wilkinson 1976). In this study, the clustering is measured by calculating a modularity index, as proposed by Newman and Girvan (2004). Given a certain subdivision of a network into n groups, the modularity Q is defined as:

$$Q = \sum_{i=1}^{n} \left[\frac{l_i}{L} - \left(\frac{d_i}{2L} \right)^2 \right]$$

where n is the number of clusters; l_i is the number of edges in cluster i; d_i the sum of the degrees of nodes in cluster i and L the total number of edges of the network (Fortunato, Latora and Marchiori 2004). The expression contains two terms: the first is the fraction of links among nodes belonging to subgroup i, and the second is the expected fraction of links in the same group in the hypothesis that the links are randomly distributed. When the first term is larger than the second, this means that the "density" of links in the group is higher than one would expect by chance and thus the group is cohesive. Q is 0 for a completely random network and tends to $1 - 1/|n|$ for a perfectly clustered network with $|n|$ equally sized clusters. The expression for Q is not normalized and hence Q will not reach a value of 1, even for a perfectly clustered network. Good modularities are achieved when Q is in the range from approximately 0.2 to 0.7 (Fortunato et al 2004).

In order to test the application of NA to destinations, four destinations in the Australian states of Victoria and Queensland were analyzed. These studies investigate the structural cohesiveness of the

destinations against a background of shifting organizational structures for tourism in Australia. Efficiency is related to the structural properties that encourage information sharing and consequently competition. The management of destinations in this country is undertaken by regional tourism organizations. They have traditionally been the principal partners in delivering integrated destination marketing and development for a region, as they provide the key link with local organizations, the industry, government, and the community. The interactions among these stakeholders create a dynamic and complex nexus of relationships that is the basis for the functioning of a destination region. The organizational centrality of a regional tourism organization is derived from its imperative to provide coordination, planning, information, and promotional functions.

Australian regional tourism organizations have increasingly been subject to changing demands and additional responsibilities that have impacted upon their ability to continue with their traditional roles. At the local level, as individual destinations (such as the Gold Coast in Queensland) have matured, they have increasingly usurped the power and influence of the state tourism offices in the networks. However the offices are also being compromised by the fact that the government is questioning the current organizational structure of tourism at the local and regional levels. For example, an Australian tourism white paper (Department of Industry Tourism and Resources 2003) raised important organizational issues such as the need for better planning (as distinct from marketing) and a number of structural mechanisms for improving development and management in destinations. This background highlights the need to understand the way that destinations are organized and to investigate their efficiency and competitiveness. By defining the cohesiveness of networks, the organization of tourism will be better understood and directions for the improvement of communication efficiency identified. This paper argues that the network structure of destinations is an important contributor to the efficiency of communication, planning, and decisionmaking. The NA of destinations reported here provides a number of insights for understanding the structure of the tourism industry in Australia.

Study Methods

For NA, the choice of study method involves consideration of sampling units and definition of the form of relations, the relational content, and data analysis at regional and local levels (Knoke and Kuklinski 1991). In this study, the networks of key stakeholders were selected from four Australian destinations. These regions were chosen to allow for comparison between destinations at different stages of development and cohesiveness. They were the Gold Coast (large, organized) and Southern Downs (small, lacking cohesive organization) in Queensland and Legends, Wine and High Country (small, lacking cohesive organization), and Great Ocean Road (medium, organized) in Victoria. These were selected on the basis of the relative number

of overnight tourists. The research was conducted in 2004 (Cooper and Scott 2005).

The Gold Coast is the most developed and largest holiday region in Australia. Located on the east coast of Australia around 70 kilometers south of Brisbane, it is a mature iconic ''sun and sand'' domestic and international destination (Faulkner 2002). In 2002, the region was formed when two local government areas were amalgamated, one covering the coastal strip (formerly Gold Coast City) and one covering the remainder of the coastal plain and mountainous hinterland (formerly Nerang Shire).

The Southern Downs region is composed of two local government areas located in agricultural country around 200 kilometers southwest of Brisbane. It is a mixture of high granite country around Stanthorpe that grows grapes and citrus fruits while 80 kilometers to the west is Warwick, an agricultural service center for the surrounding wheat, sheep, and cattle country. Stanthorpe provides a country, wine, and short break destination while Warwick is primarily a touring route town.

The Legends, Wine, and High country is one of seven overlapping tourism marketing campaign regions in Victoria. Located in northeast Victoria, it consists of a flat countryside giving way to mountains which contain seasonal ski fields. In the valleys and plains are a number of towns that provide weekend and short-break destinations for the population of Melbourne. The region has two distinct seasonal products that are also geographically distinct, skiing in winter and country touring and short breaks in summer. It includes seven local government areas each with varying levels of involvement in tourism and overall the region lacks cohesion in marketing and organization (Tourism Victoria 2004b).

The Great Ocean Road region is based on a touring road that follows the southern coast of Victoria for 200 kilometers across three local government areas. It has a stable administration with strong regional tourism associations and good marketing support. It receives the second largest number of international tourists in the state after Melbourne and has a strong domestic advertising awareness as a destination (Tourism Victoria 2004a). The characteristics of each of these four cases are shown in Table 1.

For each case, within the destination boundary, a reputation method was chosen to identify the key stakeholder respondents using a two-step process. First, the relevant state agency provided an initial list of key stakeholder organizations for the destination. Second, their managers were asked to identify other relevant organizations they would in turn consider key in a form of ''snowball'' sampling (Rowley 1997). Together, these two rounds of stakeholder recruitment provide a means of avoiding selection bias caused by only interviewing the key respondents suggested by the state tourism organization.

Once these key stakeholder organizations were identified, two methods were used for respondent selection and data collection. In the first, used in the two Victorian cases, a random sample of operators was drawn from the membership lists of the relevant regional organization. They were contacted face-to-face or by telephone (if necessary) and

Table 1. Regional Case Studies

Characteristics	Victoria		Queensland	
	Legends, Wine and High Country	Great Ocean Road	Gold Coast	Southern Downs
Local government areas	7	3	1	2
International overnight tourists (2006)[a]	17,349	148,323	834,678	16,000
Domestic overnight tourists (2006)[a]	1,027,000	2,388,000	3,565,000	637,000
Tourism operators interviewed	66	40	75	66
Key stakeholder organizations	40	23		
Nodes	95	47	72	73
Links	136	52	363	249
Density			0.14	0.07
Density (two mode)	0.06	0.12		
Average path length	4.1	2.4	2.28	2.36
Average closeness	0.23	0.43	0.46	0.38

[a] Source: Tourism Research Australia – International and National Visitor Surveys 2006.

interviewed to determine the frequency and purpose of their contacts with the key stakeholder organizations in the destination. The interview proceeded with the respondent asked to indicate information about each of the key organizations in turn. In this method, a bipartite network is identified as the key organizations and respondents constitute two mutually exclusive sets (Borgatti and Everett 1997). In the second method, used in the two Queensland cases, the key stakeholders themselves were interviewed face-to-face or by telephone and asked to identify their frequency of contact (among other information) with the other key stakeholders. In this case, respondents were not prompted about their contacts. The interview protocol contained both open-ended questions with the objective of generating qualitative data, and structured questions that measured respondents' preferences using a Likert scale, although only a small subset of the data collected is reported here.

For each of the four studies, interview responses were coded and analyzed using the program UCINET 6.0 (Borgatti, Everett and Freeman 1999). For key stakeholder networks, a visual representation was then achieved using the Kamada–Kawai minimum energy approach (Kamada and Kawai 1989). In these visual representations, each node is connected to one or more by lines representing reported frequency of communication between those two organizations for tourism purposes. Around the periphery are a number of them physically located outside the region. The position of each is derived from the number of links and the positions of the other organizations to which it has links. The resultant diagram provides a representation of the relationships

among organizations interviewed in the destination. In addition, quantitative characteristics were also determined, with the centrality, density, and modularity provided.

Study Results

The analysis of the networks of key stakeholders in the four case destinations provides an important window on the current and potential structure of tourism in Australia. All of the measures used to calibrate the networks show that these destinations display structures that are far from random. Each has a distinctive structure, and differences in terms of cohesiveness and clustering can be clearly displayed. Generally the key stakeholders identified can be characterized as having an interest in the majority of the issues at a destination; being larger and deriving their income from a number of market sectors (such as airports or large hotels), and involved in more than one (and often many) communities of interest at the destination.

Victoria. It is clear that there are significant differences between the Great Ocean Road and the Legends, Wine. and High country tourism regions in the cohesiveness of marketing and planning contacts. This means that some regions of Victoria have been able to implement strong regional marketing and management, due to innovative organization across three separate shires. For example, the former has a very structured network built around its regional organization, developed in response to internal initiatives to market the region using the scenic Great Ocean Road as the central coordinating feature (Figure 1, top left). Its centralization may be contrasted with the diffuse distributed network in the latter (Figure 1, top right).

The density of the former network (density = 0.12) was twice that of the latter (density = 0.06) which demonstrates a more decentralized structure in which more than one organization assumes the role of coordination. Interviews with the stakeholders clearly demonstrated that, in contrast to the Great Ocean Road, the local government areas in the the Legends, Wine, and High country are geographically and politically dissimilar and there is little incentive for the organizations to link together through the regional system. Instead there is a diffuse information flow from operator to operator. The analysis suggests that the former's more centralized network is associated with a more developed regional structure and highlights the enhanced formal coordination provided in this region. This is confirmed by the higher value of the average closeness of the nodes which represents the capability of the system to exchange information (Latora and Marchiori 2001).

Queensland. The Gold Coast, the more developed and organized of the two Queensland regional organizations is found to have a greater average closeness (0.46) and density (0.14) than that of the rural and geographically diverse Southern Downs (closeness 0.38 and
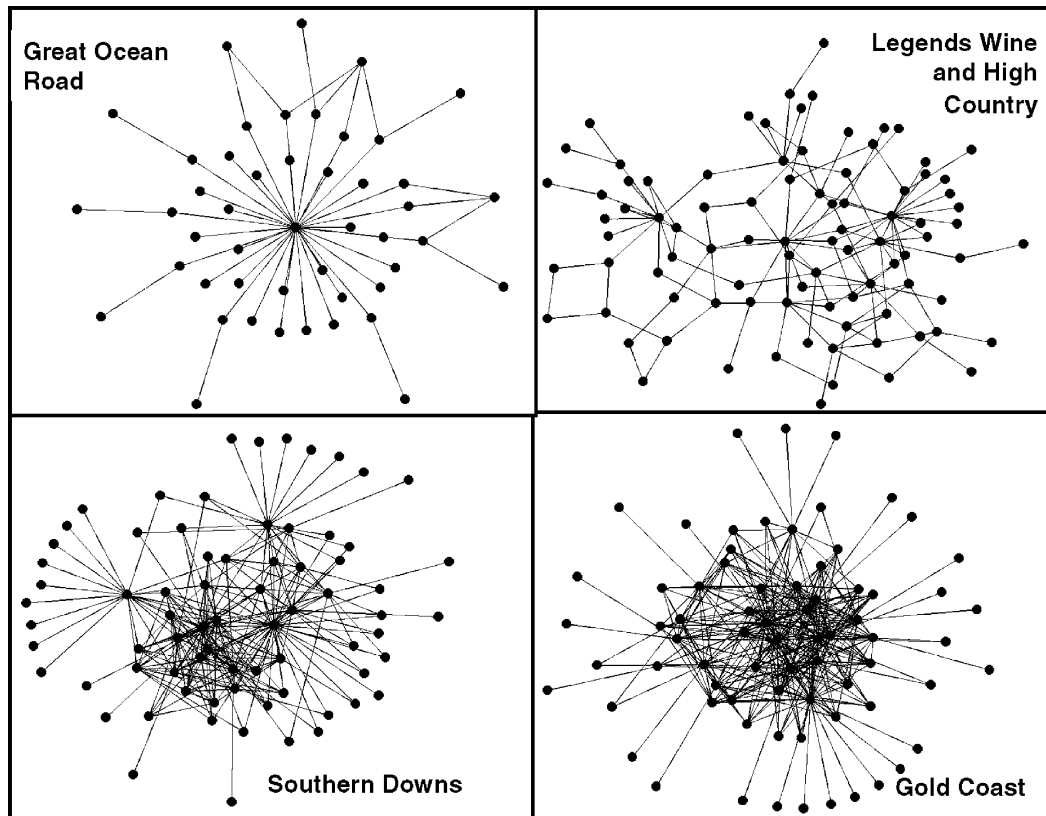
Figure 1. Social Networks in Case Studies

density 0.07). The former network is centralized around a small number of key organizations while in comparison the latter's is diffuse and lacks cohesion (Figure 2). However the analysis for the Gold Coast demonstrates a structural divide between it and the hinterland areas as two clusters (Coast cluster modularity = 0.38, Hinterland cluster modularity = 0.21, Overall Q = 0.60). This is revealed in Figure 2 where the hinterland organizations are shown as black nodes. The nodes with only one tie have been removed to allow easier identification of the hinterland cluster. This clustering appears to relate to geography as well as the main markets for organizations in these two sub-regions. The hinterland cluster is linked to external regional organizations (the two grey nodes on the left hand side) as well as the Gold Coast Tourism Bureau, as might be expected from the dual source markets for this area. The state organization, Tourism Queensland, is central to the whole Gold Coast cluster and operates to link across structural divides which are common in tourism due to causes that include political boundaries, geographical features, or organizational conflict. The integration of operators in the hinterland into the Gold Coast is primarily a function of its Tourism Bureau rather than Tourism Queensland. The position of the Gold Coast Tourism Bureau indicates that it is addressing this structural divide by performing a linking function while Tourism Queensland is more strongly linked to the coastal area.

In the rural Southern Downs region, the NA demonstrates a structural divide between organizations based on the political boundary
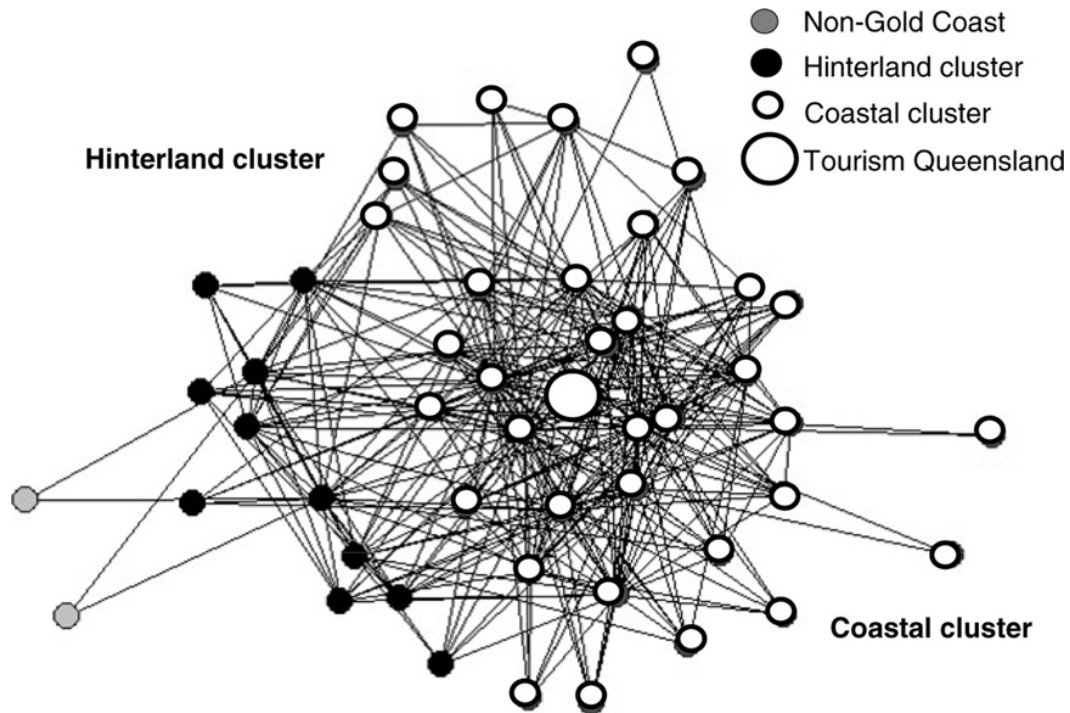
Figure 2. Social Network Diagram for Gold Coast Key Stakeholders

of the two shires of Stanthorpe and Warwick (Stanthorpe cluster modularity = 0.33, Warwick cluster modularity = 0.20, Overall Q = 0.523). This appears to relate also to differences in the economies and geography of these areas. The Stanthorpe area is cooler in winter and has a substantial number of bed and breakfast and wine operators. This area is further from the capital city markets and operates as a weekend-break destination. In contrast, Warwick shire is more focused on agricultural production. The rural organization links these two areas through its planning and management role.

Taken together, these results demonstrate that, based on the measures of cohesiveness used, the Gold Coast is more cohesive than Southern Downs as a destination and the Great Ocean Road is more cohesive than the Legends, Wine, and High country. Further, they demonstrate that this cohesiveness is moderated in the Queensland regions by sub-destinational clustering. Altogether, these findings indicate that larger more industrialized destinations are more cohesive in interorganizational structure.

CONCLUSION

This paper has demonstrated the contribution of network analysis to understanding the structure and cohesiveness of destinations. NA is particularly useful as it adopts a whole of destination approach and does not focus on any single element. By analyzing structures and linkages, the approach also highlights weaknesses in destination structures that can be addressed by policy and management approaches. Here, the importance of proactive management through enhanced planning

and collaboration has been demonstrated in many locations (Cooper and Jackson 1989; Ritchie 1999). A further important managerial implication is that network analysis underscores the imperative for competitive destinations to be collaborative, by emphasizing the relationships that form a value-creation system, and this paper has illustrated differences in measures of interorganizational cohesion at different destinations. As competition around the world increases, managers may improve their competitive advantage by using NA alongside other tools such as branding (Laws, Scott and Parfitt 2002), benchmarking (Kozak 2004), visioning (Ritchie 1993), policy (Pforr 2002a), and value network analysis (Parolini 1999).

More generally, the paper has sought to encourage the ''quantitative turn'' in NA. While past research has been criticized as ignoring the content and dynamics of network operation, this study considers that these issues should not lead to avoidance of quantitative analysis and instead point to the methodologies useful in addressing these issues. For example, the dynamics of destinations could be examined through repeated use of the quantitative methods discussed in this paper. Further, there is no reason that more nuanced relationship information cannot be used as the basis of defining links among people or organizations. The reward from the use of quantitative NA is a richer set of tools for comparisons among destinations such as the modularity measure used to measure clustering.

Moving from theory to practice, the four case studies individually demonstrate the utility of NA in understanding destinations and their stakeholders. The studies dissected the structure of the Australian tourism industry in two states and four regions allowing a number of features such as structural divides to be identified and the cohesiveness of these destinations to be compared. These results appear to confirm that industrialization of a destination creates a cohesive interorganizational network necessary for the production of integrated tourism experiences.

The visualization of the relationships and structural positions of stakeholders makes the approach especially useful, as the structures can be easily interpreted by managers and communicated to the destination stakeholders themselves. While these results are valuable, much work needs to be done to develop a research agenda for NA for tourism. This focuses on three areas. First, from a methodological point of view, the availability of analytical and visualization software provides a major advantage for analysts. However, the identification of stakeholders, and the ''data-hungry'' nature of the process of identifying relationships remains problematic and expensive. Second, it is important to relate structural patterns and relationships to their effects on destination coordination, collaborative outcomes, and their evolution. This study has suggested that destination cohesion is related to the degree of industrialization of a destination. However, how such cohesion may be promoted appears a fruitful area for further research and related to the development of social capital (Burt 2000). In the area of knowledge management there has been little work done on the relationship between destination architecture and information diffusion (Cowan

and Jonard 2004). Third, the four case studies illustrate differences not only in the organization of tourism, but also their evolution (Buhalis 2000; Butler 1980; Cooper 1990, 1997).

An important area of future research will be to simulate past and future destination networks, based upon their current characteristics. This will help to address the perceived drawback of the static nature of the network architecture (Boissevain and Mitchell 1973). Thrift (1996) observes that, in fact, networks are dynamic, with relationships among stakeholders constantly shifting as they draw together and define the various elements of the network, and as they interact with the external environment (Welch et al 1998). Indeed, the recent external shocks to the tourism system can be seen as ''structure loosening events'' that redistribute power or other resources. In other words, destinations change incrementally as stakeholders jostle for centrality and links are both built and lost. Interestingly, this often reinforces the structure through the development of like-minded alliances (Pavlovich 2003b). This may be done using standard methods such as those developed here and will be of considerable value to destinations as they organize themselves to survive and compete in the face of a rapidly changing external environment. ∎

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