



# The evolution and transformation of a tourism destination network: the Waitomo Caves, New Zealand

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## Abstract

This paper examines the process of tourism destination evolution and transformation. The focus is on how the relationships between organisations can act as a self-organising mechanism for the destination, with fluidity and change being a critical component in this process. This paper uses network theory to express these dynamics, and it emphasises structural features of architectural density and centrality. Most particularly, the network approach illustrates how groupings of small firms within interdependent systems can be self-governing, and show how this process assists the destination in building tacit knowledge for competitive advantage that resides in the network structure. The case context for this illustration is an icon tourism destination in New Zealand, the Waitomo Caves. This tourism destination has undergone significant transformation over the last 15 years, from its single Glowworm Cave attraction to an interdependent network involving underground adventure caving activities. Because of this transformation, it provides a distinctive context to explore these fluid network processes.

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## 1. Introduction

Relationships between firms are now seen as an important component of competitive advantage, with the “relational” perspective now positioned legitimately alongside the other strategy frameworks of industry (Porter, 1980) and resource-base views (Rumelt, 1984; Barney, 1991) in assisting us to understand organisational dynamics. This “relational” perspective is particularly relevant in the tourism industry, as groupings of organisations cluster together to form a destination context. Complementary products of activities, accommodation, transport and food co-exist alongside support activities and infrastructure to form a complex system of connections and interrelationships. Within tourism, two characteristics emerge that become pertinent to the relational perspective. First, these interrelationships are fashioned around mixes of diagonal and vertical linkages (Poon, 1990) and form a partial-industrialisation of tourism by loose liaisons from across-industry groups (Leiper, 1990). Thus, the tourism destination generally comprises different types of

complementary and competing organisations, multiple sectors, infrastructure and an array of public/private linkages that create a diverse and highly fragmented supply structure. Yet, it is this structural combination that conditions the second characteristic of tourism, in that strong market interdependence forms between these organisations, as suppliers pass customers from one organisation to another in order to provide a comprehensive tourist experience (Grefe, 1994). It is this feature that acts to integrate the various components into a destination structure.

The coordination of these two dichotomies indicates that the linkages between organisations within a tourism destination context become a critical factor in achieving strategic leverage. Thus, the research question arises; how are these linkages configured to create a coherent destination network? This paper takes a structural approach from network theory and examines how the architectural patterns of linkages between organisations can inform strategic leverage for destination contexts. To date, there has been limited examination of this issue and this paper provides an exploratory case study as it examines the formation and evolution of a tourism destination, the Waitomo Caves in New Zealand. The case describes the evolution of this destination from a

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single-attraction site to a multi-centred network. This process of structural change is illustrated through the network relationships developed within the destination, and demonstrates how these relational ties assisted and/or impeded the development of the destination.

The paper first discusses the management literature as it pertains specifically to network structures. It then describes the case context, the Waitomo Caves and the method by which the data were collected and analysed. Third, the case data are used to illustrate the theoretical constructs of structural change through the relational configurations of the network structure. Finally, there is commentary on how this case data offer more general contributions for understanding destination structures and architecture, and the performance implications that emerge from this relational perspective.

## 2. Relational phenomena

### 2.1. Network structure

Network theory is concerned with the collective nature of organisational action, constraint and coordination. It assumes that “relationships do not occur within a vacuum of dyadic ties, but rather in a network of influences, where a firm’s stakeholders are likely to have direct relationships with one another” (Rowley, 1997, p. 890). It is these overarching patterns of relationships or ‘ties’ between organisations that offer insights into the network architecture and its relational data. These patterns become evident by examining the network system through a set of locational nodes and their interconnected relationships. This places normative or causal explanations of organising at the centre of analysis, “Instead of analysing individual behaviours, attitudes and beliefs, social network analysis focuses its attention on how these interactions constitute a framework or structure that can be studied and analysed in its own right” (Galaskiewicz & Wasserman, 1994, p. xii).

The constructs that have emerged as favoured representations of relational data are the overall structure of the network (density) and the nodal position within the network (centrality), which embody characteristics of both institutional and resource dependence theories (Granovetter, 1992; Jones, Hesterly, & Borgatti, 1997; Rowley, 1997; Gulati, 1998). Further contributions are offered by the identification of two groupings of network relations: ‘strong ties’ and ‘weak ties’ (Granovetter, 1973, 1985).

### 2.2. Centrality

The centrality position highlights how resources are managed within the network and refers to an actor’s power obtained through the network structure, rather

than through individual attributes. Centrality reveals how critical an organisation is within the network’s global structure and suggests that the more central position an organisation has, the more important it is to the network’s coordination functions. These positions shadow how organisations conform to the demands, obligations and expectations of others.

In a network context, high centrality allows an organisation quicker access to more information, speedier action and implementation. This enables the organisation to shape its reputation and generate visibility by providing access to resources via benefit-rich networks (Powell, Koput, & Smith-Doerr, 1996). For weaker or less central organisations, it is claimed that a conscious move to establish ties with those more central is likely to contribute benefits in the form of greater legitimacy, status, buffering and resource accessibility (Baum & Oliver, 1991).

Yet because networks are a collection of relationships, they are fluid and they change over time. There is a constant pattern of changing and modification of relationships as they adapt (Easton, 1992). Implicitly, a change in the position of one firm will affect the position of other firms. For some, change may mean a more central position in which it may acquire more access to resources and more control over its destiny. However, the reverse can also happen. A firm closely connected to a central firm can lose its connections and information rich relationships if changes move the power focus of the network. Easton (1992) argues that it is these continuous interactions and information flows between firms within the network that provide stability, a solid foundation or platform for incremental change. Madhavan, Koka, and Prescott (1998) confirm incremental change as a reinforcing process that enhances and strengthens the existing power structures within the network. They claim this can be a key dynamic accounted for in alliance partner selection. However, these authors also note the importance of external trajectories, in that it is macro-level influences that cause the most profound change. These ‘structure-loosening’ events result in the redistribution of power, creating a radical change in the overall structure of the network. New or previously peripheral players may be seen to have more desirable resource attributes, improving their centrality status within the network.

### 2.3. Density

Relational ‘density’ explores the overall structure of the network and examines the number of ties that link network actors together. As such, it is a characteristic of the whole network rather than of the actors within. Meyer and Rowan (1977) argue that relational networks augment and transfer institutional myths between organisations. This suggests that relational ties are the

fundamental element forcing organisations toward conformity as institutional values are diffused within networks (Di Maggio & Powell, 1983; Scott & Meyer, 1983). Highly dense networks, then, through tighter communication systems and stronger information exchanges, ensure the circulation of institutional norms within the network, with actors forming patterns of exchange and producing shared behavioural expectations. Organisations are said to mimic each other's behaviour to become more legitimate, with subsequent conformity attesting to agreed-upon behavioural constraints. These densely-tied networks produce strong constraints on focal organisations, allowing stakeholders the capacity to monitor organisational actions more efficiently. Baum and Oliver (1996, p. 1386), for instance, argue that as a population grows "and its social or public impact becomes more widely recognised, other social actors take an increasingly active role in monitoring population members' activities... and shaping the rules and standards about what are legitimate activities and outputs for the population". Yet, this attachment to the institutional environment is said to also endorse the population's legitimacy. Through monitoring and accessing the linkages between the institutional environment and its related organisations, the population receives increased public expectation as being more worthy of support and provides a strong foundation for its success (Di Maggio & Powell, 1983).

Rowley (1997) provides a matrix for understanding organisational action within network structures which bridge the centrality/density gap. He contends that highly central firms in very dense networks will display 'compromising' actions because of their need to conform to stakeholder pressure. Conversely, less central firms in less dense networks will be 'subordinate' to these external pressures as there is less 'noise' to resist stakeholder demands. In networks with less relational density, the focal organisation may have more discretion over its actions as it experiences less unified pressure from stakeholder influences. Thus, it assumes a 'commander' role. However, the fragmented nature of ties within the network results in less efficient information exchanges and limited access to resources, denying the population the legitimacy that the more prolific ties foster. These aspects provide further explanation of how organisations defend or create their positions within the external contexts.

#### 2.4. *Strong ties/weak ties*

A related consideration focuses on the connectivity that occurs within the network arrangement. Granovetter (1973, 1985) identifies two groupings of network relations: 'strong ties' that an actor has with others within a linked group, and 'weak ties' that an actor has with others in external groups. Strong ties are formed by

clusters of people in congruent relationships that act to encourage acceptable action and inclusion into the social set. This situation creates clusterings of people in strong relationships, with each person knowing what the other knows. These relationships are cohesive and can lead to the same sources of information being recycled, and Burt (1992) argues that this 'structural equivalence' makes strong ties redundant for information purposes. However, this argument overlooks the importance of cohesive ties for support, and their role as catalysts for knowledge-building in the network.

'Weak ties' are those that are disconnected with the stronger social group either directly through having no contact with each other, or indirectly through contacts that exclude others (Granovetter, 1973). They are necessary to gain new ideas and opportunities that emerge from the external environment, and provide contacts with people in more distant clusters. The linking between unconnected groups occurs through bridging mechanisms that Burt (1992) calls 'structural holes'. These, he claims, are critical for engendering entrepreneurial activity, as new information is brought into the network through the non-connected external source.

#### 2.5. *Structural optimisation*

Structural optimisation is claimed to reside in a diversity of relationships. Uzzi (1998) argues that an optimal network configuration encapsulates a 'portfolio' of ties, which includes both the non-redundant network of arms-length ties (Burt, 1992) and the tightly-knit embedded ties (Granovetter, 1985). Together, these configurations offer the network competitive advantage in that they are able to access information beyond what is publicly disclosed and are then able to assimilate and reassemble this information and embed it into the interdependent network structure. An understated portfolio of ties leads to a fragmented and less competitive network as these relationships have limited repeated exchanges and less reciprocal information exchanges which restricts the development of tacit knowledge. This gives the network slower response times and reduces its flexibility and adaptive qualities. An overembedded network however, is one with too many strong ties and fewer weak tie linkages and can result in closed isomorphic processes that decrease diversity within the network (Hannan & Freeman, 1989). Within overembedded networks, everyone knows what everyone else knows (Burt, 1992), which can result in organisational inertia, low levels of flexibility and may reduce the efficiency of the network (Hannan & Freeman, 1989). Rather, structural optimisation is seen as a balanced portfolio of strong and weak ties. The weak ties assist in bringing new information into the network, while the strong ties support the knowledge creation

processes which embed strategic capabilities into the network.

In summary, the network architecture of exchange relationships can give a causal explanation of organisational action, constraint and opportunity. These architectural network constructs are now illustrated through a case study, describing how these relational connections have assisted or impeded the evolution and development of the tourism destination network.

### 3. Method

#### 3.1. *The Waitomo Caves tourism context*

The Waitomo Caves tourism destination is an isolated rural village, with a population of 307 people (Statistics New Zealand, 2000), in the heart of the King Country farming district in the North Island of New Zealand. Located within a limestone karst landscape, the destination is famous for its tourism attraction, the Glowworm Cave. This 40-min experience today consists of a passive 200-m stroll through grand and imposing limestone formations, and a float through the cave-stream viewing its famous fauna, the glowworms, which twinkle like a universe of stars in the darkness. Despite its isolation from the main tourist trails, 500,000 visitors make the excursion to Waitomo each year, in a country with a population base of 3,800,000 people (Statistics New Zealand, 2000). The Glowworm Cave has been a major tourism attraction for more than 100 years, and Waitomo has for most of this time been a single-attraction destination with a heavy dependence on the day-trip coach market.

A change in tourism patterns during the 1980s witnessed a growing interest in free and independent travel (FIT) by the adventure-seeking youth market. This change created a new opportunity for tourism in Waitomo: caving adventures. These activities took a longer duration and required overnight stays, with smaller firms emerging to supply this new market: caving activities, accommodation, transport, support and secondary activities. Strong ties formed between these complementary suppliers as customers are passed from one organisation to another in order that a comprehensive tourism experience be provided. Currently, the Waitomo Caves villages comprises two distinct markets: the established passive Glowworm Cave market which remains dominated by short-stay coach tours; and the more recent adventure market requiring interdependent relationships between the three adventure caving organisations, secondary activities, accommodation suppliers and transport operators. Although these adventure activities comprise only 10 per cent of the tourism visitor numbers in Waitomo, the necessity for overnight stays and complementary

products has changed the nature and structure of tourism in this destination.

This case context enables illustration and explanation of the formation and evolution of this destination network, focusing on the structural dynamics of change from the single attraction destination to the ‘multi-centred’ network. Multi-centred networks are comprised of a geographical system, primarily of small firms, with no centralised leadership (Liu & Brookfield, 2000). Since the focus of this study is the evolution and transformation of this network, the geographical boundary of this research is defined by the firms located within the Waitomo Caves tourism destination. The bounded nature of this research is typical of other network analysis case studies (see Madhavan et al., 1998).

#### 3.2. *Data collection*

Case data were collected over a 5-year period, 1996–2000. A mixture of interviews, archival data and personal observations was used to gather information from the twelve firms located within this destination. These organisations included the central organisation, the Glowworm Cave, three smaller adventure caving organisations, the cave museum and visitor information centre, three accommodation providers, two restaurants and two supporting activities. Only the Glowworm Cave had independent corporate management and the other organisations were owned by residents who lived within the community. These organisations varied in size, from the Glowworm Cave with 60 employees at the height of the summer season, to mid-range adventure operations with 30 employees, to micro-owner/operated organisations. Each of these organisations participated in three semi-structured 90-min taped interviews over the research period, accounting for more than 150 h of formal interviews for transcription. The initial process began with the owner/manager, yet, as the researcher became more familiar in the field, these interviews developed into informal and unstructured conversations in which management, employees and community members would voluntarily participate. In this way, the interviews became an infusion of opinions representing a breadth of community dialogue.

Equally as important as these interviews, however, were the routine conversations, observations and active participation within the context, characteristic of ethnographic research. This process enabled further finely grained information to be revealed, as the researcher became more familiar to the destination residents. Such ‘backstage’ processes provide valuable conversations, because “an ethnographer is never off-duty” (Ellen, 1984, p. 145). Also specific to this case study are the embedded community relationships, with generations of families residing in this district. This feature enabled many oral histories to be included in the

data analysis, and have contributed significantly to the understanding of the transformational process. This data is invaluable to the ethnographic process, as “one cannot know in advance what the issues, the perceptions, the theory will be. Case researchers enter the scene expecting, even knowing that certain events, problems, relationships will be important, but discover that some actually are of little consequence” (Stake, 1994, pp. 239–240).

Thus, the forthcoming narrative uses a mixture of recorded transcriptions, oral histories, documents and observations which together contribute to forming an historical account of the evolution and development of the Waitomo Caves destination context. While it is descriptive in that it observes social practices through the features and characteristics of certain phenomena, it is also explanatory in that it directs attention to the creation of social meanings (Clifford & Marcus, 1986). Its purpose is to contextualise insights through framing relationships between phenomena in new and revealing ways that enable the expansion of subtle elements to be “grounded in the detailed study of everyday life” (Hassard, 1991, p. 133).

### 3.3. *Network mapping*

This account of structural change within the network is most readily understood through a chronology, with the data fitting neatly into five discrete phases which characterised the destination’s development. The first, 1887–1910, describes the development of an embryonic tourism destination in Waitomo, and these complementary connections provided a small but effective visitor experience. The second phase, 1911–1969, however, illustrates how the government, as central actor, actively restricted the growth of the destination. Tensions from this structural disparity did not emerge until the third time frame, 1970–1986. This phase describes the deterioration of the destination into a single-attraction short stay excursion. While there were murmurings of entrepreneurial activity, the structural connections remained fragmented. These conditions began to change in what was possibly the most significant year in Waitomo’s recent history, 1987, with the beginning of adventure tourism. This fourth phase, 1987–1999, looks at the renewal of the destination and the shift towards a network structure. Finally, the last phase, the year 2000, examines, in brief, performance implications. It examines how the network structure has enabled information to be exchanged and how it has assisted the development of network-based capabilities which underpin strategic leverage.

To illustrate this structural connectivity, a visual diagram of these relational patterns is displayed for each historic time frame. A map of nodal connections is produced which identifies the relational actors, their

structural linkages and the strategic implications of these network connections. Fine-grained detail on information exchanges was unable to be reported for the early years, so the connections indicate governance links rather than the informal social exchange relationships underlying knowledge creation which are presented for the later periods. This visual representation follows the format used by network analysts (Burt, 1992; Krackhardt, 1992; Madhavan et al., 1998).

## 4. Case data

### 4.1. *Tourism beginnings 1887–1910*

The beginnings of tourism in Waitomo began in 1887, when local Maori chief, Tane Tinorau, showed the Glowworm Cave to his friend, British surveyor Fred Mace. This meeting was unusual in this region, because throughout the nineteenth century there had been major clashes over land ownership between the indigenous Maori people and European migrants. Mace immediately notified authorities of the cave’s existence as he recognised that it, and its spectacular glowworms, could be important in replacing the world famous Pink and White Terraces in nearby Rotorua, which had been buried and destroyed by 20 m of mud from the eruption of Mount Tarawera the previous year. Noting the Government’s interest, the entrepreneurial Maori chief, Tane Tinorau, began guiding visitors through the Cave and by the end of 1890, 360 visitors had been escorted through the cave (Arrell, 1984). In those days, this experience was quite an adventure. One traveller wrote of the experience:

...the road was very bad... [At the cave] we were given a good supply of candles and rolls of magnesium wire, and we stumbled along on foot as well as the darkness permitted. Twenty minutes brought us to the side of a mountain where there was a small door fastened by a padlock... [After the cave experience]... we were all very hot and tired, as we had been walking for four hours without any rest (Massey, 1914, cited in Arrell, 1984, p. 26).

Following the discovery, the Government actively sought formal control of the Glowworm Cave. Not only was this evident in the oral histories, but also documented in a report to the government by the chief surveyor. Thomas Humphries noted, “The caves, if maintained in their present natural condition, will doubtless draw a constant stream of visitors... I fear that the natives will not be able to prevent it (from despoiling)... the Government should either purchase the site of the cave or in some way, with the consent of the natives, assume control and management of it” (Humphries, 1889). Despite years of unresolved

negotiation with the Maori owners, the Glowworm Cave was forcibly nationalised under the Scenery Preservation Act of 1903, which was widely understood to have been introduced solely to acquire the cave. This event was a major milestone in the history of Waitomo, as from this time the indigenous Maori people were slowly dispossessed of their land. Following Tane Tinorau's death in 1907, there was an acceleration of land confiscation under the Public Works Act for repatriation to European settlers.

By 1910, an embryonic destination had begun to develop, which included the Glowworm Cave, transport, accommodation and support activities in the form of a regular coach service, a blacksmith's shop, stables and a general store. Each of these products complemented the core activity. The Government (through the state Tourist Department) retained control of the core attraction, the Glowworm Cave, and the accommodation sector, with the purchase of a private boarding establishment in 1905 and the construction of the Government hostel in 1908, which still forms the old wing of the present Waitomo Hotel.

Fig. 1 portrays a structural diagram of the nodes and linkages of tourism supply in Waitomo in 1910. The nodes depict the organisations operating in the destination at that time, and the lineal connections portray the formal governance relationships between the suppliers. Although simple, a complementary production system is emerging to provide a comprehensive visitor experience. However, this is a low density network and the Tourist Department, with its control of the caves and accommodation products, assumed a central position, giving it a 'commander' role (Rowley, 1997). Because of the small number of nodes and connections, the Tourist Department was able to influence information flows, behaviours and stakeholder activities. This section ends at this critical point, noting the small destination system, but the pivotal position of the government. Will this central actor actively construct or constrain the future development of the embryonic network?

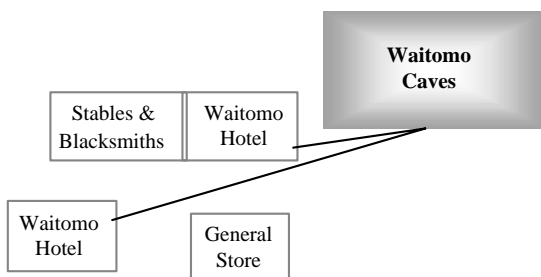


Fig. 1. The relational structure within Waitomo: 1910.

#### 4.2. Destination limitations 1911–1969

This section focuses primarily on the activities of the Tourist Department, as central actor in a low density network, and illustrates how it influenced the growth and development of the destination through its relational structure.

Recognition of the State's ownership of the Waitomo Caves tourism destination occurred with the official opening of the caves by the Minister of Tourism in 1911. It was at this point that the consolidation mandate became clear. The Minister was quoted as stating that he "hoped to see the Tourist Department pay its way (as the caves) had been rather unpopular owing to the cost" (Arrell, 1984, p. 39). Consequently, despite the Waitomo Tourist Caves being the most profitable of the Tourist Department's interests from 1910 to 1954, there was little further investment in the Waitomo asset. For example, a request for the installation of electric lights in 1911 because of the environmental damage from the candle smoke and wax was not implemented until 1926, at a cost of £1400 (Morgan, 1983).

Over these intervening decades, there were few structural changes to the destination and the village remained small with elementary supporting tourism activities. These included a postal agency in 1918, the Wattles Guest Lodge in the 1920s and the camping ground in the 1940s. There also were alterations to the hostel in 1928, aimed at inducing tourists to stay longer. Infrastructural support saw telephone lines installed in the Waitomo Caves village in 1910 and the state highway was tarsealed in 1931.

In 1957, the Tourist Department handed over control of its Waitomo operation (caves and hotel) to the Tourist Hotel Corporation (THC), a newly created government-owned hotel chain established to support tourism in out of the way places (Arrell, 1984). The creation of this new structure under the Tourist Hotel Corporation Act 1955 coincided with the emergence of mass global tourism, as international travel became progressively more accessible to the middle classes. By this time, the State had accepted responsibility for the provision and marketing of all the key tourism activities within New Zealand: transportation, travel agencies, and accommodation within the icon locations, as illustrated in Fig. 2. This 'strong' connectivity ensured that substantial benefits were realised and thus, Waitomo maintained its legitimacy as one of the primary icon attractions in New Zealand through its close governance association.

However, the directional flows of this relationship within the Waitomo destination were one-way, and this enabled the Government to exploit large amounts of revenue from the caves under THC governance. Indeed, in 1965, an editorial cartoon in a national newspaper asserted that "now on holidays about 1500 visitors

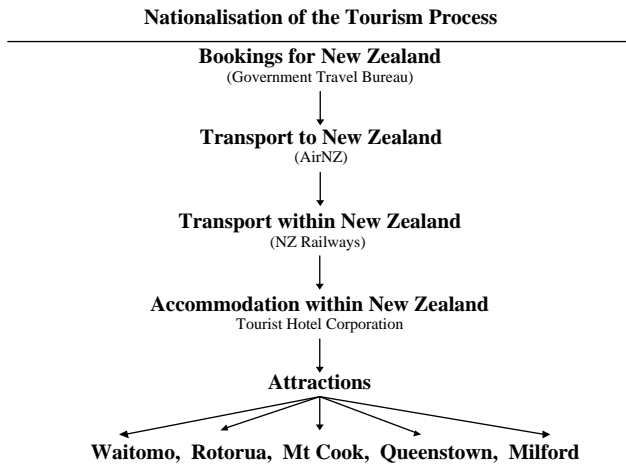


Fig. 2. External connectivity for the Waitomo destination.

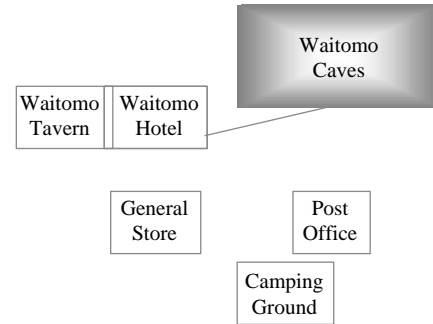


Fig. 3. The relational structure within Waitomo: 1969.

queue at the Waitomo Hotel each day to pay as much for their tickets as the caves cost” (New Zealand Herald, 1965). The sale too, of stalactites from the souvenir shop at the hotel to tourists did not cease until the 1970s. There was further evidence of exploitation within the hotel management practices, as a cave guide recollected those earlier days:

We were just workers, pawns, we just did the work. It was a typical old-school approach to how general managers ran hotels. There were separate areas where we ate along with the reception people. They didn’t even eat with us! So you had management, administration and then staff. THC had that policy right from the start, them and us. Their cash generation was very high, but we never saw any of it.

There was also evidence of activity to consciously constrain the broader network, as related by another research participant:

We had just bought a section and we had found a house for removal to put on it. The THC fought us against it. Their argument was that we would be a blot on the landscape, even though we were three kilometres away. I believe the real reason for their objection was because we were running a little caving trip and they were concerned that it could impact on the Glowworm Cave. It was bizarre.

Thus, throughout this period, there was little structural change in the tourism destination. Despite its environmental edict, the bureaucratic and hierarchical administrative practices of the governing agent focused on a narrowly defined agenda of revenue acquisition, which excluded environmental protection, reinvestment and local contributions. As the indigenous Maori people had earlier been displaced from involvement in the tourism industry through the confiscation of their lands, now too the local community were separated from

participation through the external sourcing of employment and supply inputs. The government agent, as central actor, operated within Waitomo with few relational ties, illustrated in Fig. 3. The formal governance connections have been reduced from those in Fig. 1 of 1910 and there was limited structural change occurring over those intervening years, as evidenced by the number of organisations existing in 1969.

The strategic implications of these limited network exchanges demonstrates how these actions restricted the development of the Waitomo destination. Because of the dominant position held by the THC, the other suppliers and community were so peripheral that they were unable to exert pressure, confirming Rowley’s (1997) observation that a ‘commander’ in a skeletal network has autonomy of action. In this instance, substantial benefits did accrue to the THC through its attachment to the institutional environment, but the benefits were not transmitted into the community and destination network. Investment, profit and control were directly returned to the government, and “the tourist system or infrastructure became separated from the rest of the culture and natural flow of life” (Cohen, 1972, p. 172). Crick (1989, pp. 316–317) too comments on these repercussions, stating that “where intersectorial linkages are weak, the multiplier effects in a developed system will not occur... rather the benefits, unlike water tend to flow uphill”. Thus, the Waitomo Caves remained a short-stay, single-attraction destination, with no product complementarity developing to entice visitors to stay longer.

#### 4.3. *The seeds of discontent 1970–1986*

While management of the destination during the years 1970–1986 remained essentially the same, the emerging dynamic and uncertain environmental turbulence created a hostile context for the increasingly inert THC. This third time phase outlines the considerable tensions that began appearing in Waitomo as a consequence of the separation of relational connections from the local community. The watershed year of 1970

begins this dialogue because it heralds the first hint of change.

Although small, this change began “at the hotel over a few beers”, after renovations at the hotel uncovered interesting historical pieces. Their need for conservation initiated discussions on the establishment of a fledgling museum. As a result, a specialist caves museum began in 1970 in two empty rooms within the hotel. It continued there for 6 years, until the local museum community sought more permanent space within the village. At this time, the THC became involved, ostensibly to reclaim favour from the negative press it had been receiving. A local resident confirmed, “There was a lot of public criticism of the THC’s running of the caves, particularly in the newspapers. So when we asked them to guarantee a loan of \$70,000 to build the museum building, they did”.

This single action, no matter how small, was the first relational connection that the THC supported in Waitomo. Nevertheless, it was the only cooperative activity that it endorsed in the community during its residence in Waitomo.

Public pressure regarding the inadequate management of the cave resource continued to be highly topical over this time. The local community, the Department of Conservation, national universities and other groups were all calling for greater accountability and responsibility over management of the icon cave resource. This pressure resulted in the formation of the Waitomo Caves Scientific Research Group in 1974, which began the process of collecting base-line data for managing the cave hydrology and climatic conditions that affect the cave ecosystem. The THC, for the first time, also appointed a caves manager with a scientific background. However, these incremental changes were overtaken by a critical event which exposed the extent of long term neglect. In April 1979, the glowworms “turned off” their luminescent lights. Since there was no tourist ‘attraction’ to experience, the Glowworm Cave was forced to close for four months. The cause was finally attributed to the THC replacing the original entrance-way with a grill door which changed the airflows within the cave and disturbed the glowworm ecology. This disaster resulted in the formation of the Waitomo Caves Research Committee, established to ensure a more systematic approach to scientific research of the karst environmental ecosystem.

The Waitomo Caves Hotel, also the THC corporate structure, continued to be managed as inefficiently as previously, as evident in this statement by a former cave manager:

In its last years, this hotel here was losing \$1000 a day. Unbelievable! We gave THC a lot of input, but they weren’t too keen on developing it and doing a lot of things to it. There was a five year period where

everybody knew the THC was ending, and it really got quite bad towards the end. It was very centralized and they had people in Wellington ordering our toilet rolls and stuff like that. Everybody would make bad jokes about it.

Nevertheless, the external environment was changing, and this turbulence created opportunities for local residents. A local farmer and part-time Glowworm Cave guide foresaw the growth in international visitors, and in 1975 he opened a small lunch restaurant on the family farm. While it was initially aimed at the American group market, its focus quickly moved to the more flourishing Japanese market (the first of the Asian group travel markets to arrive in New Zealand). The restaurant did well, “Nearly all the Japanese people who came to Waitomo ended up here for lunch and I think it was a fairly gradual steady growth, about 20% every year”. Its success stemmed, the restauranter believed,

...from offering a quality service that was better than the THC. The story we heard was that they could have 600–700 people down there booked for lunch. There would be about four staff on and at 2pm, because he was a public servant, a Government employee, the chef went home! And if there was no food left, it was tough luck sunshine!

By 1986, the Glowworm Cave had been operating as a major tourist attraction for 100 years and while a few complementary attractions existed within the area, a comprehensive tourism destination had never really developed. By the end of this period, the only capital development into Waitomo by the THC was the construction of a small shop, administrative facilities and toilet block in 1982 outside the Glowworm Cave, and while adequate for the 225,000 visitors at that time, there was no provision for the significant growth which was about to occur.

The distinctiveness of the caving environment and its associated glowworms enabled Waitomo to project itself as a unique visitor attraction. Over time, these repeated visitor experiences have built a stockpile of legitimacy and credibility, with these images and features within the attraction sector becoming the essence of the tourism experience as they act as the ‘pull’ factor for bringing tourists into the region. This situation is clearly evident from the data in that while there has been limited investment offered to the Waitomo Caves destination, it has maintained its icon status as a centrepiece of the New Zealand tourism experience.

Alongside its distinctive natural resources, were the beneficial strong ties with the State. As one of the icon tourism destinations, Waitomo enjoyed the visibility and legitimacy of this connectivity (Powell et al., 1996). However, there was no reciprocal resource flows: only a



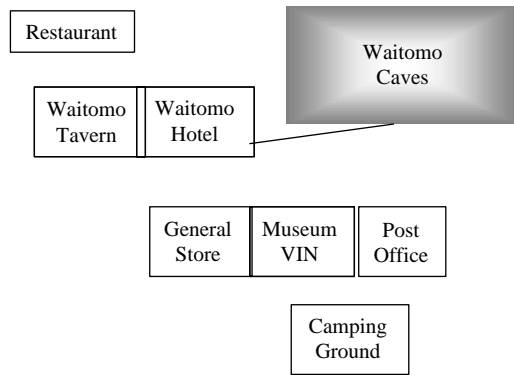


Fig. 4. The relational structure within Waitomo: 1986.

one-way flow of revenues out of the community. Coupled with restrictions on development and an exclusion of local community in decision-making, the number of connecting ties within the network was low, and the THC sustained its ‘commander’ role, which enabled it to resist any stakeholder pressure (Rowley, 1997). This central position in the network permitted the THC to continue its independent access to external information and to limit the access of others in the network to this information. As illustrated in Fig. 4, there were only two new businesses developed over this timeframe and the low density of interfirm linkages perpetuated. These actions confirmed how the THC’s domination through weak-tied connectivity was a structure-reinforcing process and sustained the slow incremental adaptation of the network (Madhavan et al., 1998). As a consequence, reciprocal information exchanges did not flow into the community within which it was embedded, highlighting how the detachment from community activities ultimately constrains social cohesion (Granovetter, 1985). This absence of connectivity confirms the THC’s active involvement in negatively structuring the development of the destination network.

#### 4.4. Emergence of the destination ecosystem 1987–2000

The dramatic growth in international visitors to New Zealand during the late 1980s, the inert state of the THC and the growing frustrations within the Waitomo Caves community all crystallised into major upheavals over the following decade—the most substantial in Waitomo since the beginnings of tourism 100 years before. These changes enabled development to occur from which a small network of product complementarity finally emerged. This section describes three critical external factors that facilitated changing structures in the destination. It begins in 1987 with the arrival of adventure tourism and concludes in the present day.

By the 1980s, the Glowworm Cave product had evolved into a soft tourism experience. The shorter 40-min tour was a response to pressure from the intersecting

tour operators who were keen to move their groups quickly through Waitomo and on to the more substantial Rotorua destination, two hours away. However, as the number of free and independent (FITs) and youth travellers to New Zealand suddenly increased, this passive stroll through the Glowworm Cave did little to either recreate or re-educate the adventurous spirit—the essence of the experience for these more ‘wanderlust’ travellers (Gray, 1970).

Nevertheless, with its unique limestone karst formations, its flora and fauna, the Waitomo Caves region offered splendid opportunities for participation in leisure, environmental and aesthetic experiences. These opportunities were soon appreciated by two local recreational spelunkers, one of whom had experimented with a fun trip that recreational cavers used to clean their clothes after caving. They foresaw the potential in commercialising this ‘laundry trip’, and after trialing it on backpackers staying at the local caving hut, they formed a commercial partnership, Blackwater Rafting (BWR), in October 1987. Suited out in wetsuits, the rafters and guide walked through native bush reserve and after entering the cave, floated down the river stream in inner tyre tubes and lanterns amidst the darkness and glowworms of the neighbouring capacious Ruakuri Cave. This new venture provided a more authentic and compelling personal experience and experienced rapid growth in its early years of operation. Twenty-two customers were guided through the cave in the first month, rising to 5657 after their first year and doubling to 10,953 in 1989. As the numbers grew, so did their need for administrative offices and the relationship with the museum became embedded as BWR rented office space within the museum building.

Shortly afterwards, a second adventure enterprise, Lost World, was initiated by a non-local person, who came to Waitomo expressly to develop the Waitomo Adventures tourism business. This product involved a 100-m abseil into the cave shaft, followed by a 400-m ascent out of the cave. This organisation too shared the booking space and office at the museum. The operator related, “The museum had some empty space, so we leased alongside BWR: offices and desk space downstairs and we share equipment, faxes, photocopiers, computers that type of thing”. This arrangement ensured close informal relationships between the competitor organisations and the museum in their formative years. Both organisations have since established independent operational bases.

A third adventure operation, Waitomo Down Under, officially began its operations on 1 July 1992. This trip was a cave tubing trip in direct competition with the BWR product and was a conscious effort to target the established market. Being part of the local Maori community with interests in communal land ownership, Waitomo Down Under was able to use these lands as a

base for operations and employ cave guides from their respective families. This operator stated, “We take considerable pride in that we have been able to provide employment and give our people a purpose in what they do”.

Very soon people started to come to Waitomo solely to do these adventure trips, which were described as “changing the nature of tourism in Waitomo as they brought back overnight stays”. In 1996, 50,000 people came to Waitomo to participate in adventure caving.

The first support activity to form during this early time was accommodation provided by a local farmer, who would allow backpackers to stay in his home. After building a separate lodge, he soon diversified into offering horsetrekking activities. Other support enterprises too were developed over these years to extend the destination stay. A guest lodge with six motel units, a part-time canoe caving operation was started by a former BWR guide, and an agricultural pioneer show with jet-boating activities also appeared. Others diversified with an angora-rabbit farm and a pre-Maori model village, which has since closed down. The campground and the general store have undergone significant redevelopments.

These new enterprises complemented the core adventure experiences, adding value to the ‘pull’ factor of a longer stay tourism destination, and an ecosystem of interdependence began to develop. For the first time, multiple exchange relationships began occurring in the destination as visitors were passed from one supplier to the next.

The second major impact on the Waitomo destination was the ‘revestment’ of land. On 14 June 1990, 20 ha of land was returned to the families of the earlier Maori landowners as part of the settlement of land claims under the Treaty of Waitangi. This land was a portion of the original land confiscated in 1903 and included the subterranean Glowworm Cave, the THC hotel land and \$1 million compensation. Thus, for the first time since the land confiscations in 1903, Maori began to be involved in the tourism industry again.

Third and finally, the State sold its interest in the Caves and Hotel. In 1990, the Labour Government sold the THC chain of hotels to an American owned company, the Southern Pacific Hotels Corporation (SPHC) for \$74 million. While SPHC inherited both cave and hotel, a full working contract was not finalised with the Maori land owners until 1994. In 1996, the Cave lease was later on-sold to Tourism Holdings Limited, a dominant organisation in the New Zealand tourism industry. While Tourism Holdings core business was originally transport, their focus now centred on moving people in and out of their key tourism attraction areas, which included Milford, Mt Cook, the Waitomo Glowworm Cave and Kelly Tarlton’s in Auckland.

#### 4.5. *The Waitomo Caves village in 2000*

By the year 2000, the Waitomo Caves destination comprised of 12 formalised businesses and other part-time hobby interests. While the population of this village remained constant at 300 people, 200 full-time equivalent jobs were now located within Waitomo (Waitomo News, 1999). The core Glowworm Cave product remained the icon attraction, but the adventure caving products have created a new market complementing the core activity and providing important secondary nodal positions within the network. More recently, other activity products have emerged to extend the destination attractiveness: horse riding, cave canoeing, four-wheel drives, a pioneer heritage show and an angora rabbit attraction. While these are more peripheral players in the structural arrangement, they are complementors to the destination system. This transformation to a networked community-based destination is significant for four reasons.

First, the provision of these activities was initiated by small locally based enterprises and it is this diversity that forms the basis of strategic advantage, as opportunities to leverage local distinctiveness and character into product innovation differentiates local suppliers from standardised mainstream packages. With the essential element of the tourism system being the activities, the features that appeal to non-resident visitors that ‘pull’ them to that particular destination, the local innovations become the backbone of the destination region. Kogut (2000) posits that an essential principle underlying network structures is their stronger effectiveness for containing both the specialisation attributed to small firms while retaining the diversity of markets. Thus, there is a production composition in networks that enables growth through product specialisation and market diversity (Powell, 1990). By adding diversity, partners’ strengths can compensate for others’ weaknesses, which enables a more comprehensive range of activity than if either tie existed alone (Uzzi, 1998). Thus, product interdependence has necessitated the trading of information and exchange activities between varied and multiple nodal partners, and this synergistic coupling has created collective images which brand the destination macroculture. It is this process which assists in developing the essence of a more durable and strategic system advantage around which the destination brand is framed.

Second, the emergence of adventure caving accelerated a growth in varied product offerings which generated a ‘radical’ structural change within the destination (Madhavan et al., 1998), and the ‘commander’ role engendered by the THC was exchanged for a proliferation of smaller organisational structures. Thus, alongside the enduring but independent Glowworm Cave attraction, was now the interdependent adventure

market which required a fluidity of ‘comings and goings’ between partners, as earlier propositioned by Greffe (1994). This process prompted multiple exchanges between these suppliers, and for the first time information was being traded readily within the destination. The structural implication of this change was a redistribution of ‘centrality’. Thus, the Glowworm Cave organisation no longer controlled the information exchange process, and there were now, for the first time, high levels of independent information access between the other organisations, and lower levels of control by individual organisations within the network. The significance of these ‘strong-tie’ interconnections becomes evident in Fig. 5, which identifies the organisations operating within Waitomo in 2000. This more complex network structure with multiple nodes enables a structural choice that limits the extent of constraint an individual organisation may proffer within the network. This gives the network flexibility in its operating conditions, a

consequence of which is a greater control of the structuring process occurring at a local level. This figure illustrates the multiple linkages and exchanges between businesses, and can be compared with earlier diagrams demonstrating limited flows. As can be seen, this mass of linkages forms a complex set of exchanges, and the implications of these will be discussed in the following sections.

The third important contribution describes the architectural implications of the ‘weak-tie’ connections. With the current destination structure now having multiple organisational nodal positions, each node offers the network access to independent external ‘weak-ties’. Each of these nodes has the potential to bridge ‘structural holes’ (Burt, 1992), and thus can bring new information into the destination that others may not have linkages to. This connectivity has enabled the destination independent access to multiple sources of information, rather than its earlier dependence on the constraining centrality of the THC. The multiplicity of these nodes can be compared to the earlier lineal exchanges within the THC-governed structure, and their advantages stem from the many and varied informational opportunities that may be leveraged at both an organisational and a destination network level. Fig. 6 shows the extent of ‘weak-tie’ connections that now exist within this destination structure, the implications of which will be described in the following section.

The final contribution combines both the benefits of the strong and weak-ties, in that together they build the foundation of knowledge-based capabilities for the destination. While it is not argued that Waitomo has achieved an optimal portfolio of both strong and weak ties, it is contended that the structural configuration has dramatically transformed to begin the process of

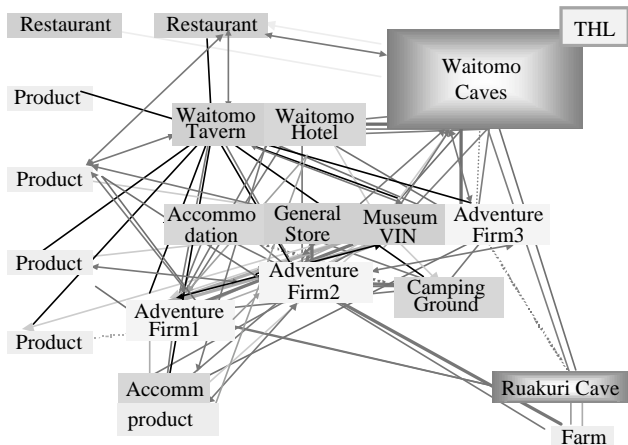


Fig. 5. The relational structure within Waitomo: 2000.

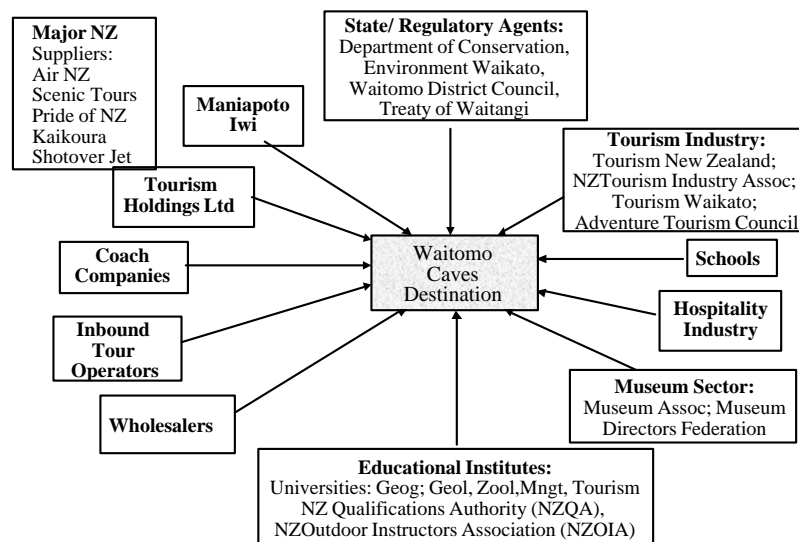


Fig. 6. External weak-tie connections with Waitomo.

knowledge development. This section briefly illustrates the collaborative processes occurring around the groupings of Aboveground Landcare, Adventure Risk Management, Waitomo Caves Marketing and Underground Karst Management, through the integration of local strong-ties and weak-tie partners. These collaborative activities build on the earlier three contributions of destination distinctiveness, strong ties exchange mechanisms and weak-tie informational opportunities which together have assisted in developing networked-based capabilities, formed by mutual interdependence. The linkages in Fig. 5 are related to the dynamics underpinning these capabilities.

#### 4.5.1. Above-ground landcare

The most robust of these capabilities is the above-ground Waitomo Landcare Group. The Waitomo Landcare Group was formed in 1992. Facilitated by the Regional Council, Environment Waikato, the group included the local farming community, tourism operators and other community members. Its purpose was “to protect the Waitomo Caves system from sedimentation and enhance them through appropriate and sustainable land management practices” (Environment Waikato, 1996, p. 8). Collaboration among these internal and external stakeholders included fencing off the waterways and forest replanting programmes, primarily to improve water quality for sustaining glowworm populations and the cave environment. This stakeholder group has been promoted nationally as a ‘best practice’ example of a Landcare group (Environment Waikato, 1998). Its initial purpose of improving the longevity of the karst environment has been achieved, and the participation of the community has resulted in widespread consensus and acceptance of the physical land management practices.

This collaboration illustrates some degree of structural optimisation, with Environment Waikato playing a central role in pulling together the local strong ties. Together they have developed internationally recognised expertise in aboveground land management practices of karst regions (Smith, 1999). The involvement of strong and weak ties has embedded this knowledge into the organisational practices of both community and commercial enterprises, thus making it a relational quality residing in the destination network structure.

#### 4.5.2. Adventure risk management

Remembering that these cave environments are dark, cold, wet and often confined spaces, the ability to manage these potentially risky and dangerous situations requires an advanced standard of guiding to ensure client safety. The adventure caving organisations in Waitomo have been proactive in assisting in the structuring of adventure tourism in New Zealand. Indeed, the local strong ties have been instrumental in

improving systems and processes within the destination, and then taking them into the broader institutional context. The Waitomo organisations are active within the New Zealand Adventure Tourism Sector, the Outdoor Instructors Association and assist in providing standards and training programmes for the national New Zealand Qualifications Authority. These informational flows are built within the destination through informal processes: discussions by operators in the local tavern, the transfer of guides from one organisation to another, interactions between guides in social contexts. Formal mechanisms also exist with the formation of a ‘Rescue Team’. These specialist guides from the adventure caving organisations work together in emergency situations—most commonly arising from recreational cavers getting into trouble. Thus, the interactions among these strong ties are critical to building knowledge-bases related to this capability, as they recognise the mutual interdependence they have on the destination reputation. Again, the development of this capability only occurred since the network was formed, and yet these interactions have formed an intense knowledge-base recognised in the external context.

#### 4.5.3. Waitomo Caves marketing

A third area of capability-building occurs around marketing. These interconnections are structured in three ways. First, there is the Destination Waitomo Group, which involves local operators. The main focus of this group is to reach domestic marketing channels. Second, the association with THL brings benefits to the Waitomo destination. As licensee of the Glowworm Cave, this organisation has dominance in the New Zealand tourism industry and thus it brings many legitimacy benefits to Waitomo. Its connections with major operators such as Air New Zealand and Tourism New Zealand mean that much of the destination’s marketing occurs through these rich ‘weak-tie’ connections, assisted by its icon status. The structuring that occurs through these three collaborative activities involves a concertina process of internal and external ties. While not argued as inimitable, the bundling of these ties assists in its external legitimacy.

#### 4.5.4. Underground Karst management

Finally, a fourth area of emerging collaboration that has not yet attained an integrated focus, is that of underground environmental management. While there has been access to ‘weak-tie’ external knowledge for decades, the restrictive administration practices of the central actor stymied any development of knowledge-building in this area. Committed investment into processes, practices and analysis of underground cave management has only occurred over the last 5 years. Currently, other members of the community, such as tourism operators using other caves, are becoming

involved. Together these organisations are endeavouring to form a system of managing the interdependent karst context—humidity, glowworms, carbon dioxide levels—building a data-base of systems, practices and experiences that can restore the environmental habitats. These linkages are primarily internal ties, and again the limited nature of these ties demonstrates the absence of flow in building strategic capabilities.

These brief accounts demonstrate the importance of a portfolio of interconnections for knowledge building within destination networks. It is these structural dimensions and the performance implications of these architectural patterns that suggest that Waitomo, while remaining small, is in the process of developing a more strategically oriented destination system. The data illustrated the limited growth that occurred when there were few linkages between organisations. It also described how the network structure offered multiple nodes of informational access and exchange mechanisms, which together enabled the integration of information exchanges for building competitive advantage processes within the network. Thus, network structures have knowledge-based properties that belong to the interdependent collective group, and no single organisation has control or ownership of these properties. This makes the network structure more adaptable and flexible which assists its ability to grow and perform.

## 5. Conclusion

As destination competitiveness becomes increasingly critical in the global economy, so does the focus on understanding how collective interorganisational relationships and partnerships are formed and managed, and how they evolve over time. This paper has offered a case-specific illustration of this process using network theory as a lens for investigation. The theoretical contribution from network theory is that it offers a causal explanation of organising through examining the architectural patterns of relational systems. Thus, it argues that relational systems constitute a framework or structure that can be studied and analysed in their own right. In this way, the properties of each actor can be classified within an architectural pattern of a larger relational system. This approach is highly relevant to studies of tourism destinations, as they are constructed from multiple supplier activities crossing many types of businesses and sectors. It is this clustering and diversity of complementary components that forms the destination system to provide for the tourist experience. Within this paper, the use of network theory illustrated how limited relational ties within the destination contributed to limited resource and information flows. As the focal organisation had greater discretion over its actions, it played a critical role in either facilitating or constraining

destination development. With the transformation of the destination network, the proliferation of relational ties contributed to more intensive information exchanges that assisted in knowledge creation being transferred throughout the interdependent system.

For practitioners, this paper demonstrates the need for organisations to have a portfolio of network-oriented relationships (strong supportive ties), and external partnerships (to source new and current information opportunities). This portfolio requires structural configuration depending on the density of the network and its centrality position. Finally, this research enables us to understand the importance of relational connectivity with networks. It points to the need for further research in understanding how this connectivity and process of information exchange can assist organisations in building stronger coherency within destination networks and beyond.

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