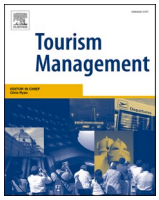
Tourism Management 88 (2022) 104402

Contents lists available at ScienceDirect

Tourism Management

journal homepage: www.elsevier.com/locate/tourman



Effects of network relations on destination development and business results

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ARTICLE INFO

Keywords:
Business relationships
Relational benefits
Destination development
Multiplex network
Social relations model

ABSTRACT

Taking a firm perspective, this study investigates cooperation in a destination network in a mountain village in Norway. 51 organizations participated in a survey, indicating their main cooperation partners and assessing the value of each cooperation in terms of ten intermediary benefits (increased sales, reduced costs, etc.) and two ultimate outcomes (business results, destination development). Firms perceived a cooperation to contribute to business results if the cooperation had led to increased sales or made the firm more resilient to market fluctuations. Firms perceived a cooperation to contribute to destination development if the cooperation had led to new knowledge, improved customer satisfaction, and hat not simply helped improve operations. The findings demonstrate the interconnectedness of intermediate and ultimate relationship outcomes on firm and destination level. The study contributes to a more comprehensive understanding of network relations, relevant to the literature on relational benefits and destination development.

1. Introduction

Firms expand their boundaries and engage in external relationships to achieve benefits that will increase firm performance (Giuliani, 2013; Parmigiani & Rivera-Santos, 2011). Each firm participates in several cooperative dyads, and for any given dyad, several relationship outcomes can be distinguished. Some of these contribute to increased revenues, for example by enabling the focal firm to develop new products, enter new markets or increase sales to existing customers. Others may help a firm reduce costs, for example by enabling it to negotiate shorter delivery times with suppliers and thereby reduce inventory. Both relationship outcome types can improve the bottom line of a business. These are standard topics in the management of supply chains and marketing channels and, in principle, no different in the case of tourism. However, if one adopts a local perspective and focuses on the businesses at a particular tourism destination, network effects and interdependencies between relationship outcomes become a central issue (Sainaghi & Baggio, 2017; Pavlovich, 2003; Scott, Cooper, & Baggio, 2008; Tinsley & Lynch, 2001).

Tourism destinations can be understood as local co-producing systems where actors carry out complementary activities (Haugland, Ness, Grønseth, & Aarstad, 2011; Novelli, Schmitz, & Spencer, 2006). The actors are interdependent and need to coordinate their activities to provide what tourists often perceive as "one product". Hence, the success of the destination is tied to the success of the individual firms. A prosperous destination, in turn, brings further opportunities to the individual firms (Merinero-Rodríguez & Pulido-Fernández, 2016; Aarstad, Ness, & Haugland, 2015). Neither the interrelatedness of relationships resulting from firms' concurrent participation in several cooperative dyads, nor the reciprocity between the firm and network/cluster levels, have been adequately examined in the literature.

Embracing interdependency across actors and levels, the aim of this study is to explore how a firm assesses the value of different dyadic relationships in creating positive outcomes for the firm as well as for the

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https://doi.org/10.1016/j.tourman.2021.104402
Received 26 May 2020; Received in revised form 5 July 2021; Accepted 20 July 2021
Available online 29 July 2021

destination where it resides.

2. Benefits, outcomes and relationship complexity

In their 1998 article, Dyer and Singh introduced the relational view by proposing dyads and networks as distinct units of analysis of firm performance, claiming that value-creating benefits were based on "complementary resources and capabilities, relation-specific assets, knowledge-sharing routines, and effective governance" (Dyer & Singh, 1998, p. 663). Since then, the relational view has been discussed in numerous articles, of which only a small fraction actually discuss the outcome of these potentially value-creating relational benefits (Dyer, Singh, & Hesterly, 2018; Merinero-Rodríguez & Pulido-Fernández, 2016). In a recent article the authors criticized their original framework for not considering how cooperation, value creation, and value capture unfold over time. As relationships develop, partners can find that complementarity of resources diminishes or increases, thereby changing relational benefits and value-creating capacity (Dyer et al., 2018). In some situations, relational dependence can turn initial benefits into costs (Street & Cameron, 2007). Also, an illusion of satisfaction may develop, preventing a firm from realistically assessing the costs and benefits of its relationships (Murray, Holmes, & Griffin, 1996). This study adds to this literature by taking a multiplex perspective, assuming dependency between the intermediate-benefit and the ultimate-outcome relations in the destination network.

Value-creating benefits frequently figure as motives of firms to engage in external relationships. In the tourism literature, relationships have been found to generate organizational learning, social capital and beneficial community strategies (Wang, Zhao, Li, & Li, 2015), create and diffuse shared knowledge (Lemmetyinen & Go, 2009), and more integrated tourist experiences (Denicolai, Cioccarelli, & Zucchella, 2010). In related studies of effects of external relationships on small and medium sized enterprises (SMEs) in other contexts, two types of benefits to firms have been distinguished (Street & Cameron, 2007): first, benefits associated with organizational development, including access to resources, social support, access to information/knowledge/other networks and resource pooling. Second, benefits affecting competitive forces, including arrangements related to competitiveness, economies of scale/scope, increased control (less dependence and uncertainty), and on the negative side, the inherent dangers of being swallowed by more powerful partners. Later studies have reported similar results (Lin & Lin, 2016; van der Zee & Vanneste, 2015; Veflen, Scholderer, & Elvekrok, 2019). These are all intermediate benefits helping firms to achieve eventual success (Olsen, Elvekrok, & Nilsen, 2012). However, the connection between intermediate benefits and ultimate outcomes (i.e., value creation) remains largely unstudied (van der Zee & Vanneste, 2015).

Firm relationships are not only important for individual firms, but also for the networks or local economies in which they are embedded (Chetty & Agndal, 2008; Gordon & McCann, 2005). Hence, both dyadic and system-wide effects of relationships needs to be addressed (Mizruchi & Marquis, 2006). A few studies investigate the multilevel influence of business relationships among hotels. Alonso (2010) conducted a case study based on interviews with hotel managers in Perth. He found that collaboration among the on-site hotels positively influenced ultimate performance of both the hotels and the destination. In a study aiming to assess the relative importance of firm and location effects on hotel performance in Spain, Molina-Azorin, Pereira-Moliner, and Claver-Cortés (2010) found both to be significant. However, the firm effects, operationalised in terms of the internal resources and capabilities of the firm, were more important than the destination effects. In a later study, Peiró-Signes, Segarra-Oña, Miret-Pastor, and Verma (2015) found that hotels located in tourism clusters performed better than others in terms of profitability. All three investigations are limited to the accommodation sector.

To improve our understanding of the complexity of dyadic relationship outcomes for geographically proximate SMEs, this study include more than one type of actor and investigate those actors' perceptions of outcomes. Furthermore, to understand the effects of relationships on firm or network success, the contributions of intermediate

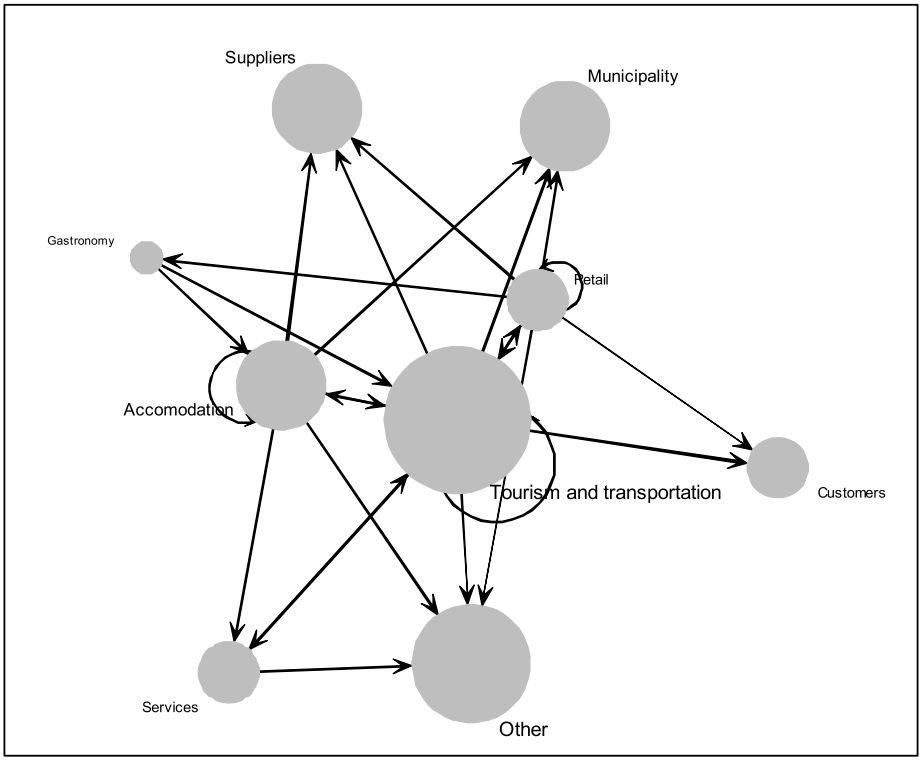

Fig. 1. Fruchterman-Reingold plot of cooperating actor nominations, weighted by the perceived contribution of the dyadic relationship to satisfactory business results (arrow width proportional to edge weight; circle size proportional to indegree).

benefits to ultimate outcomes is investigated.

3. Methods

3.1. Approach

We regard two network relations as ultimate success indicators for a network of locally related businesses. From the point of view of an individual firm, the ultimate success criterion is whether cooperation with other actors in the network has contributed to the firm's results. From the perspective of the firm as part of the local economy, the primary criterion is whether such cooperation has contributed to the development of the local cluster (economy). All other network relations can be regarded as means to these ends.

We model the degree to which actors consider cooperation with other actors in the network to have contributed to these two ultimate network outcomes by a generalization of the social relations model (Warner, Kenny, & Stoto, 1979). The social relations model attempts to separate the effects of individual actors and dyads, and it considers social behavior to operate simultaneously at multiple levels (Kenny & La Voie, 1984, 1985). The generalization of the originally linear model was developed in a series of papers by Hoff (2005; 2009) and Hoff, Fosdick, Volfovsky, and Stovel (2013). It is parameterized as a generalized linear mixed model in which the linear predictor has the form

$$\eta_{sr} = \boldsymbol{\beta}^{\mathrm{T}}\mathbf{x}_{sr} + a_s + b_r + \gamma_{sr} + \mathbf{u}_s\mathbf{D}\mathbf{v}_r^{\mathrm{T}}, \quad (1)$$

where η_{sr} is the value of the linear predictor for the edge that links the sth sender to the rth receiver in a network relation predicted by the model (here, the two ultimate-outcome relations), $\boldsymbol{\beta}$ is a vector of regression coefficients, and $\mathbf{x}_{sr}$ is a vector of edge weights linking the sth sender to the rth receiver in terms of a set of other relationships (here, the intermediary-benefit relations) that serve as predictors in the model. Furthermore, a_s is the random intercept of the sth sender ("activity"), b_r is the random intercept of the rth receiver ("prominence"), γ_{sr} is their dyadic random effect ("reciprocity"), and $\mathbf{u}_s\mathbf{D}\mathbf{v}_r^{\mathrm{T}}$ is a singular value decomposition of higher-order dependencies (such as transitivity, balance, and clustering) into multiplicative sender and receiver random effects. The linear predictor is related to the expected values of the observed data via the inverse of a monotonic link function g:

$$E(y_{sr}|a_s, b_r, \gamma_{sr}) = g^{-1}(\eta_{sr}). \quad (2)$$

The random part of the model captures the dependence structure in the data. To avoid overly restrictive assumptions, a relatively complex parameterization was chosen for this study. The activity and prominence effects a_s and b_r model first-order dependencies in the data. Their joint distribution is assumed to be multivariate normal with zero means and an unstructured covariance matrix $\mathbf{G}$. All dependencies in the data that are not captured by a_s and b_r are modeled in a residual covariance matrix $\mathbf{R}$. Second-order dependencies among the residuals are modeled by the reciprocity effects γ_{sr}, assumed to follow a multivariate normal distribution with zero means and a compound-symmetric covariance matrix, in which the off-diagonal elements are parameterized as $\rho\sigma_c^2$. The factor ρ in this product is the dyadic correlation. Higher-order dependencies among the residuals are modeled by the factor-analytic structure $\mathbf{u}_s\mathbf{D}\mathbf{v}_r^{\mathrm{T}}$. Hoff (2009) has shown that even a low-rank factor-analytic approximation (typically with a rank of two or three) is sufficient to capture higher-order dependence patterns such as transitivity, balance, and clustering in a network. Due to space constraints, we cannot report detailed modelling results for higher-order dependence patterns. The reader is referred to Figs. 1 and 3 and the qualitative interpretations in Sections 4.1 and 4.3.

3.2. Procedure

The study is set at a winter tourism destination in Norway. The population is defined as all organizations (private and public sectors) with business activities related to tourism. Most firms are SMEs, many of them family-owned. A survey concerning the characteristics and outcomes of their valued business relationships was distributed among the relevant organizations and contacts within these organizations. They were identified using the following procedure. The first step was to get an overview of all businesses registered at Statistics Norway (SSB) with office addresses within the physical destination area. The second step was to go through the lists manually, highlighting companies registered as having activities in the tourism, trade or service industries. Next, two researchers with a thorough knowledge of the local tourism industry worked through the lists to weed out businesses that had ceased to trade, lay dormant or were non-commercial. Firms that were registered as several entities when they should be regarded as one firm were merged. Finally, the list was compared with the destination association's list of members, and companies not registered locally but active at the destination were included. At the end of the procedure, 71 unique companies were on the list. All identified contact persons were invited to participate in an online survey. 51 accepted the invitation, yielding a response rate of 72 %.

To avoid biases related to network boundary specification and non-response by individual organizations (Kossinets, 2006), we chose a partial-pooling approach. Individual organizations were aggregated to categories of organizations (for details, see Section 3.3.). In this approach, the individual organizations within each category are regarded as exchangeable. The vertices representing the categories in the network can be understood as representing the "average organization" within the respective category.

The survey began with a series of questions about the organization that the respondent represented. The participants were asked to assign themselves to one of the predefined business sectors, to report memberships of predefined business and tourism associations, and to specify general facts such as number of employees and firm growth in the previous three years. In the second section, respondents were first asked to identify the public and private sectors in which their organizations had collaboration partners. Then they were asked to identify up to six of their most important collaboration partners. In the third section, participants were asked to characterize each of these relationships in more detail, including sector and location of the identified organization, frequency of contact (ordinal, converted to metric responses before

Table 1
Descriptive statistics.

Items	*N*	*M*	*SD*	Kurtosis	Skewness
How would you characterize your business's relationship with this business? (quality)	51	4.06	1.605	-.069	.309
The relationship has:	51	4.37	1.095	-.232	1.928
· Helped reduce our costs					
· Had a positive effect on customers' perception of our products and services	51	5.20	1.077	.391	-.710
· Helped us differentiate ourselves from the competition	51	4.88	1.052	.458	-.249
· Resulted in new products and services	51	4.88	1.107	.609	..254
· Contributed to the development of new knowledge and expertise	51	4.86	1.020	.403	-.225
· Helped us enter new markets	51	4.63	1.148	.293	-.064
· Contributed to our routines and procedures becoming more effective	51	4.25	1.055	-.433	1.647
· Made us better able to meet the rise and decline of the market	51	4.45	.966	.768	1.739
· Helped to increase our sales	51	4.92	1.146	-.090	-.033
· Contributed to business results	51	4.73	1.097	.009	.755
· Contributed to the development of (place) as a tourism destination	51	5.00	1.327	-.749	.946

analysis), perceived strength of the relationship (Likert, 7-point), and evaluations of the outcomes of the relationship in terms of contribution to the attainment of a total of eleven goals. The measures used in the study were inspired by measures developed in a study of networks in the food sector (Olsen et al., 2012). Descriptive statistics are shown in Table 1.

3.3. Representation as a weighted multiplex network

Vertices. In the first and second parts of the survey, participants had been asked to identify the organizations they represented. Many participants referred to whole groups of organizations (e.g., "customer panels" or "service companies"). To represent participants' organizations and those of their collaboration partners on symmetric levels of aggregation, and to avoid biases related to non-response (see previous sections), all organizations and groups of organizations were categorized in terms of their public or private business sector whenever these could be identified (accommodation, gastronomy, municipality, retail, services, or tourism and transportation), in terms of role categories when only these could be identified (customers, suppliers), and as miscellaneous (other) when no specific classification was possible. These nine categories define the labelled vertex set in the network analysis.

Edges. The raw survey data can be represented as a nomination network with up to six possible nominations per participant. However, after aggregating into categories, the maximum number of nominations per category is proportional to the number of participants who have been aggregated in that category. As a consequence, the in-degrees and out-degrees of the vertices in the aggregate nomination network can no longer be regarded as meaningfully comparable measures of centrality. To compensate for this, a valued network representation (with edge weights) was used. The weights were calculated from the 13 relations measured as attributes in the second part of the survey.

Relations and edge weights. Measures of frequency of contact, relationship strength, new knowledge and competences, improved operations, reduced costs, increased customer satisfaction, better differentiation, new products and services, access to new markets, resilience to market fluctuations, increased sales, satisfactory results, and contribution to destination development were collected or each organizational collaboration indicated by the participants. To obtain a meaningful and comparable metric, all 13 attribute measures were then normalized to the [0, 1] interval. The values 0 and 1 were assigned to the minimum and maximum possible values on the original scale, respectively. The normalized values were then averaged across all participants who had been aggregated in a particular category. Note that this particular weighting scheme leads to the absence of a link in the adjacency matrix whenever a normalized weight of zero is assigned to an edge for a given relationship, even though the edge may exist in the adjacency matrix of the unweighted network.

4. Results and discussion

4.1. Contribution of dyadic relationships to satisfactory business results

In the first step of the analysis, the degree to which members of local business sectors considered their cooperation with members of other local business sectors to have contributed to the business results of their organizations were investigated. Fig. 1 shows a Fruchterman-Reingold plot of the valued graph of the target relation. The arrow width is proportional to edge weight, and the arrow direction signals who (sender) nominates the relationship with whom (receiver) as important. The circle size is proportional to in-degree, or the number of actors who categorize the relationship as important. The "brokers" in the network of relationships are in the center of the web, while those that only nominate or are only nominated are on the periphery.

A central position in the plot indicates a central position in the network or web of actors. Even though they have less importance in the network, peripheral actors may be of great importance for single actors. In this network, the relationship partner category considered most important for business results is the tourism and transport sector, followed by a large group of others. Also, the municipality, the accommodation sector, and the suppliers represent relationships which a considerable number of firms perceived as contributing to their business results. Not surprisingly, tourism, transport, and accommodation act as "brokers" in the network, contributing to others' business results and simultaneously receiving contributions from others. However, also the service and retail sectors have a broker role (despite being smaller in size), illustrating the importance of "non-tourism" firms in tourism networks.

Table 2
Effect of intermediary relationship outcomes on perceived contribution of relationship to satisfactory business results: posterior means of regression coefficients, random effect covariances, and dyadic correlation (ordinal generalized social relations model; Bayesian MCMC estimation with 10,000 burn-in iterations and 10,000 MCMC iterations).

Regression coefficients of dyad-level predictors	$M(\beta)$	$SD(\beta)$	Z	p
Frequency of contact	.310	1.858	.167	.867
Relationship strength	−3.997	2.562	−1.560	.119
New knowledge and competences	−3.243	4.054	-.800	.424
Improved operations	2.461	4.303	.572	.567
Reduced costs	.938	3.405	.275	.783
Increased customer satisfaction	.330	6.237	.053	.958
Better differentiation	1.440	7.223	.199	.842
New products and services	−4.059	3.559	−1.141	.254
Access to new markets	−1.043	3.066	-.340	.734
Resilience to market fluctuations	**8.611**	**4.244**	**2.029**	**.042**
Increased sales	**9.218**	**4.472**	**2.061**	**.039**
Covariance matrix of random effects	**Sender**	**Receiver**		
Sender	.534			
Receiver	-.010	.432		
Dyadic correlation	.000			

4.2. Relationship between intermediate benefits and business results

To assess whether the perceived "ultimate" relationship outcomes systematically depended on perceived "intermediate" relationship benefits (e.g., new market opportunities and product innovations) ordinal version of the generalized social relations model (Eq. (1)), with the rank-transformed normalized edge weights on the "satisfactory results" relationship as the dependent variable y_{sr}, and the inverse quantile function of the standard normal distribution as the link function were specified:

$$\mathbf{\Phi}^{-1}[rank(y_{sr})] = \boldsymbol{\beta}^{\mathrm{T}}\mathbf{x}_{sr} + a_s + b_r + \gamma_{sr} + \mathbf{u}_s\mathbf{D}\mathbf{v}_r^{\mathrm{T}}. \quad (3)$$

The variables in $\mathbf{x}_{sr}$ were the normalized edge weights on the following relations: development of new knowledge and competences, more effective routines and procedures, cost reductions, more positive perception of products and services among customers, better differentiation from competitors, new products and services, access to new markets, better ability to cope with ups and downs in the market, and increased sales. Models with eight different residual covariance structures were estimated. These differed in terms of the dyadic correlation parameter ρ (either fixed at zero or estimated as a free parameter) and the rank of the factor-analytic approximation $\mathbf{u}_s\mathbf{D}\mathbf{v}_r^{\mathrm{T}}$ of higher-order network dependencies (either rank zero, one, two, or three). All models were estimated using the Bayesian Markov chain Monte Carlo (MCMC) algorithm for ordinal relational data by Hoff et al., 2013 with 10,000 burn-in iterations and 10,000 MCMC iterations.

The models were compared in terms of four goodness-of-fit criteria: the mean squared error of the predicted number of triangles, the mean squared error of the predicted reciprocity fraction, the Kolmogorov-

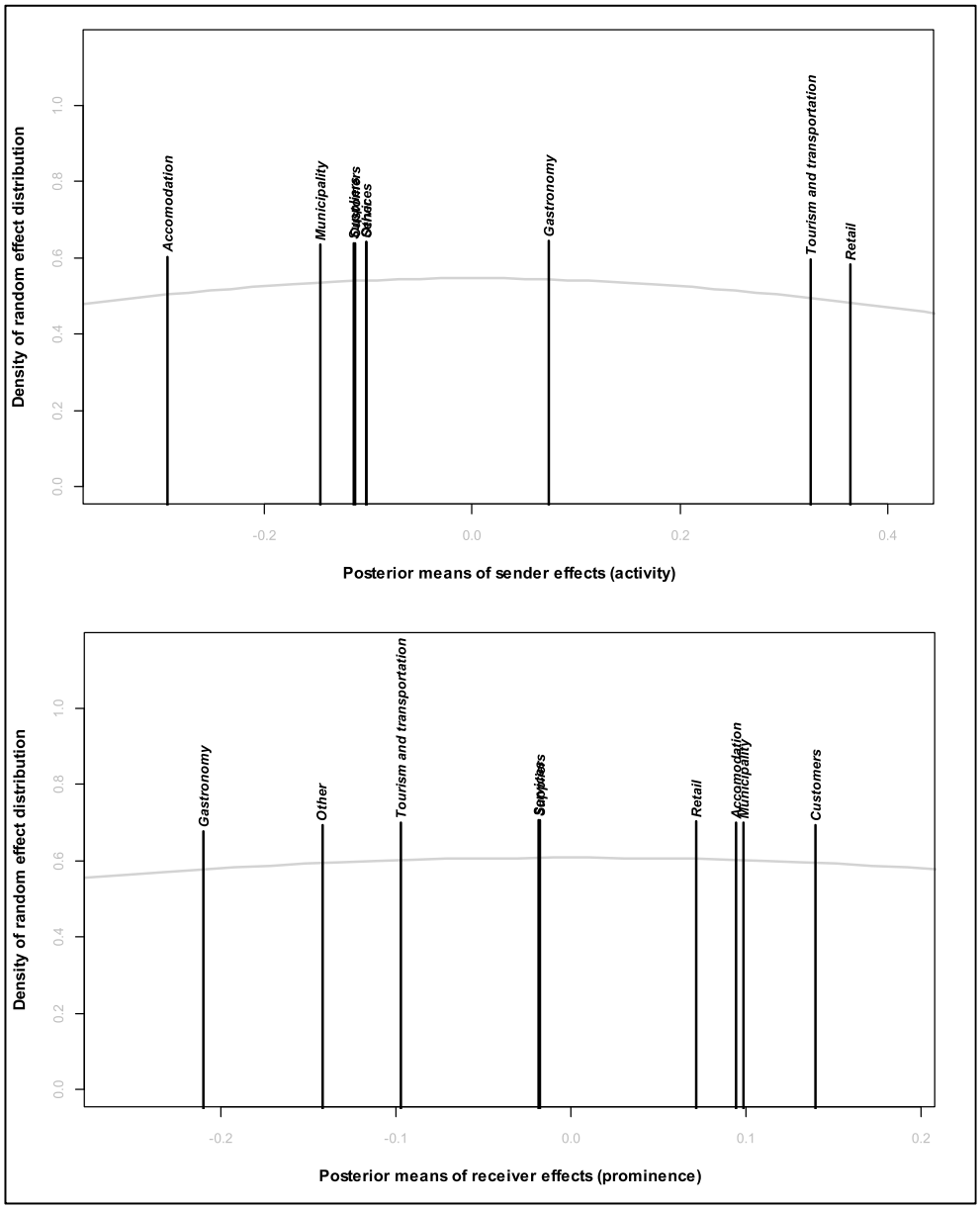

Fig. 2. Perceived contribution of dyadic relationship to satisfactory business results (posterior means of estimated sender and receiver effects).

Smirnov distance between the observed and predicted indegree distribution, and the Kolmogorov-Smirnov distance between the observed and predicted out-degree distribution. Rank aggregation over the four criteria suggested that the model with a zero dyadic correlation and a rank-two approximation of the residual covariance structure had the best overall fit. Table 2 shows the posterior means of the regression coefficient estimates, the random effect covariances, and the dyadic correlation.

Only two of the intermediate relationship outcomes in the model were significantly related to perceptions that a particular cooperative relationship had positively contributed to business results: (a) perceptions that the cooperation had led to increased sales (+), and (b) perceptions that the cooperation had made participants' business more resilient to market fluctuations (+). The findings mirror the prominent role that the actors ascribed to cooperation with customers (cf. Fig. 2). Although customers had a less central network position, local businesses see the cultivation of customer relationships as the key to improved and stable sales, and they see sales, in turn, as the key to improved business results. Interestingly, there was no perception of mutual "give and take" among the actors in the network, at least not in terms of impact on business results, as indicated by the zero dyadic correlation in the model.

The posterior means of the activity and prominence effects are plotted in Fig. 2. Overall, actors in the retail sector and the tourism and transportation sector had a stronger than average perception that cooperation with other actors in the network had contributed to their business results. Actors in the accommodation sector where the least inclined to perceive that cooperating with others had a positive impact on their bottom line. Cooperation with customers was perceived to have the strongest positive impact on business results, particularly by actors in the tourism and transportation sector and the retail sector, whereas cooperation with actors in the gastronomy sector was regarded as having the weakest impact.

4.3. Contribution of dyadic relationships to destination development

In the second step of the analysis, the degree to which members of local business sectors considered co-operation with members of other

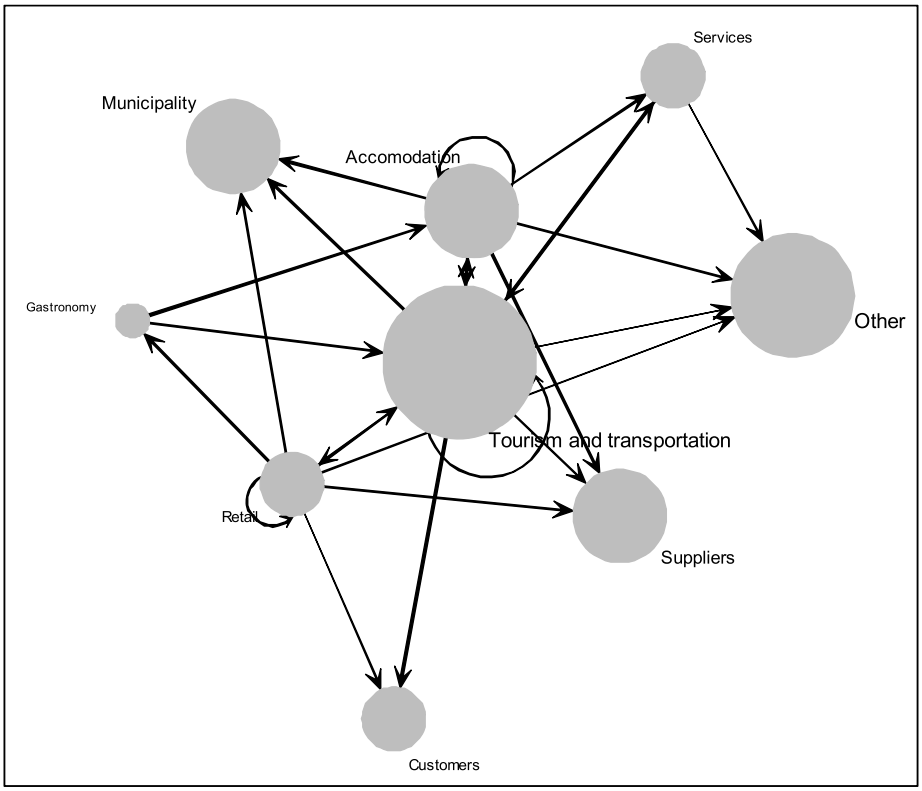

Fig. 3. Fruchterman-Reingold plot of cooperating actor nominations, weighted by the perceived contribution of the dyadic relationship to destination development (arrow width proportional to edge weight; circle size proportional to indegree).

Table 3
Effect of intermediate relationship outcomes on perceived contribution of relationship to destination development: posterior means of regression coefficients, random effects covariances, and dyadic correlation (ordinal generalized social relations model; Bayesian MCMC estimation with 10,000 burn-in iterations and 10,000 MCMC iterations).

Regression coefficients of dyad-level predictors	*M*(*β*)	*SD*(*β*)	*Z*	*p*
Frequency of contact	1.171	1.710	.685	.493
Relationship strength	1.060	2.230	.475	.634
New knowledge and competences	**9.804**	**4.212**	**2.328**	**.020**
Improved operations	**−14.225**	**5.152**	**−2.761**	**.006**
Reduced costs	-.821	3.843	-.214	.831
Increased customer satisfaction	**16.117**	**6.992**	**2.305**	**.021**
Better differentiation	−10.760	7.308	−1.472	.141
New products and services	-.294	3.202	-.092	.927
Access to new markets	4.777	2.905	1.644	.100
Resilience to market fluctuations	.277	4.539	.061	.951
Increased sales	.735	3.666	.200	.841
Covariance matrix of random effects	**Sender**	**Receiver**		
Sender	.576			
Receiver	.114	.532		
Dyadic correlation	.136			

local business sectors to have contributed to destination development were investigated. The Fruchterman-Reingold plot of the valued graph of this target relation (Fig. 3) resembles the plot of contribution to business results (see Fig. 2, above). The firm category where relationships were perceived to be most important for destination development, is the tourism and transportation sector, followed by others, accommodation, and municipality. Tourism and transportation, accommodation, retail, and services act as brokers in the network, being both senders and receivers in relationships contributing to destination development.

4.4. Relationship between intermediate benefits and destination development

Finally, the study assessed whether the perceived "ultimate" relationship outcome of destination development systematically depended on perceived "intermediary" relationship benefits. As in the previous analysis, models with eight different residual covariance structures were estimated and compared in terms of four goodness-of-fit criteria. Rank aggregation over the four criteria suggested that, in this analysis, a model with a free dyadic correlation parameter and rank-one approximation of the residual covariance structure had the best overall fit. Table 3 shows the posterior means of the regression coefficient estimates, the random effect covariances, and the dyadic correlation.

Three of the intermediary relationship outcomes in the model were significantly related to perceptions that a particular cooperation had contributed to destination development. Of these, two had positive effects whilst the third was negative: (a) perceptions that the cooperation had led to new knowledge and competences (+), (b) perceptions that the cooperation had led to improved customer satisfaction. (+), and (c) perceptions that a particular cooperation had helped improve operations (−). Consistent with the findings from the previous analysis, local businesses do not only see their own results as dependent on good customer relationships, but also the fate of the destination. However, perceptions that a particular cooperation had helped improve operations were associated with weaker perceived contributions to destination development. It appears that the actors in the local network regard improvements in the efficiency of their own businesses as a unilateral gain, possibly even running counter to the common interests of the destination network. However, one cannot exclude that reversed causality may be at work here: an equally plausible interpretation is that actors tend to see relationships they invested in for the express purpose of destination development as unimportant for the efficiency of their

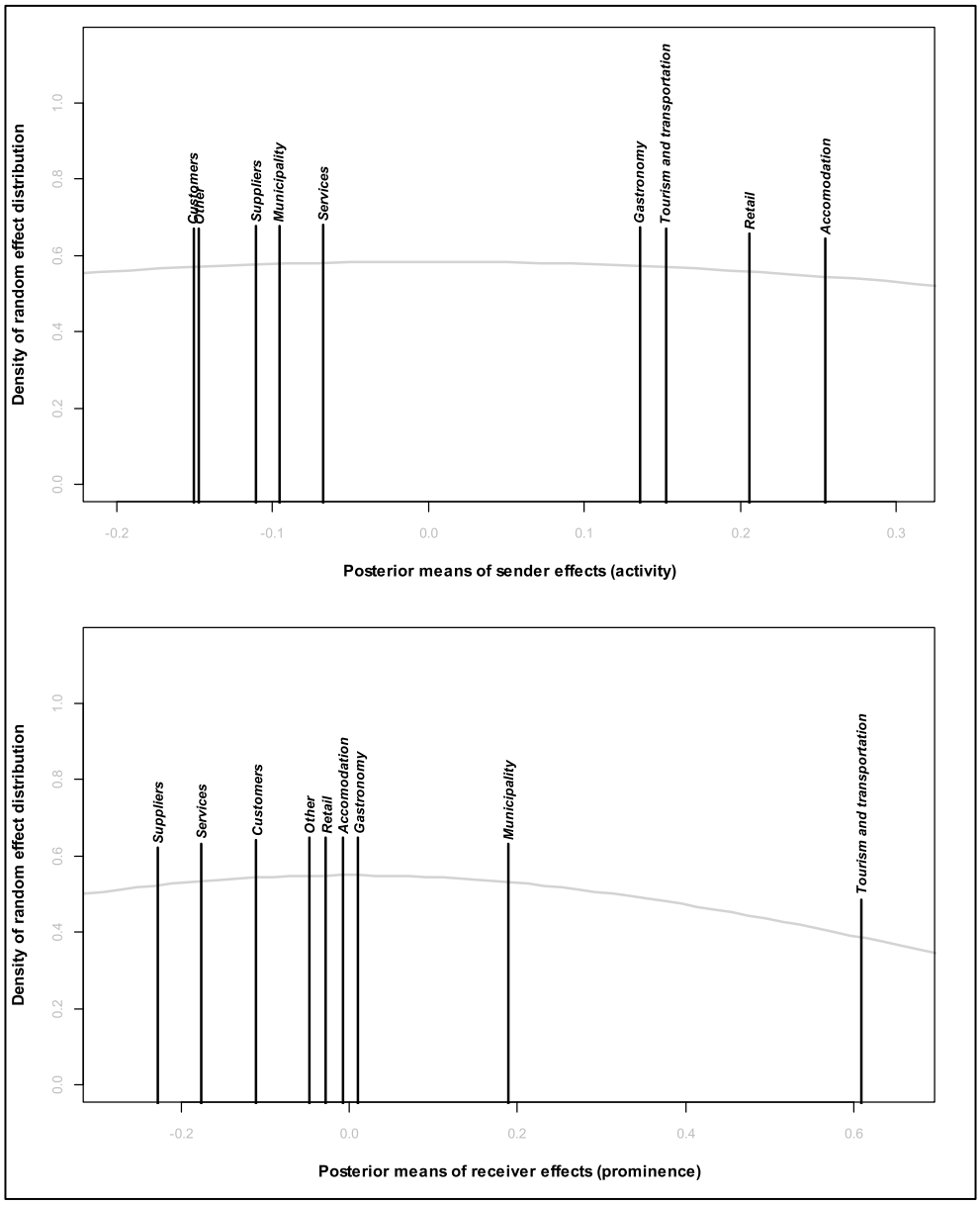

Fig. 4. Perceived contribution of dyadic relationship to destination development (posterior means of estimated sender and receiver effects).

operations. The dyadic correlation in terms of impact on destination development is low, implying weak reciprocity.

The posterior means of the activity and prominence effects are plotted in Fig. 4. Overall, actors in the accommodation and retail sectors had the strongest belief that their cooperation with other actors in the network had contributed to destination development. However, there was again only weak reciprocity with respect to this network relationship: cooperation with actors in the tourism and transportation industry was perceived to contribute by far the most to overall destination development. Cooperation with suppliers and actors in the services industry on the other hand, was perceived to contribute least.

5. Conclusions and implications

External relationships are important to improve outcomes for both firms and regions (Chetty & Agndal, 2008; Giuliani, 2013), and in tourist destinations the duality of firm- and regional outcomes are prominent (Haugland et al., 2011). This study adds to the literature by investigating the correlations between the critical middle layer of an outcome framework (the intermediate benefit) and ultimate firm- and network success. This gives new and valuable insight into multilevel dynamics within destinations.

First, the findings show that the actors perceive *relationships with valued others to contribute to benefits* such as increased sales and resilience to market fluctuations, new knowledge and/or competences, improved operations, and customer satisfaction. These results are in line with studies undertaken in other contexts (Elvekrok, Veflen, Nilsen, & Gausdal, 2018; Street & Cameron, 2007). Related to that, and not surprisingly, the findings show that relationships with customers were perceived to have the strongest positive impact on a focal actor's business results.

Going beyond what was found in earlier studies, our findings show that *some benefits are more closely linked to individual firm success, others to destination development*. While relationships that increase sales and resilience to market fluctuations have significant positive impacts on business results, relationships that lead to new knowledge and improved customer satisfaction contribute to destination development. Surprisingly, relationships that contribute more to firm operations

simultaneously contribute less to destination development. Although our design does not allow for strong conclusions about causality, a plausible explanation is linked to the liabilities of smallness incurred by many tourism firms (Getz & Carlsen, 2000). As SMEs they have limited resources (Getz & Carlsen, 2000; Lin & Lin, 2016; Molina-Azorin et al., 2010; Street & Cameron, 2007). After having leveraged a particular relationship for the improvement of their own operations, there might not be enough resources left (on either or both sides of the relationship) to also try to leverage that particular relationship for wider destination development, and vice versa. An alternative interpretation is that actors develop their relationship network with differentiated objectives: some relations are invested in because they may help improve one's own business, others because they may help develop the destination. Interpreted either way, it appears that the two purposes of dyadic relationship building investigated here—improving one's own operations versus developing the destination as a whole—are seen as a *trade-off* by the individual businesses, not as two sides of the same coin.

Further, the findings reveal *general differences between actors in how they appraise relationships*. Actors in retail, tourism and transportation had a stronger than average perception that cooperation with other actors had contributed to business results. In contrast, actors in accommodation had a weaker than average perception of the same. Hence, it seems that firms in the accommodation sector see less "value for money" in relationship building than firms in retail, tourism and transportation. One possible reason may relate to the centrality of accommodation in a destination experience involving several providers (Baggio, 2011; Beritelli, 2011). Being a "home away from home" gives accommodation providers prominent access to customers and may thereby remove incentives for further collaboration.

The results obtained here have managerial implications. For destination managers it is important to remind both central and peripheral actors that a destination is more than the sum of its parts, and that non-tourism firms, such as retail in this study, can have central broker roles in destination networks. Responding to the tendency to prioritize firm wins before (longer-term) destination development, destination managers should focus individual firm benefits as motivators to participate in, and commit resources to, joint destination development activities.

Lastly, the study responds to the need for *quantitative research on the structural aspects* of tourism networks (Aarstad et al., 2015; Baggio, 2011). The results obtained here could only be achieved by taking a multiplex approach to network analysis, measuring many relations on the same network, and then analyzing their interrelationships using Bayesian network regression methods. The authors can strongly recommend this approach to others: it enables a leap forward beyond the simple univariate-descriptive network analysis techniques that are still the norm in tourism research (e.g., see Casanueva, Gallego, & García-Sánchez, 2016).

The study's limitations create opportunities for new research. First, generalization of the results requires some caution. The data were collected from actors at only one destination, and the respondents were asked to identify and evaluate the perceived outcomes of their most valued relationships. The literature on tourism suggests that the likelihood of cooperation depends on social networks and personal bonds (Beritelli, 2011), and that although the value of relationships may diminish with time, the evaluation of them may remain positive (Dyer et al., 2018). The research questions should be approached in other contexts and situations to see whether the results are valid across contexts and situations. Second, the study relied on a small network, and was based on voluntary participation. Future studies should be more comprehensive, including larger networks in a variety of locations and business contexts.

Credit author statement

Ingunn Elvekrok: Conceptualization, Methodology, Investigation, Writing – original draft, Review and Editing, Project Management Nina Veflen: Conceptualization, Methodology, Writing – original draft, Review and Editing, Joachim Scholderer: Conceptualization, Methodology, Validation, Data curation, Formal analysis, Writing – original draft, Visualization. Bjarne Taulo Sørensen: Data curation, Formal analysis, Visualization.

Declaration of interests

None.

Acknowledgements

The research for this paper was aided by support from the Norwegian Research Council's program for regional R&D and innovation. The authors are grateful for helpful comments from the anonymous reviewers and editors.

Appendix 1. Measurement instrument

MEASURE	ITEMS	SCALE
Proximity	The company is located in	Nominal/open: Postal code
Relationship	We are in contact with this company (frequency)	Ordinal: daily, several times per week, weekly, every other week, monthly, every other month, and several times per year
	How would you characterize your business's relationship with this business? (quality)	Likert, 7 point: from (1) distant: we stay at arm's length to (7) very close: in practice it is almost as if we were the same business
Intermediary benefits	The relationship has · Helped reduce our costs · Had a positive effect on customers' perception of our products and services · Helped us differentiate ourselves from the competition · Resulted in new products and services · Contributed to the development of new knowledge and expertise · Helped us enter new markets · Contributed to our routines and procedures becoming more effective · Made us better able to meet the rise and decline of the market · Helped to increase our sales	Likert, 7 point: from (1) not at all to (7) to a great extent
Ultimate outcome	· Contributed to business results · Contributed to the development of (place) as a tourism destination	Likert, 7 point: from (1) not at all to (7) to a great extent

Impact statement

This study adds to the literature by investigating the correlations between the critical middle layer of an outcome framework (the intermediate benefit) and ultimate firm- and network success. Extending earlier studies, our findings show that some benefits are more closely linked to individual firm success, others to destination development. For destination managers it is important to remind both central and peripheral actors that a destination is more than the sum of its parts, and that non - tourist firms, such as retail in this study, can have central broker roles in destination networks. Responding to the tendency to prioritize firm wins before (longer-term) destination development, destination managers should focus individual firm benefits as motivators to participate in, and commit resources to, joint destination development activities. The methodology applied enables a leap forward, far beyond the simple univariate-descriptive network analysis techniques that are still the norm in tourism research (148 words).

References

Aarstad, J., Ness, H., & Haugland, S. A. (2015). Destination evolution and network dynamics. In *Tourism research frontiers: Beyond the boundaries of knowledge*. Emerald Group Publishing Limited.

Alonso, A. D. (2010). Importance of relationships among small accommodation operations around the city of Perth. *Tourism and Hospitality Research, 10*(1), 14–24.

Baggio, R. (2011). Collaboration and cooperation in a tourism destination: A network science approach. *Current Issues in Tourism, 14*(2), 183–189.

Beritelli, P. (2011). Cooperation among prominent actors in a tourist destination. *Annals of Tourism Research, 38*(2), 607–629.

Casanueva, C., Gallego, Á., & García-Sánchez, M. R. (2016). Social network analysis in tourism. *Current Issues in Tourism, 19*(12), 1190–1209.

Chetty, S., & Agndal, H. (2008). Role of inter-organizational networks and interpersonal networks in an industrial district. *Regional Studies, 42*(2), 175–187.

Denicolai, S., Cioccarelli, G., & Zucchella, A. (2010). Resource-based local development and networked core-competencies for tourism excellence. *Tourism Management, 31*(2), 260–266.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*(4), 660–679.

Dyer, J. H., Singh, H., & Hesterly, W. S. (2018). The relational view revisited: A dynamic perspective on value creation and value capture. *Strategic Management Journal, 39*(12), 3140–3162.

Elvekrok, I., Veflen, N., Nilsen, E. R., & Gausdal, A. H. (2018). Firm innovation benefits from regional triple-helix networks. *Regional Studies, 52*(9), 1214–1224.

Getz, D., & Carlsen, J. (2000). Characteristics and goals of family and owner-operated businesses in the rural tourism and hospitality sectors. *Tourism Management, 21*(6), 547–560.

Giuliani, E. (2013). Clusters, networks and firms' product success: An empirical study. *Management Decision, 51*(6), 1135–1160.

Gordon, I. R., & McCann, P. (2005). Innovation, agglomeration, and regional development. *Journal of Economic Geography, 5*(5), 523–543.

Haugland, S. A., Ness, H., Grønseth, B.-O., & Aarstad, J. (2011). Development of tourism destinations: An integrated multilevel perspective. *Annals of Tourism Research, 38*(1), 268–290.

Hoff, P. D. (2005). Bilinear mixed-effects models for dyadic data. *Journal of the American Statistical Association, 100*(469), 286–295.

Hoff, P. D. (2009). Multiplicative latent factor models for description and prediction of social networks. *Computational & Mathematical Organization Theory, 15*(4), 261.

Hoff, P., Fosdick, B., Volfovsky, A., & Stovel, K. (2013). Likelihoods for fixed rank nomination networks. *Network Science, 1*(3), 253–277.

Kenny, D. A., & La Voie, L. (1984). The social relations model. *Advances in Experimental Social Psychology, 18*, 142–182.

Kenny, D. A., & La Voie, L. (1985). Separating individual and group effects. *Journal of Personality and Social Psychology, 48*(2), 339.

Kossinets, G. (2006). Effects of missing data in social networks. *Social Networks, 28*(3), 247–268.

Lemmetyinen, A., & Go, F. M. (2009). The key capabilities required for managing tourism business networks. *Tourism Management, 30*(1), 31–40.

Lin, F.-J., & Lin, Y.-H. (2016). The effect of network relationship on the performance of SMEs. *Journal of Business Research, 69*(5), 1780–1784.

Merinero-Rodríguez, R., & Pulido-Fernández, J. I. (2016). Analysing relationships in tourism: A review. *Tourism Management, 54*, 122–135.

Mizruchi, M. S., & Marquis, C. (2006). Egocentric, sociocentric, or dyadic?: Identifying the appropriate level of analysis in the study of organizational networks. *Social Networks, 28*(3), 187–208.

Molina-Azorin, J. F., Pereira-Moliner, J., & Claver-Cortés, E. (2010). The importance of the firm and destination effects to explain firm performance. *Tourism Management, 31*(1), 22–28.

Murray, S. L., Holmes, J. G., & Griffin, D. W. (1996). The benefits of positive illusions: Idealization and the construction of satisfaction in close relationships. *Journal of Personality and Social Psychology, 70*(1), 79.

Novelli, M., Schmitz, B., & Spencer, T. (2006). Networks, clusters and innovation in tourism: A UK experience. *Tourism Management, 27*(6), 1141–1152.

Olsen, N. V., Elvekrok, I., & Nilsen, E. R. (2012). Drivers of food SMEs network success: 101 tales from Norway. *Trends in Food Science & Technology, 26*(2), 120–128.

Parmigiani, A., & Rivera-Santos, M. (2011). Clearing a path through the forest: A meta-review of interorganizational relationships. *Journal of Management, 37*(4), 1108–1136.

Pavlovich, K. (2003). The evolution and transformation of a tourism destination network: The waitomo caves, New Zealand. *Tourism Management, 24*(2), 203–216.

Peiró-Signes, A., Segarra-Oña, M.-d.-V., Miret-Pastor, L., & Verma, R. (2015). The effect of tourism clusters on US hotel performance. *Cornell Hospitality Quarterly, 56*(2), 155–167.

Sainaghi, R., & Baggio, R. (2017). Complexity traits and dynamics of tourism destinations. *Tourism Management, 63*, 368–382.

Scott, N., Cooper, C., & Baggio, R. (2008). Destination networks: Four Australian cases. *Annals of Tourism Research, 35*(1), 169–188.

Street, C. T., & Cameron, A. F. (2007). External relationships and the small business: A review of small business alliance and network research. *Journal of Small Business Management, 45*(2), 239–266.

Tinsley, R., & Lynch, P. (2001). Small tourism business networks and destination development. *International Journal of Hospitality Management, 20*(4), 367–378.

Veflen, N., Scholderer, J., & Elvekrok, I. (2019). Composition of collaborative innovation networks: An investigation of process characteristics and outcomes. *International Journal on Food System Dynamics, 10*(1), 1–20.

Wang, H., Zhao, J., Li, Y., & Li, C. (2015). Network centrality, organizational innovation, and performance: A meta-analysis. *Canadian Journal of Administrative Sciences, 32*(3), 146–159.

Warner, R. M., Kenny, D. A., & Stoto, M. (1979). A new round robin analysis of variance for social interaction data. *Journal of Personality and Social Psychology, 37*(10), 1742.

van der Zee, E., & Vanneste, D. (2015). Tourism networks unravelled; a review of the literature on networks in tourism management studies. *Tourism Management Perspectives, 15*, 46–56.

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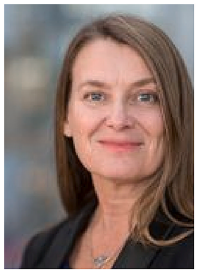

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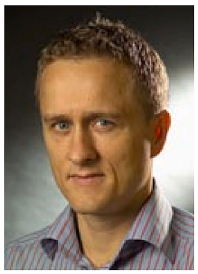

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