

DEVELOPING AND TESTING A SUITE OF INSTITUTIONAL INDICES TO UNDERPIN THE MEASUREMENT AND MANAGEMENT OF TOURISM DESTINATION TRANSFORMATION

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Economic, social, and environmental transformation of destinations as a consequence of tourism has been observed and studied extensively within the tourism literature. Transformation theory has evolved as a tool for understanding structural economic, social, or environmental change, which is driven by institutions. There is an emerging body of research that has sought to identify the institutional aspects of the tourism transformation process. Despite this, there has been limited development of tools that can measure institutions, inhibiting the development of long-run decision-making models that governments can use when developing policies for tourism destination development. As a result this research contributes a suite of institutional indices that can be used by tourism managers and planners to monitor, evaluate, and benchmark the tourism industry's institutions. Drawing from the organizational change literature, the proposed indices focus on competition, management processes, data and research capabilities, collaboration efforts, benchmarking processes, learning ability, and agility and adaptability. This research is an important step in developing combined structural and institutional models that will contribute to the development and implementation of decision-making tools to assist destinations seeking to achieve long-term sustainable tourism transformation.

Key words: Tourism; Transformation; Businesses; Institutions; Performance measurement; Indices

Introduction

Tourism has emerged as an important economic sector in many countries, often replacing traditional industries such as agriculture. This process

of change has been termed “transformation” defined as the long-term process of change, whereby an economy restructures from one economic sector to another owing to institutional change (Seliger, 2002). Institutions are collective

human-designed actions, and may include government strategies, policies, or laws, business or industry norms, social norms, cultural beliefs, or the general patterns of consumer behavior (Mantzavinos, North, & Shariq, 2004). Institutions are commonly proposed as important underlying factors in tourism development (Mwangi, 2006).

While transformation theory has been emerging as a key paradigm in tourism research (McLennan, Ruhanen, Ritchie, & Pham, 2012; Pavlovich, 2003), a number of gaps remain within the transformation literature. In particular, there is limited understanding surrounding the dynamic interaction between structure and institutions, an issue that has been exacerbated by a lack of tools to measure the nuances of institutions. This lack of research foci has limited the development of long-run decision-making tools available to governments, resulting in difficulties when developing policies for tourism development (Dwyer et al., 2008).

Institutions are important underlying factors in tourism development and have been identified as requiring further research (Saarinen, 2004). Recognizing that decision making is an important variable in influencing destination change, a number of tourism researchers have suggested there is a need to further investigate how institutions, human agency, and strategic intervention impact on tourism development (Agarwal, 2002; Scott, 2003). The development of institutions in a region is congruous with system learning, which is a process of continually developing rules or beliefs that impact on or guide a system (Schianetz, Kavanagh, & Lockington, 2007).

It is often argued that government deregulation, intervention, and institutional development are required to overcome the issues and problems of transformation and to stimulate tourism development (Alipour & Kilic, 2004; Kotlinski, 2004). The literature also suggests that for destinations to undergo successful tourism transformation they require effective tourism policy and few deterrents to visitation, as well as ongoing education, training, research, development, and performance measurement (Briedenhann & Butts, 2004), indicating a need for ongoing system learning. Existing indicators used to measure institutions in a tourism destination are currently underdeveloped (McLennan et al., 2012).

Given these identified gaps, this research develops a series of institutional indices to measure and benchmark the current institutions of tourism related businesses and government organizations. These indices address competition, management processes, performance measurement, data and research capabilities, collaboration efforts, benchmarking processes, learning, and agility and adaptability. To achieve the aims of this research, data were collected from business and government organizations and a number of indices were developed from the survey data. This contributes the development of a suite of comprehensive institutional indices, which has been limited in tourism research.

Literature Review

Measures of Institutions in the Tourism Literature

A growing segment of tourism literature has argued that change in a tourism system's structure is driven by underlying institutions (Hall, 2004; Schianetz et al., 2007). Scott (2003) suggested that different stages of tourism destination development are not the same, but rather are more complex because of the influence of human agency and argued that this requires further investigation. Existing indicators used to measure institutions in a tourism destination are currently underdeveloped and there is little evidence of how institutions interact with structures across the transformation process (McLennan et al., 2012).

Yet strategic mistakes are often unavoidable and inherent in the learning process (Hallegatte, Ghil, Dumas, & Hourcade, 2008). System learning theory suggests that a system is able to learn, thereby enabling it to adjust to changes in its environment. The learning process occurs via the modification of institutions to enable stability or more directed change (Argyris & Schon, 1996). System learning theory has been identified in tourism research and used to explain institutional development within destinations (Farrell & Twining-Ward, 2004; Schianetz et al., 2007).

A number of case studies have suggested that issues and problems in government institutions are the cause of ineffective and inappropriate tourism development (Alipour & Kilic, 2004; Sergeev & Moscardini, 2006). These issues and problems are often attributed to poor tourism policies (such as

positioning, coordination, and investment), a lack of government support, a narrow perspective, high levels of corruption, and broad political instability. As a result, some researchers doubt whether positive tourism transformation actually ever occurs (Hall, 2004).

Saarinen (2004) and Saarinen and Kask (2008) construed a tourism destination as a spatial structure that develops through a historical process related to its administrative, economic, and cultural institutions. Saarinen (2004) proposed that two key components form a destination's identity. The first is the "discourse of region" (Saarinen, 2004, p. 167) that refers to the tourism image, knowledge, meanings, and natural and cultural features that relate to the destination. Over the course of the transformation process these slowly stereotype, resulting in a loss of differentiation between destinations. This implies that more developed destinations are not as "unique" as those in which tourism has just commenced. The second is the "discourse of development" (Saarinen, 2004, p. 167), which represents the institutions, practices, and larger processes that construct the destination. These institutions relate to the holistic and hierarchical concepts discussed earlier and originate from higher level systems, but interact with and govern the tourism industry.

Other tourism researchers have also recognized the importance of institutions. For example, Cottrell, Vaske, Shen, and Ritter (2007) based their work on the prism of sustainability, thus including economic, social, environmental, and institutional dimensions. Shen and Cottrell (2008) developed measures of the four sustainability dimensions based on three to five survey items. They also developed a four-item measure of resident satisfaction and, using structural equation modeling, found that economic, social, environmental, and institutional dimensions were predictors of residents' satisfaction with tourism, with institutions being the strongest predictor, followed by the economic and social dimensions. Shen and Cottrell (2008) highlighted the importance of considering all four dimensions when monitoring sustainable tourism.

Jackson and Murphy (2006) developed a series of questions aimed at measuring competition and interaction among tourism businesses. Murphy and Cooper (2004) also measured the competitiveness

of a destination and tourism investment. Similarly, Zhang, Ruhanen, Murphy, and Cooper (2004) developed a local-level development potential index to assist in investment decision making and help guide government policy making. The index questionnaire was distributed to business leaders, politicians, administrators, and interest groups in five regions in Australia. Broadly, the questionnaire asked respondents about perceived potential and current constraints for future tourism development, future tourism strategic options, knowledge of selected theories, and personal information. In particular, the scale developed a detailed assessment of the constraints to future development, which included economic, administrative, political, transport, and other constraints. Shen and Cottrell (2008) developed three to five survey items to measure the four sustainability dimensions: economy, society, environment, and institutions. However, their five-item institutional index, while providing a broad overview, could not delve in depth into all aspects of tourism business institutions, such as learning, and agility and adaptability.

Measures of Institutions in the Broader Literature

With a lack of institutional measurement systems in the tourism literature, it was necessary to look more broadly to underpin the indices with theory. There has been growing recognition in economics, ecology, and organizational change literature that change can be influenced by institutions. This saw some researchers link structural change with institutions, resulting in the development of transformation theory (Corpataux & Crevoisier, 2007; Malaska, 1991). Frameworks to emerge from related economic literature included the structure-conduct-performance paradigm (Ferguson & Ferguson, 1994) and the Regression Theorem (Boettke, Coyne, & Leeson, 2008), among others. Similarly, the adaptive capacity literature has recognized the integral role of institutions, governance, and management in the change process (Haddad, 2005). For example, the Adaptive Capacity Wheel is a tool to assess if institutions stimulate the adaptive capacity of a society to respond to climate change (Gupta et al., 2010).

In the organizational literature, business institutions have been assessed through scales and indices.

The Learning Organizations (LO) framework (Senge, 1990) has previously been proposed as a valuable analytical tool for assessing the learning process in tourism organizations (Prideaux, Laws, & Faulkner, 2003; Schianetz et al., 2007), as has Spitzer's (2007) Transforming Performance Measurement (TPM) framework (McLennan et al., 2012). However, unlike the LO framework, the TPM framework is yet to be applied in a tourism context, particularly as a collective measurement tool for tourism destinations.

The TPM framework presented a series of scales assessing performance measurement, organizational trust, collaboration, organizational agility, and decision-making processes of businesses. Spitzer (2007) argued that transformational measurement is a way of facilitating organizational learning, emphasizing that transformation is a social process and that while "maturity" can be seen as stagnant, it can also mean the system is more effective and fundamentally "much better" (Spitzer, 2007, p. 177). Spitzer (2007) suggested that organizations can control transformation through performance measurement and monitoring. The TPM framework is a novel and comprehensive way to quantitatively assess transformation in an organization's institutions. By adapting concepts such as the TPM framework, which have evolved in LO literature, tourism institutions at both the individual business level and the political level can be monitored collectively, thereby developing a tool for managing tourism system learning.

From the review of the literature, eight institutional constructs relevant for tourism organizations and destinations were identified. Table 1 provides an overview of these constructs and provides justification for their inclusion within the set of indexes developed in this research.

Method

Developing Indices

An index is a composite ordinal measures of a construct that can indicate a person's score compared to other people (Colton & Covert, 2007). That is, a respondent's score on an index is determined by their responses to a series of questions, with each question providing some indication of the construct (or factor) being measured (DeVellis,

2003). Indices summarize and rank order the series of indicators into a single score measuring the latent constructs by accumulating scores assigned to individual indicators (Babbie, 1990). Indices do not need to be unidimensional, which means more than one dimension of a concept can be reflected in an index, thus enabling a measurement of complex multifaceted constructs (Denzin, 2006).

Indices are primarily used to collect causes, symptoms, or outcomes (Colton & Covert, 2007). Unlike a scale, an index needs only to have convergent (the indicators hang together), content, and face validity (Singh, 2007). While other tools can be used to assess the validity of an index, this is not an essential for its development (Babbie, 1990). For this research the development of indices was considered more appropriate than unidimensional scales, as the goal was to measure an outcome or current state, and the constructs were complex and not always unidimensional. The advantage of an index over a single item is the range of gradations it offers in the measurement of a variable. Altogether, the index items constitute a more complete and reliable measure of the construct than each individual indicator (Spector, 1992).

The literature debates whether objective or subjective measures are more appropriate for use in the indices (Andereck & Nyaupane, 2011). Those who support objective measures (e.g., gross regional product, unemployment rates) argue that they are quantifiable aggregate measures (Simmons, Yonk, & Fawson, 2010). Costanza et al. (2008) argued that the difference between objective and subjective measures is illusionary, because objective measures are proxies for subjective indicators. Indeed, a truly objective set of indicators is elusive as selecting some indicators and not others is a subjective process with selection bias (Simmons et al., 2010). For this research, only subjective measures were considered; however, more objective measures could be incorporated to broaden the institutional assessment beyond the perceptions of managers in further research.

Surveying

To develop the institutional indices, a survey of business owners or managers and government employees was undertaken in three local govern-

Table 1
Institutional Constructs to Arise From the Literature

Institutional Construct	Discussion	Source(s) of Indicators
Competition	Competitiveness is important for destination development and there are comprehensive frameworks and indicators of competitiveness in the literature (Dwyer & Kim, 2003; Jackson & Murphy, 2006).	Jackson and Murphy (2006), Murphy and Cooper (2004)
Management processes	Management processes influence decision-making and enable or restrict adaptability, benchmarking and the adoption of new practices (Broderick, Garry, & Beasley, 2010). There is a need to understand management processes to determine how a system will behave, and to develop dynamic, effective and efficient strategies for destination development (Zahra, 2006).	Spitzer (2007)
Performance measurement	Flood (1999) noted that organizations can generate their own future (or self-organize). Likewise, Spitzer (2007) discusses how organizations can control transformation processes through performance measurement and monitoring.	Spitzer (2007)
Data and research	Data and research can aid learning, agility and success of a destination, yet few institutional assessments consider this element (McLennan et al., 2012). Understanding the impact of research on a system is difficult due to the researcher and the object of research not existing independently (Skyttner, 2006).	Spitzer (2007)
Collaboration	A lack of collaboration can result in tourism development being difficult and less effective, while clusters can enable development (Sorenson & Epps, 2003). Tools have previously been developed to measure collaboration and clustering (Jin, Weber, & Bauer, 2012).	Jackson and Murphy (2006), Jin et al. (2012)
Benchmarking	Benchmarking practices can provoke change and best practice (Longbottom, 2000). Service sector organizations are typically less likely to benchmark as they are often small firms with constraints to benchmarking (Broderick et al., 2010).	Spitzer (2007)
Learning	The organizational change literature suggests that systems learn and that this allows a system to cope with change. Learning occurs by developing institutions to stabilize or direct a system (Argyris & Schon, 1996) and can ensure sustainable development (Schianetz et al., 2007).	Spitzer (2007)
Agility and adaptability	It has been recognized that adaptability and agility are important to the survival of a system and its ability to cope with change (Graetz & Smith, 2006; Folke et al., 2002).	Spitzer (2007)

ment areas (LGAs): Murweh Shire, Hervey Bay, and the Gold Coast, all in Queensland, Australia. To select items for the indices, indicator statements of the constructs were identified from the literature and compiled into an item pool (sources in Table 1). Once a large number of statements had been collected, the list was double checked for readability, face validity, relevance, and missing indicators. The entire list of statements was too large to be administered at one time; thus it was necessary to refine the list, by omitting repetitive and irrelevant statements, to ensure the survey had the best chance of being completed and answered accurately (DeVellis, 2003; Singh, 2007). The result was eight institutional indices that assessed competition, management processes, performance measurement, data and research capabilities, col-

laboration efforts, benchmarking processes, learning ability, and agility and adaptability.

The survey tool was a self-completion questionnaire, conducted either online via SurveyMonkey (a web-based survey tool available at www.surveymonkey.com) or in hard copy. The survey asked business and government respondents about their organizations' structure and planning processes and then asked them to complete the institutional indicator assessment of their businesses. All indicator statements were collected on Likert-type scales, which ranked responses from 1 = "strongly agree" to 5 = "strongly disagree." Likert-type scales are widely used in social, behavioral, and marketing research (Dawes, 2008). To further ensure validity, the questionnaire underwent expert panel review and pilot testing. Once administered, a sample of

281 business owners or managers and 85 government employees was achieved in the three local areas from September to December 2009.

Data Preparation, Weighting, and Creating the Indices

The data were downloaded from SurveyMonkey in Excel format and loaded into STATA v11.0, a data analysis and statistical software package, for analysis. The survey asked several questions to identify tourism organizations. Specifically, business respondents were asked whether their organization sold any goods or services to visitors to the region and if the organization primarily supplied goods or services to visitors to the region (rather than to locals). Government respondents were asked if they worked in a position that related to, or overlapped with, any tourism-related functions, planning, governance, or policies (which was appropriate as in some regional areas tourism policy may be handled by economic development officers or planners). If respondents answered yes to these questions they were deemed a tourism-related respondent, but they could also be identified as being tourism dependent. An alternative method to identify tourism-related organizations is the Tourism Satellite Accounting method; however, when working at a local destination level, this modeling approach may not provide accurate location specific information.

The sample framework was a stratified random sample that classified the population into mutually exclusive groups and sampled within these groups; this helped to reduce sampling error and bias (Cook, Heath, & Thompson, 2000). The data from the business survey were weighted to the number of Australian businesses by industry division for each of the LGAs to further improve representativeness (Australian Bureau of Statistics, 2007).

To create the indices, the items were standardized, which means that the mean is set to 0 and the variance is set to 1 prior to summing. This practice is employed to prevent variables with larger ranges or prevalence from exerting a greater influence on the index (Australian Bureau of Statistics, 2006). Negative statements were reverse coded to ensure all items in the index had the same sign direction for the creation of a sensible and usable index

(StataCorp, 2009). That is, for the negative statements, 1 was recoded to 5 and 2 was recoded to 4, and vice versa. Next, the items in each question set were equally weighted and combined using simple averages to create the indices. Generally, the literature suggests the use of equal weighting (unless there are compelling reasons for differential weighting) because this is the most common type of index and is more appropriate for use with statistical measures (DeVellis, 2003).

Assessing Reliability and Validity

While an index needs only have convergent, content, and face validity (Singh, 2007), other tools can be used to assess the validity of an index (Babbie, 1990). It was considered appropriate to undertake additional reliability and validity tests to gain a greater insight into the indices that were developed and the constructs that were being measured. Thus, following the development of the indices, they were tested in STATA v11.0 for reliability using the Spearman-Brown Prophecy Formula (Nunnally & Bernstein, 1994). This formula generates a scale reliability alpha that is identical to Cronbach's alpha (Cronbach, 1951) when standardized means are used. As it is identical, this measure will be referred to as Cronbach's alpha in the remainder of this article. Cronbach's alpha is a common method for testing the internal consistency of an index or scale, meaning that it checks that each item in the index is measuring the same or a similar construct (Totten, Panacek, & Price, 1999). If the alpha value is "high" there is evidence that the items measure an underlying (or latent) construct. Generally, if Cronbach's alpha is equal to or greater than 0.7 the index or scale is considered robust (Langbein & Felbinger, 2006). However, some researchers suggest that an acceptable precision is if Cronbach's alpha is equal to or greater than 0.6 (Asah, 2008; DeVellis, 2003). Indeed, Costello and Osborne (2005) argue that in the social sciences common precision levels range between 0.4 and 0.7.

While useful, Cronbach's alpha should be used with caution as its results can be misleading (Shelby, 2011). Although Cronbach's alpha increases as the interitem correlation increases, the alpha value is dependent on the number of items. This is an issue as the literature generally advises that to develop

robust indices parsimony when determining the number of items is essential. Yet Cronbach's alpha is weighted so that more items result in a higher alpha score, thereby giving the appearance that indices with more items are superior (UCLA Academic Technology Services, 2011).

Factor analysis, another method for evaluating the relationship between the items in an index and the construct (DeVellis, 2003), was used to assess the dimensionality of the indices. While indices need not be unidimensional, it was considered important to assess the dimensionality of the data to provide a better understanding of the construct being measured (Singh, 2007). Principal Component Factor (PCF) analysis is a data reduction technique that assesses and summarizes all variance in the data (Grimm & Yarnold, 1995). Generally, items with a strong correlation to others in the battery are given high weights. Using PCF analysis, eigenvalues were calculated to provide a way of estimating the degree to which a particular factor is represented in the index by assessing variance (Australian Bureau of Statistics, 2006). From this, STATA automatically calculates the number of factors that are retained, thereby providing an indication of the dimensionality of the index. PCF analysis also provides an indication of uniqueness of each variable in the battery, which indicates how much of the variable is explained by the retained factors.

This can help to determine which variables may not have a good fit within the index (StataCorp, 2009).

PCF analysis is based on Pearson correlations, which assess linear relationships and therefore can be influenced by differences in latent variable distributions. Despite this, researchers have found PCF to be reliable, even when the latent variables are not normally distributed (Dudzinski, Norris, Chmura, & Edwards, 1975). Thus, to retain objectivity and aid the interpretation process the variables were not transformed to adjust for skewed distributions. Ultimately, an index is tested through external validation and its usefulness for explaining the construct accurately in later analyses (Babbie, 1990).

Results

The Competition Index Results

Table 2 presents the Competition Index variables, associated questions, interitem correlations (covariance), and Cronbach's alpha results. The index received an overall scale reliability coefficient (Cronbach's alpha) of 0.52. Two of the variables (Compet3 and Compet5) entered the scale as negatively correlated and thus their signs were reversed. The likelihood ratio (LR) test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 2 also reveals that four factors were

Table 2
Competition Index

Item	Item Label	Alpha	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
Compet1	Local businesses in your industry are generally innovative	0.466	0.623	0.055	-0.302	0.237	0.462
Compet2	Local businesses in your industry are generally successful (rarely fail)	0.438	0.671	-0.143	-0.322	0.123	0.411
Compet3 ^a	It is difficult to start up a new business in your industry in this region	0.505	-0.289	0.502	0.458	0.144	0.434
Compet4	Your industry is a well-established and mature sector in this region	0.472	0.651	0.356	0.006	-0.185	0.416
Compet5 ^a	There is not enough demand to increase the number of businesses in your industry in this region	0.527	-0.080	0.784	-0.006	-0.059	0.375
Compet6	More local businesses would enhance your industry's competitiveness and appeal in this region	0.486	0.271	-0.614	0.480	0.004	0.319
Compet7	Your local industry is competitive against other regions	0.504	0.357	-0.072	0.434	-0.679	0.217
Compet8	Your industry is well integrated into this region	0.487	0.586	0.387	0.164	-0.023	0.480
Compet9	Organizations in your industry directly compete with other similar local operators	0.520	0.283	0.011	0.534	0.642	0.223
Test scale		0.520					

Method: Principal Component Factors (unrotated); retained factors = 4; number of parameters = 30; sample = 366.

^aNegative statement: reverse coded for index development.

Table 3
Management Processes Index

Item	Item Label	Alpha	Factor 1	Factor 2	Uniqueness
Manage1	Your organization is continually aligning/realigning its performance to a regional industry strategy	0.724	0.622	0.464	0.398
Manage2 ^a	There is clear leadership in this region for your industry	0.746	0.478	0.687	0.300
Manage3	Your organization works with government agencies to develop and revise industry strategies	0.758	0.410	0.694	0.351
Manage4	It is important to measure your organization's performance	0.731	0.675	-0.445	0.347
Manage5 ^a	Measuring the performance of your organization and making improvements is essential for remaining competitive	0.722	0.708	-0.353	0.375
Manage6 ^a	All the important factors for the present and future success of your organization are being effectively measured	0.718	0.713	-0.130	0.475
Manage7 ^a	Your organization is currently performing well	0.745	0.551	-0.240	0.639
Manage8	You put aside time to undertake performance measurement and research	0.720	0.684	-0.185	0.498
Test scale		0.759			

Method: Principal Component Factors (unrotated), retained factors = 2, number of parameters = 15; sample = 366.

^aSample = 281 for this item as only business respondents were applicable.

retained, with factor 1 accounting for 22% of the variance in the index, followed by factor 2 (17%), factor 3 (13%), and factor 4 (11%). The high number of factors may reflect the relatively low Cronbach's alpha achieved by this index. Table 2 displays the factor loadings and the uniqueness of the variables, with the uniqueness of the variables in the index being reasonably low. Rotating the factor loadings indicates that Compet1, Compet2, and Compet4 load into factor 1, with Compet5 and Compet6 loading into factor 2, Compet7 loading

into factor 3, and Compet9 loading into factor 4. Compet3 and Compet8 did not load above 0.5 into any of the four factors. This suggests that competition is a highly complex subject that can be thought about in a variety of ways, which supports arguments by Hong (2009).

The Management Processes Index Results

Table 3 presents the Management Processes Index variables and the associated questions as well

Table 4
Performance Measurement Processes Index

Item	Item Label	Alpha	Factor 1	Uniqueness
Perform1	Your organization's current performance measurement and decision-making tools can effectively guide high-quality decision making	0.902	0.787	0.381
Perform2	You have a variety of tools for measuring the performance of your business and understand how to interpret them	0.903	0.788	0.379
Perform3	Your organization's performance measurement system is continually improved and updated	0.899	0.828	0.314
Perform4	Your organization is open to adopting new and innovative performance measurement tools if they are appropriate	0.903	0.781	0.390
Perform5	A number of different performance measurement tools are used to monitor this organization	0.903	0.784	0.386
Perform6	Performance measurement tools are regularly reviewed, revised or eliminated as appropriate	0.900	0.822	0.325
Perform7	The performance measurement tools are appropriate and of the right number (not too many, not too few)	0.906	0.740	0.452
Perform8	Old measures are reduced when new and more appropriate performance measures are added	0.902	0.790	0.376
Perform9	Performance measurement is becoming more automated	0.916		
Test scale		0.913		

Method: Principal Component Factors (unrotated); retained factors = 1; number of parameters = 9; sample = 366.

as the interitem correlations (covariance) and Cronbach's alpha results. The index received an overall reliability coefficient (Cronbach's alpha) of 0.76. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 3 indicates that two factors were retained, with factor 1 accounting for 38% of the variance in the index and factor 2 accounting for 20%. Table 3 displays the factor loadings and the uniqueness of the variables. The uniqueness of most of the variables in the index was reasonably low. However, Manage7 was found to be 64% unique, implying that the two retained factors do not explain the variation in the variable very well. Yet Manage7 scored reasonably well with a similar Cronbach's alpha to the other variables in the set. This suggests that this variable can contribute to the index and help measure management processes, but that it also measures another factor that the rest of the index does not, namely business performance.

The Performance Measurement Processes Index Results

Table 4 presents the Performance Measurement Processes Index variables and the associated questions as well as the interitem correlations (covariance) and Cronbach's alpha results. The index achieved an overall reliability coefficient (Cronbach's alpha) of 0.91. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = 0.001$), indicating that the results are meaningful. Table 4 indicates that only one factor was retained, with factor 1 accounting for 59% of the variance in the index. Table 4 displays the factor loadings and the uniqueness of the variables, with the uniqueness of most of the variables in the index being relatively low. However, Perform9 was found to be 65% unique, indicating that the retained factor does not explain the variation in the variable very well. However, Perform9 scored the highest Cronbach's alpha score and this was similar to the alpha scores of the other variables in the set. This suggests that this variable can contribute to the index and help measure performance measurement processes, but it also measures another factor that the rest of the index does not.

The Data and Research Capabilities Index Results

Table 5 presents the Data and Research Capabilities Index variables and the associated questions, as well as the index interitem correlations (covariance) and Cronbach's alpha results. The index received an overall reliability coefficient (Cronbach's alpha) of 0.88. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 5 indicates that two factors were retained, with factor 1 accounting for 41% and factor 2 accounting for 22% of the variance in the index. Table 5 displays the factor loadings and the uniqueness of the variables. The uniqueness values of most of the variables in the index were reasonably low. However, Research7 was found to be 67% unique, implying that the retained factors do not explain the variation in the variable very well. Despite this, Research7 scored well on the Cronbach's alpha score and this was similar to the alpha scores of the other variables in the set. This suggests that this variable can contribute to the index and help measure data and research capabilities, but that it also measures another factor that the rest of the index does not.

The Collaboration Efforts Index Results

Table 6 presents the Collaboration Efforts Index variables and the associated questions, as well as the interitem correlations (covariance) and Cronbach's alpha results. The Collaboration Efforts Index achieved an overall reliability coefficient (Cronbach's alpha) of 0.86. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 6 indicates that five factors were retained, with factor 1 accounting for 35% of the variance in the index, followed by factor 2 accounting for 10%, factor 3 accounting for 9%, factor 4 accounting for 7%, and factor 5 accounting for 6%. Table 6 displays the factor loadings and the uniqueness of the variables. The uniqueness values of most of the variables in the index were reasonably low. However, Collab15 was found to be 66% unique, implying that the retained factors do not explain the variation in the variable very well. However, Collab15 scored well on the Cronbach's alpha score

Table 5
Data and Research Capabilities Index

Item	Item Label	Alpha	Factor 1	Factor 2	Uniqueness
Research1	There is sufficient research into your organization's key markets	0.874	0.554	0.382	0.548
Research2	There is sufficient research into how your industry impacts on the local economy	0.872	0.593	0.542	0.354
Research3	There is sufficient research into your industry's impact on the local community, society, and culture	0.869	0.636	0.594	0.244
Research4	There is sufficient research into your industry's impact on the local environment	0.871	0.614	0.489	0.383
Research5	Research on your industry is regularly undertaken	0.868	0.669	0.243	0.493
Research6	Data for your industry is available, timely, and easy to understand	0.867	0.708	0.090	0.491
Research7	Government uses data to improve its initiatives for your industry	0.879	0.462	0.349	0.665
Research8	You trust the data used for measuring the performance of your industry	0.874	0.545	0.465	0.487
Research9	Your organization collects performance measurement data	0.870	0.688	-0.485	0.292
Research10	Your organization analyzes and interprets performance measurement data	0.868	0.723	-0.511	0.216
Research11	Data is used to develop this organization and improve its processes	0.868	0.719	-0.541	0.191
Research12	Data is integrated into this organization's business processes to enable better decision-making	0.868	0.725	-0.545	0.178
Research13	Interpretation of the data is as valued in this organization as collecting and analyzing the data	0.872	0.657	-0.554	0.262
Test scale		0.880			

Method: Principal Component Factors (unrotated); retained factors = 2; number of parameters = 25; sample = 366.

Table 6
Collaboration Efforts Index

Item	Item Label	Alpha	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Uniqueness
Collab1	Business people in this region are trustworthy and keep their agreements	0.868	0.307	-0.323	0.596	-0.173	0.473	0.193
Collab2	There is open communication and networking amongst organizations in this region	0.854	0.583	-0.549	0.171	0.057	0.084	0.320
Collab3	There are regular meetings, group planning workshops or networking functions relating to your industry	0.852	0.647	-0.324	-0.209	0.312	0.007	0.335
Collab4	You attend meetings, group planning workshops, or networking functions relating to your industry	0.862	0.481	0.147	-0.201	0.387	0.382	0.411
Collab5	Local organizations in your industry work together to ensure competitive advantage and development	0.845	0.777	-0.303	-0.166	-0.134	0.010	0.259
Collab6	Local organizations in your industry need help to develop and maintain cooperative linkages	0.859	0.454	0.252	0.406	-0.354	0.144	0.419
Collab7	Local organizations in your industry interact and compare methods and results of business performance measurement	0.849	0.706	-0.152	-0.252	-0.271	-0.247	0.281
Collab8	Local organizations in your industry are competent and involved in your industry	0.847	0.737	-0.321	0.000	-0.146	-0.117	0.319
Collab9	There are strong business links between local organizations in your industry	0.845	0.768	-0.131	-0.011	-0.023	-0.283	0.312
Collab10	Where possible you try to work cooperatively with other local organizations in your industry	0.857	0.547	0.401	0.535	0.018	-0.074	0.247
Collab11 ^a	Your organization works with other local organizations to provide goods or services or to undertake marketing	0.856	0.529	0.356	0.247	0.239	-0.374	0.335
Collab12 ^a	Your organization is a member of a local or regional industry organization	0.855	0.553	0.158	0.021	0.529	0.003	0.389
Collab13 ^a	You discuss your organization's strategies with other similar operators in this region	0.853	0.615	0.358	-0.418	-0.263	0.201	0.211
Collab14 ^a	You share data and information with other similar local operators	0.853	0.611	0.453	-0.245	-0.370	0.098	0.216
Collab15	Development and leadership of business linkages should be managed by local organizations rather than government	0.862	0.429	0.125	0.221	0.154	-0.259	0.661
Collab16	This organization does not function independently	0.861	0.433	0.180	-0.100	0.245	0.434	0.522
Test scale		0.863						

Method: Principal Component Factors (unrotated); retained factors = 5; number of parameters = 70; sample = 366.

^aSample = 281 for this item as only business respondents were applicable.

and this was similar to the alpha scores of the other variables in the set. This suggests that this variable can contribute to the index and help measure collaboration efforts, but that it also measures another factor that the rest of the index may not.

The Benchmarking Processes Index Results

Table 7 presents the Benchmarking Processes Index variables and the associated questions, as well as the interitem correlations (covariance) and Cronbach's alpha results. The Benchmarking Processes Index received an overall reliability coefficient (Cronbach's alpha) of 0.81. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 7 indicates that one factor was retained, with factor 1 accounting for 57% of the variance in the index. Table 7 displays the factor loadings and the uniqueness of the variables. The uniqueness values of most of the variables in the index were generally low.

The Learning Ability Index Results

Table 8 presents the Learning Ability Index variables and the associated questions, as well as the interitem correlations (covariance) and Cronbach's alpha results. The index received an overall reliability coefficient (Cronbach's alpha) of 0.83. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 8

indicates that two factors were retained, with factor 1 accounting for 43% of the variance in the index, and factor 2 accounting for 11%. Table 8 displays the factor loadings and the uniqueness of the variables. The uniqueness values of most of the variables in the index were reasonably low. However, Learn2 was found to be 63% unique, implying that the retained factors do not explain the variation in the variable very well. However, Learn2 scored well on the Cronbach's alpha score and this was similar to the alpha scores of the other variables in the set. This indicates that the variable contributes to the index, but that it also measures another factor that the rest of the index does not.

The Agility and Adaptability Index Results

Table 9 presents the Agility and Adaptability Index variables, the associated questions, the interitem correlations (covariance), and Cronbach's alpha results. The index received an overall reliability coefficient (Cronbach's alpha) of 0.95. The LR test of the independence of the PCF model was significant ($\text{Prob} > \chi^2 = <0.001$), indicating that the results are meaningful. Table 9 indicates that three factors were retained, with factor 1 accounting for 50% of the variance in the index, and factor 2 and factor 3 accounting for 7% and 5%, respectively. Table 9 displays the factor loadings and the uniqueness of the variables. The uniqueness values of the variables in the index were all low. This suggests

Table 7
Benchmarking Processes Index

Item	Item Label	Alpha	Factor	
			1	Uniqueness
Bench1	This organization benchmarks against similar organizations	0.770	0.750	0.437
Bench2	Benchmarking measures are developed and used	0.742	0.818	0.332
Bench3	It is necessary to assess and benchmark how this organization is performing on an ongoing basis	0.738	0.827	0.317
Bench4	There is benchmarking which compares the performance of this region to other regions	0.801	0.646	0.583
Bench5	It is necessary to assess and benchmark how your local industry is performing on an ongoing basis	0.783	0.704	0.504
Test scale		0.805		

Method: Principal Component Factors (unrotated); retained factors = 1; number of parameters = 5; sample = 366.

Table 8
Learning Ability Index

Item	Item Label	Alpha	Factor 1	Factor 2	Uniqueness
Learn1	Progress is being made to measure intangible sources of value (e.g., talent, knowledge and innovation)	0.826	0.527	0.541	0.430
Learn2	Your organization learns from entities from other regions	0.824	0.545	0.264	0.634
Learn3	Technology is being used to support/enhance performance measurement	0.819	0.595	0.392	0.493
Learn4	In this region, your industry is adaptable and able to adjust to changes	0.809	0.691	-0.271	0.449
Learn5	Measurement is used as frequently for improvement and learning as it is for monitoring, reporting and rewarding	0.807	0.707	-0.275	0.425
Learn6	Your organization learns from other local organizations	0.806	0.719	-0.344	0.365
Learn7	Your organization places a priority on research/development	0.805	0.710	0.232	0.443
Learn8	Your organization undertakes experiments or pilot tests when starting a new project/product/market	0.816	0.630	0.136	0.585
Learn9	You and your staff have local access to training courses offered beyond high school level qualifications	0.805	0.730	-0.388	0.316
Test scale		0.830			

Method: Principal Component Factors (unrotated); retained factors = 2; number of parameters = 17; Sample = 366.

Table 9
Agility and Adaptability Index

Item	Item Label	Alpha	Factor 1	Factor 2	Factor 3	Uniqueness
Adapt1	Can implement changes in its business processes quickly	0.946	0.759	-0.293	-0.144	0.317
Adapt2	Can incorporate new technology quickly	0.946	0.745	-0.256	-0.105	0.369
Adapt3	Can implement small changes quickly	0.946	0.779	0.077	-0.215	0.342
Adapt4	Can implement large scale changes quickly	0.947	0.695	-0.472	0.153	0.270
Adapt5	Can adapt to change easily	0.945	0.806	-0.320	0.035	0.247
Adapt6	Can respond quickly to new opportunities or threats	0.946	0.771	-0.164	-0.188	0.343
Adapt7	Can solve problems quickly and effectively	0.946	0.780	-0.068	-0.313	0.289
Adapt8	Can make and implement decisions quickly	0.945	0.812	-0.078	-0.334	0.223
Adapt9	Has considerable error tolerance (possible to make mistakes)	0.951	0.423	-0.336	0.418	0.533
Adapt10	Has flexible labor (can redeploy/retrain employees quickly)	0.949	0.543	-0.291	0.162	0.594
Adapt11	Has good communication	0.946	0.763	0.020	-0.061	0.414
Adapt12	Is flexible compared to its competitors	0.947	0.681	0.009	0.136	0.518
Adapt13	Is designed to enable change	0.945	0.811	-0.100	0.150	0.310
Adapt14	Is designed to be simple, lean and flexible	0.946	0.722	-0.017	0.015	0.478
Adapt15	Values learning from experience	0.946	0.762	0.301	-0.158	0.304
Adapt16	Values collaboration (between staff and other organizations)	0.947	0.688	0.365	0.162	0.368
Adapt17	Values guidelines more than rules	0.947	0.656	0.228	0.116	0.504
Adapt18	Values cross-training	0.947	0.687	0.270	0.268	0.383
Adapt19	Values outsourcing non-core capabilities	0.949	0.533	0.217	0.514	0.405
Adapt20	Values employees that can deal with various situations	0.947	0.672	0.490	-0.178	0.277
Adapt21	Values employees who try new ways of doing things	0.947	0.681	0.430	0.048	0.349
Test scale		0.949				

Method: Principal Component Factors (unrotated); retained factors = 3; number of parameters = 60; sample = 366.

that the variables are generally explained by the three retained factors.

Discussion and Conclusion

Institutions can either deliver or hinder structural development, and so it is essential that they are

incorporated in structural change models. Despite the established body of work on scales and indices in tourism and associated fields, the use of institutional indices to assess tourism destinations are underdeveloped. Therefore, the institutional assessment primarily drew on existing scales and indices from both tourism and the broader literature (Table

1), resulting in eight institutional indices being developed. These indices aimed to assess competitiveness, management processes, performance measurement, data and research capabilities, collaboration efforts, benchmarking processes, learning ability, and agility and adaptability. With the development of tourism institutional indices for the assessment of tourism destinations remaining largely unexplored and theoretically underdeveloped in tourism literature, the development of the institutional indices is a novel contribution to tourism destination literature and does not appear to have been previously developed to this extent within this context.

This research has delivered a series of indicators by which tourism managers can form baseline measures for benchmarking the current institutions within an organization, industry, or destination. This standardized method of institutionally rating organizations to provide an indication of the performance of the industry or destination can enable the ongoing monitoring of institutions across time, as well as allow comparisons with other organizations, industries or destinations. The indices can reveal particular institutions on which organizations or destinations are underperforming; for example, it may be found that an organization is underperforming in its agility and adaptability scale and therefore can implement organizational changes strategies to address this issue. Moreover, the indices also provide a tool to identify sectors of the tourism industry requiring institutional change; for example, small businesses may be identified as having lower institutional performance (i.e., they rank lower on the indices overall) than larger organizations.

Furthermore, at an international, national, or state level, these indices can be used to pinpoint specific destinations, regions, or countries that require institutional development and can highlight which particular areas to focus on, such as learning or research and so on. These indicators are additionally useful as they are a standardized system that can be used to assess the institutions of other industries and across regions, thereby providing a system for comparison and benchmarking. Such comparisons will enable more directed and efficient institutional change to aid the transformational process. Having an in-depth understanding of business institutions will enable businesses and

the tourism industry to cope with and direct transformational change.

The institutional indices focused on eight areas: competition, management processes, performance measurement, data and research capabilities, collaboration efforts, benchmarking processes, learning ability, and agility and adaptability. Previous tourism research has focused on competition, competitive behavior and interaction (Jackson & Murphy, 2006). Expanding the assessment of institutions to include other elements, this current research therefore contributes innovative indices to tourism literature, specifically for assessing the eight identified foci.

Future research should seek to develop the Competition Index by seeking additional and appropriate items that could enhance the index to ensure it is more predictive. The majority of the indices developed in this research were multidimensional, suggesting they are complex and multifaceted concepts. For these indices to be used as scales, they need to be split by the factors, thus further analysis and development of the indices could result in a number of scales to measure the overarching concepts. Development of the indices into scales would allow for assessment of particular influential factors that may underlie the constructs. While this was not a focus of this research it would be of benefit to pursue this avenue in future research.

A fundamental notion behind transformation theory is that there is a need for ongoing change, learning, and adaptability. Therefore, the proposed scales should be continually evaluated and revised to better measure and adapt to changes in the tourism industry. While the developed indices appear to be robust and successfully measure the constructs of interest, a true test of a scale is to determine whether the results portray reality. Thus, the indices should be implemented and analyzed in future research to fully determine their applicability for measuring institutions.

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