

Factors Affecting Corporate Sustainability Among Colorado Ski Resorts: A Mixed Methods Approach

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Mixed methods were used to gain an understanding of Colorado ski resort employees' perceptions of diffusion of sustainability innovation. Data included eight semi-structured interviews with sustainability managers from six ski areas in Colorado and quantitative data from online surveys ($N = 264$) distributed to employees from five Colorado ski resorts. A sustainability framework coupled with diffusion of innovations theory linked the qualitative and quantitative data. The strongest indicator of corporate sustainability was innovativeness as it relates to leadership. General agreement between the two study groups pertained to drivers and barriers of corporate sustainability from the external environment, including competition, customer demand, and government regulations as well as the role of company size and financial structure. While sustainability managers considered innovation characteristics as important factors affecting corporate sustainability, the second study group (employees not holding sustainability-related positions) felt those items affected just one dimension of sustainability. Internal communication within the resort and the possible lack of understanding of corporate sustainability at all organizational levels was a concern. Challenges and opportunities for organizational change towards corporate sustainability were noted from the mixed-methods approach.

Keywords: Colorado, corporate sustainability, diffusion, innovation, ski resorts, tourism

Introduction

Businesses are central actors in any societal transition towards sustainability. Yet, the lack of strategic orientation in corporate sustainability management is one major reason for the lack of progress in this field (Baumgartner & Rauter, 2017). Corporate sustainability (CS) recognizes corporate growth and profitability as important, yet requires corporations to pursue societal goals, specifically those related to sustainable development: environmental protection, social justice and equity, and economic development (Wilson, 2003). The first step in a shift towards CS is to understand what factors affect the transition, followed by identifying the drivers and barriers. Only then can a company mediate those factors at an institutional level. Studies suggest such factors external to the organization, as environmental regulations set by governments and pressures from customers and the community, being primary drivers behind the adoption of CS practices (Fukukawa & Moon, 2004; Howard-Grenville, 2006). Other studies point to internal organizational pressures, such as staff turnover,

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top management support, environmental training, and employee empowerment, as key motivators for achieving CS (Wilkinson, Hill, & Gollan, 2001; Szekely & Knirsch, 2005). Regardless of the origin, the numerous factors affecting CS pose not only a challenge for corporate leaders, but also an opportunity to foster sustainability within the companies.

In today's dynamic markets and environments, one increasingly important way for companies to contribute to global sustainability is through sustainability-driven innovation practices (Klewitz & Hansen, 2014). When a resort seeks to implement a new sustainability policy, practice, or product, regardless of the motivation (Bansal & Roth, 2000), innovation is introduced (Smerecnik & Andersen, 2011). Rogers (2003) defined an innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (p. 12). It is important to note that newness may be considered in terms of knowledge, persuasion, or a decision to adopt. Diffusion of an innovation, on the other hand, is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5). Studies suggest that a destination's success might strongly depend on its innovation levels (Hjalager, 2010; Kuscer, Mihalic, & Pechlaner, 2017).

Rogers distinguished three main components affecting the diffusion of innovations (DoI): characteristics of innovation, characteristics of the external environment, and characteristics of the adopter. Literature shows that the successful adoption of innovation can be predicted by the perceived characteristics of the innovation: complexity, relative advantage, compatibility, observability, and trialability (Rogers, 2003) (see Table 1).

Table 1

DoI Theory—Characteristics of the Innovation

Characteristic of the innovation	Definition	Suggested relationship with innovation adoption
Complexity	The degree to which an innovation is perceived as difficult to understand or use.	The more complex an innovation, the less likely it will be adopted.
Relative advantage	The degree to which an innovation brings economic benefits, improved brand image, convenience, customer and employee satisfaction, etc.	The greater the perceived relative advantage, the more rapid the rate of adoption.
Compatibility	The degree to which an innovation is perceived as being consistent with the existing values, as well as past experiences and needs of the potential adopters (organizations).	The more compatible the innovation, the higher the rate of adoption.
Observability	The degree to which the results of an innovation are visible to other.	The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it.
Trialability	The degree to which an innovation may be experimented with on a limited basis.	If an innovation can be tested in advance or on a small scale, the rate of diffusion is higher.

Note. Source: Adapted from Rogers (2003).

External environment factors include competition, customers, and regulations. It is becoming increasingly accepted that ineffective stakeholder involvement in sustainability initiatives can hinder the achievement of business objectives (Waligo, Clarke, & Hawkins, 2013). Nevertheless, companies have limited ability to overcome external barriers to change (Lozano, 2013). Although customers do not consistently factor sustainability into their purchase decisions (Laughland & Bansal, 2011), the existence of groups, such as Ski Area Citizens' Coalition and Protect Our Winters, indicates that customers are increasingly demanding accountability. Yet, a better understanding of consumer motivations and behavior regarding sustainability is necessary, considering the complexity of the phenomenon (Font & Hindley, 2017). Lastly, government systems

and current regimes can “steer” society toward more sustainable practices (Bramwell, Higham, Lane, & Miller, 2017). The political and legal environment should be supportive while regulatory frameworks should be efficient when it comes to the issue of sustainability in a tourism context (Kuscer et al., 2017). Ioannou and Serafeim (2012) who studied corporate sustainability for over seven years, sampling firms from over 40 countries, found the political system, followed by the labor and education system, as the most important categories of institutions impacting CS. Further, government policies need to incentivize outcomes and be more clearly connected to sustainability (Laughland & Bansel, 2011).

The third component affecting the adoption of innovations concerns the characteristics of the adopter. Rogers (2003) explained innovativeness as the degree to which an individual or an organization is relatively earlier in adopting new ideas than the other members of a system. Many authors use the term “innovativeness” to refer to organizational cultures that encourage the acceptance of change and new routines, the assumption of a certain degree of risk, and the identification of internal and external opportunities (Hurley & Hult, 1998; Tajeddini, 2010). In regards to size, studies show that a company’s size influences the level of engagement for sustainability-oriented practices (Gallo & Christensen, 2011; Uhlaner, Berent-Braun, Jeurissen, & De Wit, 2011). Generally, large firms have more financial and human resources to adopt sustainability practices (Le, Hollenhorst, Harris, McLaughlin, & Shook, 2006). Likewise, sustainability policies and practices are often adopted more easily among private firms since public companies have their “first priority” of bringing maximum financial return to its stakeholders (Personal communication, December 18, 2014). Yet, other studies reveal that public firms could more easily attract new human capital and acquire external innovations (Mazzacurati, 2013).

Although DoI theory has been widely used in various disciplines with over 30 nations using DoI and over 6,000 publications (Rogers, 2003), its application in the service sector is limited. At an organizational level, the capacity of firms to innovate and adapt to market developments is crucial to their success, but research-based knowledge on innovation strategies in tourism is scarce (Alsos, Eide, & Madsen, 2014). The few studies applying DoI to tourism have primarily investigated topics related to diffusion of environmental sustainability policies (Le et al., 2006; Smerecnik & Andersen, 2011). Hence, the diffusion of sustainability innovation in the (ski) resort industry has not been systematically investigated. Although resorts and ski destinations are meticulously studied, research on the range of factors affecting sustainability innovation in the industry is limited (Kuscer et al., 2017).

Tourism and Sustainability

Traditionally, the sustainable development paradigm includes three dimensions: economic, socio-cultural, and environmental (Dijks, 1995; Spangenberg, 2002). Most businesses focus on those three aspects when addressing CS. However, achieving a balance among these three classic dimensions is difficult without an institutional perspective to manage, mediate, and facilitate growth as suggested through the prism of sustainability (PoS) framework (Cottrell & Raadik, 2008; Cottrell, & Vaske, 2006; Puhakka, Sarkki, Cottrell, & Siikamäki, 2009; Cottrell, Vaske, & Roemer, 2013; Spangenberg, 2002; Spangenberg & Valentin, 1999). To operationalize, evaluate, and monitor the complex concept of CS, it is useful to rely on an established sustainability framework as the PoS (Puhakka, Cottrell, & Siikamaki, 2013). The model provides a relatively holistic framework to conceptualize, understand, and analyze tourism sustainability (Spangenberg & Valentin, 1999).

This study utilizes PoS as a guide to assess factors affecting CS among ski resorts in Colorado. From the socio-cultural aspect, the company’s approach towards resort guests and company employees was considered; from an economic standpoint, the role ski resorts play in the local economy was examined; environmentally, focus was placed on natural resource protection and use of sustainable products. The institutional imperative (Valentin & Spangenberg, 2000) included ski resort rules, norms, and policies concerning sustainability and how those were communicated within the tourism company.

Considering the multifaceted and complex nature of tourism as a phenomenon, it should be studied comprehensively. A mixed method of analysis offers a promising approach to exploring tourism-related issues (Puhakka et al., 2013). The central premise of mixed methods is that the use of quantitative and qualitative approaches in combination may provide a better understanding of research problems than either approach alone (Creswell & Plano Clark, 2007) by incorporating the strengths of both methodologies and reducing some of the problems associated with singular methods (Molina-Azorin & Font, 2016).

Molina-Azorin and Font (2016) stated that mixed methods are a good choice for sustainability studies by encouraging cross-disciplinary teamwork, which facilitates the reflection and advancement of ideas. Similarly, Puhakka et al. (2013) argued that while mixed methods represent a step forward in the evolution of research methodology as it combines the strengths of both approaches (Creswell & Plano Clark, 2007), a gap in its usage in tourism research exists (Decrop, 1999). Nevertheless, through a more recent content analysis of empirical studies published in the *Journal of Sustainable Tourism*, Molina-Azorin and Font (2016) found that 14% of the papers published in the journal utilized mixed-method approaches. Yet, there remains a general perception that mixed methods studies are rarely put into practice in tourism (McGehee, Boley, Hallo, McGee, Norman, Oh, & Goetcheus, 2013).

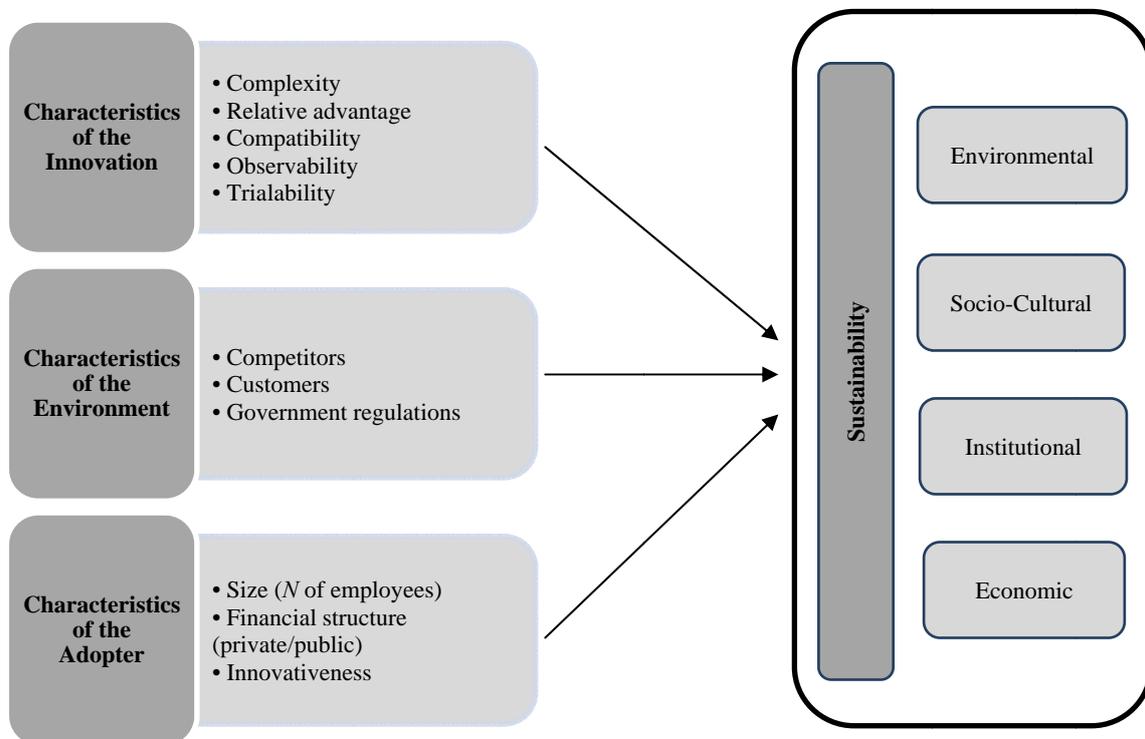


Figure 1. Diffusion of sustainability innovation framework. Source: Le et al. (2006) and Smerecnik and Andersen (2011).

This paper positions mixed-method research as a complement to traditional qualitative and quantitative methods in tourism, and it specifically illustrates a complementarity mixed methods approach (Golobic & Davis, 2012). The conceptual framework guiding this study includes three main components: characteristics of sustainability as an innovation, characteristics of the external environment, and characteristics of the ski resort as factors affecting Colorado ski resorts' CS. Figure 1 above visually depicts the relationship between the different components of the framework.

The framework highlights the main factors expected to affect the diffusion of sustainability innovation among Colorado ski resorts. More specifically, the following research questions guide this paper:

R1: What are the main factors (drivers and barriers) affecting the four dimensions of CS among Colorado ski resorts as per the conceptual framework?

R2: To what extent does the data from the ski resort employees (quantitative data) support/supplement (enhance) the results of the ski resort managers' interviews (qualitative data) in a complementarity mixed-methods research approach?

R3: Is there value in a mixed-methods approach exploring ski resort employees' perceptions on the diffusion of sustainability innovation among Colorado ski resorts?

Study Context and Study Area

According to data from the National Ski Area Association (NSAA) 2016/2017, the ski industry brought \$8.4 billion to the U.S. economy (direct spending in U.S. resorts) (National Ski Area Association, 2018). At the state level, Colorado typically ranks as the top state in the U.S. for total skier visits. Colorado's ski industry generates more than \$1.5 billion in revenues per year (Colorado Tourism Office, 2016) with Colorado skier visits at 12.9 million for the 2015/2016 season (Blevins, 2016). Based on the number of participants in snow sports and revenue generated by resorts, ski areas are an important sector of the tourism industry in the U.S.

Climate change was identified as one of the biggest challenges facing the tourism industry and the sustainability of destinations worldwide (UNWTO, 2008). The tourism industry is inevitably linked to the natural environment, and tourism activities are often dependent on qualities of the natural environment, such as snow conditions. As such, the tourism industry is expected to be effected directly by predicted climatic changes (Becken & Hay, 2012; Cocolas, Walters, & Ruhanen, 2016; Hall & Higham, 2005; Schott, 2010; Scott, Hall, & Gossling, 2012; UNWTO, 2008). It is widely accepted that adaptation to climate change for ski resorts is necessary in response to projections of warming (Gossling, Scott, Hall, Ceron, & Dubois, 2012). Hence, ski resorts are yet another segment of the tourism industry, which is concerned with the idea of CS (UNWTO, 2008).

Most of the research related to ski resorts and sustainability focuses on studying the impact the ski industry has on the environment, e.g., effects of snowmaking on the environment and the resorts (Scott, McBoyle, & Mills, 2003; Smith, 2010), chairlifts and trail maintenance environmental impacts (e.g., Hadley & Wilson, 2004; Wipf, Rixen, Fischer, Schmid, & Stoeckli, 2005; Martin, Pohl, Alewell, Korener, & Rixen, 2010), innovations in sustainable transport management (Scuttari, Volgger, & Pechlaner, 2016), impacts from resort development (Gill & Williams, 2011). Meanwhile, a large number of studies examined how climate change impacts the industry while discussing implications for the resorts' future (Moen &

Fredman, 2007; Hopkins, 2014; Morrison & Pickering, 2013). Kuscer et al. (2017) pointed out that mountain destinations need to develop active strategies for implementing innovative processes, products, and services to keep pace with climate change. Research shows that more innovative ski resorts tend to be more environmentally proactive (Sharma & Aragon-Correa, 2007) and that climate change effects might create a competitive advantage for resorts that naturally receive more snowfall and will require improved snowmaking infrastructures for the others (Scott et al., 2003). While one study created a model for improved strategic performance in ski resorts specifically, incorporating elements of sustainability supported by the World Tourism Organization (Flagestad & Hope, 2001), other research found that the voluntary adoption of the Sustainable Slopes program, created by NSAA, did little to improve ski resorts' environmental performance (Rivera, De Leon, & Koerber, 2006). Thus, further research is necessary to explain which factors influence the diffusion of sustainability practices in the ski resort industry (Sharma & Aragon-Correa, 2007; Smerecnik & Andersen, 2011).

Methods

A mixed-methods approach involving a complementarity sequential case study design (QUAL & QUAN) (Creswell & Plano Clark, 2007) was used to gain a holistic understanding of ski resorts employees' ideas and perceptions of diffusion of sustainability innovation. With this method, equally weighted methods are used with data analyzed and interpreted sequentially, while merging findings in a single report. With this design, the results achieved from the first method do not inform the design or implementation of the subsequent method, yet the results from the second method clarify and/or enhance the results from the first method. Yet, data are analyzed and interpreted in a single report of results (Golicic & Davis, 2012). Two main methods were employed for data collection: in-depth semi-structured interviews and an online survey to gain a broad understanding of the phenomenon with the time and resources allotted for the research. Thus, the ideas of the two study groups are analyzed and the value of a mixed-methods approach from a ski resort context is explored. The main concept of the study, sustainability, is very dynamic, complex, understood and measured in different ways, depending on the context of the study and researcher and participant background (socially-constructed). Therefore, we approached the study through an interpretivist paradigm, portraying reality as socially constructed, complex, and ever-changing (Glesne, 2011).

Qualitative Data

Eight semi-structured interviews with sustainability managers from six ski areas in Colorado were conducted. The size of the resorts varied from small-up to 200 employees during the peak of the winter season to a resort with 25,000 employees. Three of the ski areas were private companies and three public. Interview questions were theory-driven (DoI) and open-ended. Interviews were conducted between November 2014 and January 2015. Interview recordings ranged from 35 to 65 minutes. Three of the interviews were conducted face-to-face and five over the phone.

All interviews were transcribed verbatim for analyses and grouped by cases (ski resorts). The transcripts were analyzed using a hybrid approach of deductive and inductive thematic analysis (Fereday & Muir-Cochrane, 2008). The quality of the interview data analysis and interpretations followed well-accepted criteria for qualitative research. Credibility was ensured through triangulation (multiple sources of evidence) and variations in the sample resorts' characteristics. Internal credibility (Lincoln & Guba, 2000) of the

findings was further supported through pattern matching within and across cases and addressing rival explanations. The consistent use of methods to collect and analyze, e.g., using a standard research protocol, ensured the dependability and confirmability of the data (Miles & Huberman, 1984). Additionally, the trustworthiness of the data was strengthened by a peer debriefing technique (Lincoln & Guba, 2000), which involved discussing, reviewing, and testing the emerging thoughts, hypotheses, and findings against a disinterested peer (a non-academic) to help ensure that researchers' conclusions are reasonable from others' perspective.

Quantitative Data

The quantitative approach was an on-line survey distributed to a sample of employees from five Colorado ski resorts. They accessed the survey online through SurveyMonkey.com between March 2015 and May 2015. The study sample consisted of 322 respondents from five ski areas in Colorado. Yet, 58 of the respondents did not complete all questions of the survey. As a result, the number of responses included in the analyses dropped to 264. All survey responses were anonymous. The questionnaire included items on participants' perceptions about sustainability as an idea, the influence of the business environment outside of the resort, and practices and policies related to sustainability specific to the resort. The majority of the questions utilized a 7-point scale ranging from strongly disagree to strongly agree. Lastly, demographics were included as a final section in the survey, ending with a page thanking the participant.

Several indices and modified measures from previously published literature were developed to test the predictive power of DoI variables on ski resorts' CS. Four sustainability indices representing environmental, socio-cultural, institutional, and economic sustainability were created. Similarly, scales were created to measure three of the DoI variables. All indices were constructed through a combination of exploratory factor and reliability analyses to create optimally reliable scales. Cronbach's alpha coefficient was used to determine the internal consistency of the measurement scale items used to operationalize the constructs. To assess the relative contribution of each predictor variable identified in Figure 1, multiple regression was used, regressing the DoI variables on each of the four dimensions of sustainability. The Statistical Package for the Social Sciences (SPSS), Version 23.0 was used for the analysis.

Results

Analyses focused on finding patterns across all cases (ski resorts) while linking the perceptions of sustainability professionals (sustainability ski resort managers) and the sustainability non-experts (broad range of ski staff) about diffusion of sustainability. Study findings are reported in accordance with the research questions with results from the two study groups presented simultaneously (revealing key factors affecting corporate sustainability—R1), while differences in perceptions are highlighted (R2). Table 2 presents a summary of the main themes from the interview data, including quotes illustrating each of the themes. Similarly, Table 3 reveals the results from the survey.

Table 2

Sustainability Ski Resort Managers' Perceptions on Diffusion of Sustainability Innovation

DoI variables	Emergent theme/aspect	Quote
Characteristics of the innovation		
Complexity	Multifaceted, systemic integration, difficult to measure	"... The whole idea of sustainability being so complex, so many systems come together to create this idea of sustainability, it's very hard to pin point it and it takes usually a couple years of watching your mission... to really see any big change... [it is also] tough to measure".
Relative advantage	Improved reputation	"... We think it makes good business sense to be a good neighbor in a community. To be viewed as a responsible company, a socially responsible company. And that just makes all kinds of sense to us. It's part of who we are, and we want to continue to do that".
	Financial benefits	"... Some of the projects we're doing are saving money. Not only reducing our emissions, we're conserving resources, so we're actually saving money of the company. I think that's the biggest thing that'll hit home".
Compatibility	Company culture, sustainability position	"Sustainability is naturally...embedded in everything". "... Right now it [sustainability] is viewed as a speedbump, it's viewed as a regulatory... almost like... do you have to"?
Trialability	Small scale trial	"It helps build the credibility of your program to the people that are making the decisions about the money and where it's going. And if its small and you don't see a bunch of expenses, you're more likely to get approval for that project, or get money for that project because you've proven that those things save money or human resources".
Observability	Long-term results	"... Wait a minute, if I invest X amount of capital, I'm not gonna make any more money, I'm gonna save money on electricity costs. So it's not the way businesses normally think. They think if I invest X amount of money, I'm gonna make Y amount more, and I can get my head around that".
Characteristics of the external environment		
Competition	No effect	"There is no competitive pressure surrounding sustainability, the competitive pressure is completely surrounded by guest experiences".
Customers	Not a factor but can play a role	"... They [ski resorts] are going to be more open to it, because of public pressure. ...there is more momentum around the need for sustainable practices. And there are more and more penalties and public outcry around folks that don't practice sustainable practice, so, I think there's a lot of opportunity and potential there". "So that was our road block—we were expecting somebody who was on vacation from Texas [for example], who lives someplace where they maybe don't even recycle... to walk with their tray of five different materials and find the right receptacles for all of them and then it work out... and it doesn't, it just doesn't".
Government regulations	Not a factor but can play a role	"Regulations definitely work, but, you certainly need to elect people to make that happen". "... The majority of things that we are not doing should be government mandated for us to do... if not government—then mandated from the corporate level".
Characteristics of the adopter		
Innovativeness	Leadership	"... It [sustainability] does take a long term vision and approach... there is an investment associated here that has a longer payout. So it does take a holistic kind of forward thinking leader to think of the business that way". "... The [resort] CEO has a vision... we're going to build a business that not only survives, or thrives over time, and we're going to invest in all aspects of the foundation because it's not only the right thing to do, but it drives a successful business".
Size	Easier for smaller resorts	"I think it's easy as you get more and more dispersed, to lose sight of some of those things that you say are important. However, you can point to very, very large companies who have very, very strong sustainability ethic. But it takes work and energy and integration... It is all about leadership".
Financial structure	Easier for private resorts	"... Private ownership is a real benefit; it is harder to do this in a publicly traded company". "Our mandate as a company is very clear—it is maximum return to shareholders".

Table 3
Survey Questionnaire Results

Independent variable	Dependent variable							
	Environmental sustainability (<i>n</i> = 262)		Socio-cultural sustainability (<i>n</i> = 264)		Institutional sustainability (<i>n</i> = 264)		Economic sustainability (<i>n</i> = 264)	
	<i>r</i>	β	<i>r</i>	β	<i>r</i>	β	<i>r</i>	β
Characteristics of the innovation								
Complexity	0.048	0.024	0.370	0.067	-0.015	-0.029	-0.025	0.039
Relative advantage	0.114*	-0.066	0.132*	-0.129**	0.115*	-0.052	0.223***	0.045
Compatibility	0.479***	0.039	0.570***	0.200***	0.389***	0.040	0.345***	0.068
Observability	0.302***	0.084*	0.328***	0.125***	0.234***	0.054	0.220***	0.073
Trialability	0.003	-0.023	-0.016	-0.071	-0.041	-0.048	-0.094	-0.120*
Characteristics of the external environment								
Competition	0.66	0.018	0.083	0.048	0.098	0.098*	0.031	0.037
Customers	0.135*	-0.012	0.220***	0.113**	0.132*	0.024	0.211***	0.100
Government regulations	0.289***	0.116***	0.199***	0.004	0.230***	0.076	0.121*	0.009
Characteristics of the adopter								
Innovativeness	0.825***	0.768***	0.784***	0.677***	0.638***	0.475***	0.483***	0.383***
Size	-0.196***	-0.110**	-0.264***	-0.222***	-0.106*	0.077	-0.006	0.040
Financial structure	-0.408***	0.020	-0.346***	0.125**	-0.481***	-0.277***	-0.221***	-0.032
<i>R</i> ²		0.706***		0.705***		0.461***		0.243***

Notes. *: Significant at $p < 0.05$; **: Significant at $p < 0.01$; ***: Significant at $p < 0.001$. Complexity scale is adopted from Le et al. (2006), McCabe (1987), and Smerecnik and Andersen (2011). Relative advantage scale is adopted from Smerecnik and Andersen (2011). Compatibility scale is adopted from Kocis (1986), Le et al. (2006), and Smerecnik and Andersen (2011). Trialability and observability items are adopted from Le et al. (2006), McCabe (1987), Moore and Benbasat (1991), and Smerecnik and Andersen (2011). External environment scales are adopted from Le et al. (2006) and Smerecnik and Andersen (2011). Sustainability scales are adopted from Cottrell et al. (2013), Cottrell and Vaske (2006), Cottrell and Raadik (2008), Cottrell and Siikamäki (2009), Le et al. (2006), Puhakka et al. (2009), and Smerecnik and Andersen (2011).

Characteristics of the Innovation

First, pertinent to characteristics of the innovation, a few of the interviewees talked about the complexity of sustainability and how difficult it was to be integrated into an organization, revealing a negative relationship between the two variables. It was noted that it required systemic changes throughout the organization, taking a long time to see any results, and it was very difficult to measure. One manager explained that sustainability is multifaceted in a way that most organizations do not understand the “win-win” in being a sustainable company. Managers must have a “holistic look”, as he put it, and recognize that sustainability is “good business”, but it requires knowledge and devotion.

When comparing interview results with those from the online survey, complexity was not a significant predictor of sustainability among Colorado ski resorts. Thus, pertinent to complexity as a characteristic of the innovation, perceptions of sustainability professionals and the broad range of ski area employees differed.

The second component from the characteristics of the innovation is relative advantage. A few of the ski resort managers discussed the resort's improved reputation as one benefit (advantage). An interviewee noted that when one thinks of companies like Patagonia and IKEA, the first thing that comes to mind is sustainability, and then she added: "That's where we want to be". Additionally, a few of the sustainability experts highlighted that adopting sustainability within their companies was a "win-win" scenario, bringing a financial return as well. Thus, it can be implied that relative advantage affects the economic sustainability of a ski resort, i.e., improved reputation can be a facilitator for higher financial returns for the company (and the local economy).

Nevertheless, results pertinent to perceptions of the non-sustainability staff indicated that relative advantage predicted only socio-cultural sustainability ($\beta = -0.129, p < 0.01$) (see Table 3), yet with a minimal effect size and reversed relationship. Thus, a difference between the perceptions of the two groups about advantages sustainability brings was once again exposed.

Next, perceptions of the sustainability experts and the non-expert resort staff in terms of compatibility with existing company culture, structure, policies, and leadership team were also somewhat mixed. While one expert stated that sustainability is "naturally... embedded in everything" (the company does), another participant pointed out that sustainability was currently not compatible with the resort's culture and viewed as "a speedbump". She further explained that it had to be dynamic and continuous because otherwise it "falls off". Related to the institutional dimension, one advice from several sustainability managers was about systemic changes and communication throughout the company, rather than isolating each department as a separate "silo" with its own goals and objectives: "... All of them (department sustainability initiatives) will be random programs unless somebody can tie them all together and articulate...".

Interviewees also highlighted that sustainability practices and ideas can be communicated through a weekly employee newsletter, performance reviews, award systems (recognition), new hire orientation, outreach events (with community partners), volunteer efforts (employee volunteer day), and emails.

Conversely, survey results indicated that compatibility was not a strong predictor of Colorado ski resort's CS, as compatibility affected socio-cultural sustainability only through the perceptions of ski resort non-experts ($\beta = 0.200, p < 0.001$). Nevertheless, not surprisingly, the sustainability non-experts' results show that if a ski resort fosters a sustainability company culture, that will affect the way guests and employees are treated and possibly the way they perceive sustainability ideas.

The fourth characteristic of the innovation is observability. Although the sustainability resort managers did not speak directly about it, one participant argued that one of the biggest obstacles to sustainability was the long-term nature of benefits, not near term, which could certainly relate to observability (results of the innovation were not visible immediately), thus implying that as observability increases, the sustainability of the resort will also improve. One interviewee stated it was "a different way of thinking" and difficult to grasp because the return often comes in the form of savings rather than income, thus, suggesting that observability of sustainability as an innovation affects the economic aspect of CS, i.e., the company "misses out on" possible financial benefits in the near or far future due to the lack of observability with benefits of sustainability as an innovation.

Conversely, sustainability non-experts perceived observability as a predictor to environmental ($\beta = 0.084, p < 0.05$) and socio-cultural sustainability ($\beta = 0.125, p < 0.001$), yet with a minimal effect size. Hence, although both groups considered observability as a factor affecting ski resort's CS, it is not among the most powerful drivers or barriers to CS.

To address the problem with lack of observability of the results from sustainability innovation, one resort manager said she took little steps and spent a small amount, while trying to show what could be saved, which can also relate to trialability—try out smaller changes before moving to a more major shift towards sustainability. Yet, no further discussion of the role of trialability as a factor affecting sustainability took place among managers. This notion can be linked to survey results as well, where trialability was a significant predictor of economic sustainability ($\beta = -0.120, p < 0.05$), with a minimal effect size. Importantly noted, none of the characteristics of the innovation were significant predictors of institutional sustainability from the survey results.

Characteristics of the External Environment

The second main aspect of the conceptual framework concerns factors about the external environment. Pertinent to competition between ski resorts, one interviewee explained that the company did look at other parts of the industry as a member of the industry groups, such as Colorado Ski Country in the state, and nationally within the US—the National Ski Association. Sustainability experts further elaborated that industry conferences were one place to share ideas—learning what innovations other resorts adopt and “looking for win-win situations”. Nevertheless, most interviewees did not speak strongly about competition among the resorts as a trigger for sustainability. Similarly, according to the non-sustainability staff, competitors were only a predictor of institutional sustainability ($\beta = 0.098, p < 0.05$), yet with a minimal effect size.

Next, discussing the role of ski resort customers, general agreement among ski area sustainability managers existed that people were increasingly interested in socially responsible companies with sustainability as one aspect their clientele expected. It was further added that, the more people see successful businesses socially responsible, the more they tend to follow suit.

Conversely, another participant was concerned with the role customers play in a negative way. She argued that often ski resort guests were not willing to make any “extra” efforts to be more sustainable primarily because they were on vacation or because they were coming from another area holding different values towards sustainability. Taking that in consideration, it was also highlighted that some resorts have the mentality that if the guests did not ask for it, there was no need to do it. One of the interviewees stated that there were many things that could be done behind the scenes (e.g., recycling, composting, reducing footprint), but “they either do not have a guest impact or do not have a positive guest impact... And that’s really all that matters here...”. Thus, customers may not be a driver of CS according to ski resort sustainability professionals; rather they can be perceived as a barrier or have a negative relationship with CS.

Similarly, survey respondents did not perceive customers as a strong predictor of CS. Results indicate that resort guests only affect the socio-cultural sustainability of Colorado ski resorts ($\beta = 0.113, p < 0.01$), yet with a minimal effect size.

Pertinent to government regulations, most interviewees did not consider regulations a strong driver of ski resort sustainability, although a few noted that stricter regulations could actually assist in the process:

... If anything were to happen, that will be most likely an outside factor... And I would say specifically the outside factor would be regulatory... the majority of things that we are not doing should be government mandated for us to do... if not government—then mandated from the corporate level. (Interview)

A few of the managers discussed politics and the role elected officials play in affecting sustainability, suggesting that people should vote and vote for officials supportive and proactive of CS. Several interviewees argued “the tipping point is now” and governments must act in a timely manner. One more important point related to regulations was the lack of incentives. A few interviewees argued that not many incentives existed for adopting sustainability practices, especially compared to existing incentives for homeowners.

When examining the survey results, government regulations were a significant predictor of environmental sustainability ($\beta = 0.116, p < 0.001$). Not surprisingly, ski resort staff supported the notion that stricter regulations will certainly affect the ecological aspects of CS. Lastly, none of the characteristics of the external environment were significant predictors of economic sustainability among Colorado ski resort employees, which might possibly indicate that the financial aspects of CS may be affected by other internal factors.

Characteristics of the Adopters

In terms of internal factors, the interviews aimed at understanding how the innovativeness of the company and its leadership, size of the company (number of employees), and its financial structure (public or private) affect the diffusion of sustainability innovation. The first characteristic of an organization as a potential factor affecting ski resorts’ sustainability (see study framework) is innovativeness—addressing whether the ski resorts were open to change, proactive, and adopting sustainability practices beyond government regulations. The most prominent theme across all interview themes was leadership. All participants stated that any changes and innovations towards sustainability that take place at the resort were triggered by a devoted leader(s), passionate about sustainability first, “a holistic forward thinker”, who had a well-defined vision for the company’s path towards sustainability. One respondent stated that “with very few exceptions, particularly in the corporate structure—things don’t happen bottom-up!”. It was further stated that all top leaders must be on board for any sustainability changes to happen, not only the CEO, as one interviewee stated, but also the CFO and all other managers and directors. Hence, proactive, open-minded leadership was suggested to be the antecedent of a ski resort’s innovativeness and ultimately the strongest driver of CS.

Survey results matched this proposition (see Table 3). Innovativeness was a predictor of all four dimensions of sustainability: environmental sustainability ($\beta = 0.768, p < 0.001$), socio-cultural sustainability ($\beta = 0.677, p < 0.001$), institutional sustainability ($\beta = 0.475, p < 0.001$), and economic sustainability ($\beta = 0.383, p < 0.001$). Moreover, the effect sizes for all coefficients were substantial > 0.5 (Vaske, 2008) (except the economic dimension approaching 0.4). Thus, both sustainability experts and the sustainability non-professionals perceived innovativeness a strong driver of CS.

The second characteristic of the adopter was the size of the ski resort, measured in terms of number of employees. Generally, there was an agreement among the sustainability experts who discussed the topic that sustainability innovation was more easily diffused among smaller companies. One manager of a smaller company highlighted that being a small ski area was a big advantage, as change in policies and initiatives were easier to achieve, it was also easier to hold people accountable for their actions. The same respondent also argued it was easier for smaller companies to cultivate an organizational culture and stay “connected to the core”, which ultimately affects the diffusion of innovation. This statement also links to the institutional dimension of sustainability indicating that the smaller size affects communication within the organization, including policies, rules, and norms (institutional dimensions). Conversely, one interviewee stated that she did

not think size matters. In her opinion, the only thing that mattered was to have passion. Another important point was that smaller companies do not always have the resources to invest in sustainability, “we have to be very careful about how we invest our money”, they stated, which can certainly relate to effects on the economic sustainability of the resort.

Meanwhile, survey results revealed the size of the company as a predictor of environmental ($\beta = -0.110$, $p < 0.01$, respectively) and socio-cultural sustainability ($\beta = -0.222$, $p < 0.001$), yet with minimal to approaching typical effect size, respectively. Thus, perceptions of the two study groups about the role company size plays appeared to match, yet the dimensions of sustainability to be affected appeared to differ.

Lastly, the sustainability professionals agreed that sustainability innovation was more easily diffused in private companies. One interviewee highlighted that quite often, big companies were public and under pressure to grow and produce certain margins, relating to the economic aspects of the resort’s sustainability. A smaller company, meanwhile, does not experience much external pressure, thus, if the owner wants to invest in sustainability, they can.

Interviewees stressed on the impact the financial structure the ski resort has on the institutional and socio-cultural dimensions of sustainability; the bureaucracy in public companies makes communication and implementation of sustainability ideas difficult. Similarly, another manager in a publicly traded company stated that “our mandate as a company is very clear—it is maximum return to shareholders”. Thus, anything that does not bring immediate financial benefits, including sustainability, is not a priority of those resorts.

The perceptions of the non-sustainability experts were somewhat similar. Survey results indicate that the ski resort’s financial structure affected the socio-cultural ($\beta = 0.125$, $p < 0.01$) and institutional sustainability ($\beta = 0.277$, $p < 0.001$) of Colorado ski resorts, yet the relationships were in opposite directions. This indicates that being a private company positively affects the socio-cultural sustainability of the company, while in a public financial structure it is more difficult to ensure institutional sustainability. Accordingly, perceptions of sustainability professionals and non-experts about the role of the ski resort’s financial structure as a predictor to CS were similar.

Overall, survey results reveal that diffusion of innovation attributes explains 70% of the variance in environmental ($R^2 = 0.706$, $p < 0.001$) and socio-cultural sustainability ($R^2 = 0.705$, $p < 0.001$) of Colorado ski resorts, 46% of the variance in institutional sustainability ($R^2 = 0.461$, $p < 0.001$), and 24% of the variance in economic sustainability ($R^2 = 0.243$, $p < 0.001$) of Colorado ski resorts (see Table 3). To summarize overall study results, Table 4 presents findings, highlighting agreements and differences among the two study groups. The bubbles represent findings from the interviews (qualitative data) in the form of frequencies. Conversely, survey result bubbles indicate how many of the four sustainability dimensions are predicted by each variable. Table 4 provides a visual summary of the mixed-methods findings and not a statistical comparison as the two types of bubbles (for qualitative and quantitative data) are not compatible.

To conclude, data from the non-sustainability staff (quantitative data) supplemented ski resort sustainability managers’ interviews (qualitative data) in this complementarity mixed-methods approach. Yet, differences on their perceptions of diffusion of sustainability were revealed in regards to some of the variables from the conceptual framework (R2).

Table 4
Qualitative and Quantitative Data Comparison

Diffusion of innovations variables	Qualitative data*	Quantitative data**
Characteristics of the innovation		
Complexity	●	
Relative advantage	●	● ²
Compatibility	●	● ²
Trialability	•	● ⁴
Observability	●	● ^{1,2}
Characteristics of the external environment		
Competition	•	● ⁴
Customers	•	● ²
Government regulations	●	● ¹
Characteristics of the adopter		
Innovativeness	●	● ^{1,2,3,4}
Size	●	● ^{1,2}
Financial structure	●	● ^{2,3}

Notes. * Number of interviewees discussing the theme; ** Number of sustainability dimensions affected (significance level $p < 0.05$ or lower); Qualitative data: Discussed by 1-2 interviews •; 3-4 interviews ●; 5-6 interviews ●; 7-8 interviews ●; Quantitative data: Significant for 1 dimension •; 2 dimensions ●; 3 dimensions ●; 4 dimensions ●; ¹ Environmental dimension; ² Socio-cultural dimension; ³ Institutional dimension; ⁴ Economic dimension.

Discussion and Conclusions

A growing body of scholarship highlights issues related to CS. Recognition of drivers and barriers affecting the integration of sustainability in any business are invaluable in identifying tools and strategies for improvement. By exploring factors affecting the diffusion of sustainability innovation, this study contributes to that scholarship and offers a better understanding of what influences decisions towards CS. Despite limitations, this study is one of few attempts to explore ski resorts perceptions toward CS. Lozano (2012) proposed that internally planned, orchestrated change, based on proactivity and collaboration, offers a better option to companies wishing to engage in sustainability. Findings corroborate this proposition offering ideas for company leadership teams, highlighting the power each organization holds potentially for its own long-term success.

Rogers (2003) argued that the characteristics of the innovation are usually the most influential factor affecting the likelihood of adoption (between 49% and 87% of variance in adoption of innovations is explained by these five attributes). Several studies also found that innovation characteristics were the most influential factors, being highly correlated with sustainability practices (Le et al., 2006; Smerecnik & Andersen, 2011). Conversely, while many of the sustainability managers highlighted the characteristics of the innovation as important factors affecting sustainability, survey results indicated that those items affected in most cases just one dimension of sustainability with a minimal effect size. One explanation for the different results from the two groups might be that sustainability managers are more knowledgeable about sustainability as a concept and more aware of how the sustainability philosophy should be applied and embedded in the company’s operations,

policies, etc. Yet, another possible implication concerns internal communication within the resorts. As one manager highlighted, although regular meetings and workshops related to sustainability were conducted by department managers, many times the information gathered was not “diffused” successfully among ski area staff. This corroborates survey data where the majority of communication happens over email primarily, but not consistently or regularly. Yet, a few sustainability managers explicitly stated that sustainability initiatives and policies were widely and frequently communicated among their organizations. Hence, a possible disconnect exists—are non-sustainability staff not well informed due to lack of communication from sustainability managers or is it because they are not as interested? In any case, the lack of knowledge among non-sustainability staff becomes an obstacle for organizational change for CS. Pop and Borza (2016) suggested that lack of knowledge and expertise is a key barrier for sustainability. Moreover, Horisch, Johnson, and Schaltegger (2015) in a study assessing the role of a company’s size for sustainability revealed that differences in application of sustainability management tools are mainly due to differences in knowledge. The authors found that the indirect, mediating effect of knowledge was about three times stronger than the direct effect of company size. This idea relates to what was pointed out among the interviews—that systemic sustainability change at an organizational level, requiring knowledge and understanding was one of the key institutional mechanisms in the transformation process towards sustainability.

Meanwhile, findings support studies highlighting the key role of a champion or a leader to foster innovation within an organization (Howell & Higgins, 1990; Rogers, 2003). Howell and Higgins (1990) explained that champions are distinguishable by their ability to communicate a clear vision of the innovation, which will in turn enable the desired change. In line with this idea, findings add further insight. While sustainability managers presented themselves as passionate and knowledgeable individuals in terms of sustainability (during the interviews), the non-sustainability staff was not satisfied with the internal communication within the ski resorts. Nevertheless, there was an agreement that a leader or a champion is necessary for a successful transition towards CS (supporting previous studies, e.g., McKercher, Mak, & Wong, 2014).

Pertaining to external environment factors, Paul Polman, Unilever CEO, argued that “the power is in the hands of consumers” and consumers will not tolerate businesses that behave in unjust or unfair ways anymore (in Confino, 2011). On the other hand, Gao, Huang, and Zhang (2017) reported that the accessibility of information about tourism impacts and sustainability is far from enough to foster a sense of responsibility in tourists. The latter statement corroborates our findings that consumers do not play a role triggering change toward sustainability among Colorado ski resorts. Further research on ways for better information dissemination within and outside organizational boundaries about sustainability practices, policies, and their impacts on the industry is necessary.

When exploring sustainability regulations, considering the ski industry among the top three emitters of CO₂ per participant in the tourism/leisure industry (U.S. EPA, 2000; as cited in Schendler, 2003), regulations are key. Yet, results show that ski resorts do not feel “pressured” by any current regulations. Hence, ski resorts must advocate for these measures, while customers have the power to advocate and help initiate policy changes. Business “statesmanship” is essential for raising the urgency of sustainability issues at global and local levels. Advocacy by business leaders can influence peers, consumers, and most importantly, governments on the need to tackle societal crises (United Nations Global Compact [UNGC], 2016). This supports our findings about the financial structure of the ski resorts where both study groups held strong opinions supporting the notion that financial structure matters when considering CS primarily in terms of bureaucratic obstacles.

Lastly, the role of a company's size, results support the current literature (e.g., Sponseller, 2015; Pop & Borza, 2016), suggesting that it is easier for smaller companies to shift towards more sustainable practices as those changes are more easily obtained (due to lack of bureaucracy). Yet, these findings also contradict Roger's idea that larger companies are more innovative, as well as another body of literature suggesting that smaller companies are less engaged in sustainability (Gallo & Christensen, 2011; Uhlaner et al., 2011) usually due to lack of resources or operational difficulties (Brammer & Pavelin, 2006; Udayasankar, 2008; Zhu, Sarkis, Lai, & Geng, 2008; Sponseller, 2015), as well as due to the fact that they are less exposed to public pressures (Brammer & Pavelin, 2006). Thus, further research addressing the role of a company's size is needed.

From a theoretical standpoint, this study supports the application of DoI theory as a multidisciplinary tool in tourism, especially when considering the relatively high percent of variance explained by the DoI variables (see Table 3). Yet, the study findings contradict Roger's idea that characteristics of the innovation were the most critical factor in the diffusion of innovations. Hence, further exploration of the theory is necessary. Additionally, this study confirms the value of the PoS framework coupled with DoI theory in a tourism-related context.

Methodologically, this study confirms that mixed methods may provide a means to understand the complex transition process towards CS for tourism businesses. CS is complex and dynamic and the application of mixed methods helps provide more robust explanations and better understanding of the phenomenon. Oppermann (2000, p. 145) previously noted the value of mixed methods approaches in the tourism field stating:

Tourism is strategically placed at the interface of so many disciplines that inherently tourism is an interdisciplinary field. This should stimulate interdisciplinary approaches using multiple methods as well as using different data sets and investigators in the quest for truth.

While a number of advantages related to the use of mixed-methods in tourism have been noted, it is underutilized in tourism research (Decrop, 1999; Lu & Nepal, 2009; Puhakka et al., 2013). Thus, addressing the third research question, the use of mixed methods was found valuable when exploring factors affecting CS from various perspectives. As Brewer and Hunter (2006) argued, the diversity of methods implies "rich opportunities for cross-validating and cross-fertilizing research procedures, findings, and theories" (p. 1). Study groups were selected to complement each other versus being juxtaposed—that was done consequentially to illustrate challenges ski resorts face to include lack of knowledge and/or internal communication issues. The two methods were complementary; in some cases, the interviews offered more depth where sustainability professionals discussed some of the drivers and barriers to sustainability more insightfully, while survey results were more intuitive in terms of the four dimensions of sustainability, e.g., when certain variables affected just one or two of the dimensions while not significant for the rest. Thus, application of a sequential mixed-method approach may be an appropriate choice for exploring and explaining the complex and multifaceted concept of CS and its diffusion throughout an organization.

Study Limitations

Several limitations exist in this study. The most significant is the relatively small sample for the interviews and the online survey. Yet, considering that the ski resorts of the interviewed managers serve about 90% of the skiers in the region, we deem the sample sufficient. Additionally, the study includes participants from smaller and larger ski resorts, which also contributes to the representativeness of the sample.

The relatively low response rate to the online survey might be due to the time the survey was distributed since the primary ski season runs December to March; distributing the survey March to May 2015 may have contributed to low representation of seasonal ski resort employees (approximately 20%). Yet, it was not clear whether all seasonal employees have company email accounts or if they check their email regularly.

Future Research

Future research on sustainability in the resort industry could focus on institutional mechanisms at an organizational level including leadership and communication. For studies focusing on effective organizational culture and leadership skills required to facilitate an organizational culture, the diffusion of sustainability innovation is recommended. Nevertheless, a corporation's success in adopting green practices depends not only on corporate attitudes towards environmental issues but also on its employees' personal beliefs and everyday actions (Chou, 2014). Moreover, Sweetman (2007) stated that no matter how good the company's policies and practices might look on paper, no changes will occur without the active support of employees across the organization. Hence, the role personal values of resort employees' play should also be studied. Another interesting future study might focus on the role supply chain plays affecting CS. UNGC (2016) pointed out that supply chain practices are one of the biggest challenges to improve corporate sustainability and performance.

Lastly, related to Sustainable Development Goal 17, a successful sustainable development agenda requires "inclusive partnerships". Thus, further exploring possible organizational, institutional, and private collaborations is suggested.

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