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Research Paper

Drivers of management control systems in tourism start-ups firms

Odysseas Pavlatos

University of Macedonia, Department of Accounting and Finance, Greece

A R T I C L E I N F O

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A B S T R A C T

This study examines the use of Management Control Systems (MCS) in travel and tourism start-ups. The study empirically examines 176 European tourism start-ups; data are collected via an online survey of start-up CEOs, and supplemented by financial statements of early-stage tourism firms. The results show that travel and tourism start-ups use formal systems for management control. We observe a relationship between the usage of these systems with specific internal and external environment characteristics. Finally, the results show that the historical financial performance of travel and tourism start-up firms affects MCS usage.

1. Introduction

According to the Life Cycle theory, a business, during its birth phase, makes efforts to become sustainable (Miller and Friesen, 1983, 1984). During this phase, companies are usually small-scale, owners also act as managers, and companies usually use simple control mechanisms and less formal control systems, such as Management Control Systems (MCS) (Davila and Foster, 2005a). For a firm to be considered as a start-up, it should possess innovative characteristics, must be less than 10-years old, should pursue the rapid growth of its sales, and should usually use business models (Talaia et al., 2016). The role of start-up firms in entrepreneurship development has been constant (Bendickson et al., 2017; Davila et al., 2009a, b).

The study of MCS in start-up firms has been particularly popular in recent years (Lin et al., 2017), stimulating the interest of many researchers (e.g. Davila and Foster, 2005a, 2007; Granlund and Taipaleenmäki, 2005; Mas-Verdú et al., 2015; Sandino, 2007). In recent years, the role of these systems in the growth of start-up businesses has been confirmed (Davila et al., 2015). Despite the relevance of this subject, results of previous research are inconsistent. Therefore, they must be studied in depth to discern the contrasting results (Crespo et al., 2019).

Innovation has changed the way travel is carried out. Travel start-ups play a major part in this (Plug and Play Travel accelerator, 2019). For example, Airbnb was accommodating 155 million guest stays annually, surpassing the Hilton Worldwide by 22 % (PricewaterhouseCoopers, 2014). Travel and tourism start-ups have also attracted the interest of venture capital companies. In the last five years, travel companies have raised more than $1 billion in venture capital funding (Techcrunch, 2018). Tourism start-ups are mainly travel and tourism applications (apps), travel, leisure, or hospitality tech platforms, and short-term rental start-ups (e.g. Airbnb) (Techcrunch, 2018). According to Kornberger et al. (2017), platform organizations and mobile applications, such as Uber and Airbnb, represent a new organizational form, which differs from other early-stage/start-up firms belonging to other industries (e.g. biotechnology). These organizations are a growing economic phenomenon (Kornberger et al., 2017). However, limited research on MCS has been undertaken in relation to innovation in the tourism sector. In addition, the role of formal control systems in tourism business models has not been explored yet (Chenhall and Moers, 2015). However, recent tourism-related studies have recognized the need to investigate the impact of firm characteristics in MCS design (Pavlatos, 2015).

The examination of MCS is truly relevant to tourism start-ups. These firms operate in local and international markets. Therefore, they face a highly competitive and dynamic environment. While the literature supports that innovation can help small and medium sized tourism firms to grow (Verreynne et al., 2019), the role of formal control systems in tourism is not thoroughly investigated.

The purpose of this research is twofold: first, to study MCS adoption and usage in the entrepreneurial environment of tourism start-ups; and second, to study the drivers of influence in the usage of these systems in tourism start-ups. We propose the use of contingency theory as the theoretical viewpoint that could give insight on the factors influencing MCS usage in the tourism sector.

This research contributes to the extant literature in the following ways. First, to the best of our knowledge, this research provides the first empirical evidence of MCS usage in tourism start-ups. This study provides insights on the relationship between certain contingencies such as

E-mail address: opavlatos@uom.edu.gr.

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Table 1
Summary of prior reviews on MCS in hospitality and tourism.

Author	Method	Scope/Context	Findings
Auzair (2011)	Survey	Examines MCS in hotels.	There is a relationship between PEU, business strategy, and MCS design.
Pavlatos (2011)	Survey	Examines Activity Based Costing (ABC systems) in hotels.	There is an association between business strategy, CFO characteristics (age and educational background), and ABC Systems.
Pavlatos (2012)	Survey	Examines factors influencing the use of Cost Management Systems (CMS) in hotels.	There is an association between quality of information technology, CFO characteristics (age and educational background) with the use of CMS for decision making, control, and performance evaluation.
Pavlatos (2015)	Survey	Investigates the relationship between contextual factors, Strategic Management Accounting (SMA), and historical performance in hotels.	PEU, structure, quality of information systems, organizational life cycle stage, business strategy, and size associated with SMA usage. Low performance affects SMA and this effect is moderated by PEU.
Turner et al. (2017)	Survey	Investigate the role of Strategic Management Accounting (SMA) use and its impact on financial performance in hotels	Business strategy is a driver of SMA use and highlight the role of SMA use on hotel financial performance.

strategy, structure, environment, and historical financial performance with the use of different types of MCS. Second, this research contributes to the scarce empirical literature on MCS in early-stage entrepreneurial companies (Davila et al., 2015) and platform organizations (Kornberger et al., 2017). By studying tourism start-ups, which are mainly platform organizations and mobile applications, we provide knowledge on how management control is implemented using formal control systems in early-stage travel and tourism firms. The operational homogeneity of tourism start-ups enables powerful tests of the research questions. Previous research, in contrast, has focused on small-sample field studies in diverse industries (e.g. Davila and Foster, 2005a). Third, this study provides knowledge about MCS usage in services, which has been insufficiently researched (Auzair, 2015). Fourth, as opposed to previous research, historical financial performance measurements are carried out by using objective data taken from financial statements of start-up firms and not with subjective data (Crespo et al., 2019).

The structure of this paper is as follows. The next section presents the literature review and hypotheses development. The third section presents the research methodology, while the fourth reports the results. The last section brings out the research conclusions, limitations, and suggestions for future research.

2. Theory and hypothesis development

2.1. Management control systems (MCS)

Simons (1995, p.5) defines MCS as "formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities." Chenhall and Moers (2015) argue that MCS are a group of formal routines and protocols focusing on financial and non-financial parts of a business that are designed to motivate, monitor, and measure the behavior of business executives, as well as guide them in decision making. Davila et al. (2015) mention that MCS consist of different types of systems, such as financial, human resources (HR), sales, and strategic MCS. MCS research has been mainly linked to the contingency theory and the way different contingent factors influence the MCS design (Chenhall, 2003, 2007; Otley, 2016).

Contingency theory is principally derived from organizational theory and was later implemented in Management Accounting. Contingency theory belongs to the group of theories called rational theories (Jones, 1985). In its fundamental form, contingency theory assumes that organizational structures depend on environmental factors (Gerdin and Greve, 2008). Environmental factors include technology, level of decentralization, external environment, company size, strategy, and national culture (Haldma and Lääts, 2002).

In a hotel environment, Mia and Patiar (2001) report that Management Accounting Systems effectively contribute to achieving business objectives. In addition, Pavlatos and Paggios (2009) and Pavlatos (2011; 2012; 2015) find that hotel firm characteristics influence Cost Management Systems (CMS) design. Auzair (2011), after studying the effect of two significant contingencies—business strategy and Perceived Environmental Uncertainty (PEU)—in MCS in hotel firms in Malaysia, finds that that these contingencies and MCS design are related. More recently, Turner et al. (2017) examine the relationship between Strategic Management Accounting (SMA) System design, contingent factors, and performance in the context of hotels. They find that business strategy is a driver of SMA use and highlight the role of SMA use on hotel financial performance. Table 1 presents a summary of recent reviews on MCS in hospitality and tourism.

The study aims to investigate the factors affecting the MCS usage in a tourism start-up business environment. The relationship between these factors and MCS design is formulated below.

2.2. Business strategy

Chenhall (2007) claims that there is a relation between business strategy and MCS design. Many empirical studies examine the relationship between different types of MCS with business strategy (Langfield-Smith, 2007). Strategy differs from the remaining factors of contingency theory as it is the choice of top managers in achieving their goals (Chenhall, 2003; Gani and Jermias, 2012). As presented by Porter, the strategy types—cost leadership strategy and differentiation strategy—affect MCS adoption (Kaplan and Norton, 2004; Otley, 2016). Firms following a cost leadership strategy wish to provide the product or service at the lowest market cost and emphasize operational efficiency (Chenhall, 2003). In contrast, firms following a differentiation strategy focus on developing new, unique, and innovative products that will better meet their customers' needs (Chenhall, 2007). Otley (2016) argues that companies following a low-cost leadership strategy should adopt a more centralized accounting system, mainly based on cost control and monitoring, while companies following a differentiation strategy need MCS that provide more integrated information and timelier and less aggregated management control information. These firms usually adopt non-financial MCS which provide broader scope information to gain a competitive advantage (Langfield-Smith, 2007).

In the context of hotels, previous studies indicate mixed results concerning the role of strategy when designing Cost and Management Accounting Systems (Pavlatos, 2015; Pavlatos and Paggios, 2009; Turner et al., 2017). Therefore, further research is required to discern the effects. Auzair (2011) finds that companies' strategy affects MCS design in hotels. In this research, we consider that tourism start-ups that follow a cost leadership strategy will focus on financial MCS to control and reduce operating costs whereas tourism start-ups that follow a differentiation strategy will focus on non-financial MCS, such as HR, sales management, and strategy systems that provide a broader information field. This will enable them to develop faster and more efficiently.

Based on the aforementioned, we formulate the following hypotheses:

H1a. There is a positive association between cost leadership strategy and the use of financial MCS.

H1b. There is a positive association between the differentiation

strategy and the use of non-financial MCS.

2.3. Structure decentralization

The organizational structure concerns the official role definition, the responsibilities, and the tasks of business executives to achieve organizational goals (Chenhall, 2003; Merchant, 1981). Structure affects the motivation of employees, and the flow of information within the business (Chenhall, 2007; Kaplan, 2006). For this research, the organization structure has been conceptualized in terms of centralization/decentralization dimensions (Chenhall and Morris, 1986). In a decentralized organizational structure, the authority in decision making is passed on to lower levels executives of the company. In contrast, in a centralized organizational structure, decision making is undertaken by top management executives (Bedford and Malmi, 2015). Previous studies ascertain that there is an association between business organizational structure and MCS design (Otley, 2016). As far as a hotel environment is concerned, Pavlatos (2015) finds that decentralized firms use more sophisticated management accounting tools, which provides them with more and better information.

In this research, we consider that the organizational structure has a positive association with MCS usage in tourism start-ups. We claim that in less centralized tourism start-up firms, it is more likely that middle- and lower-level managers will need a greater information volume to proceed to decision making, compared to start-ups with a more centralized structure. It is possible that decentralized tourism start-ups will make a broader use of all types of MCS, as lower level managers search for more integrated information for decision making and management control implementation.

Therefore, we formulate the following hypothesis:

H2. There is a positive association between structure decentralization and the use of different types of MCS.

2.4. Perceived environmental uncertainty

Otley (2016) mentions that the external environment affects MCS design. PEU occurs when executives realize that the external environment elements may be uncertain (Chenhall, 2003). PEU is an important factor of contingency theory, as its increase makes planning and controlling business activities more difficult (Chenhall, 2007). Gordon and Narayan (1984) and Gul and Chia (1994) claim as the perception about the uncertainty of external environment increases, the executives will seek more precise information to improve decision-making. Similarly, Abdel-Kader and Luther (2008) find that management accounting sophistication and PEU are positively associated. Lowry (1990) argues that service organizations are more environmentally sensitive, deal with innovations more easily, are smaller in scale compared to manufacturing firms, and find it easier to enter the market they wish to be active in.

Auzair (2015) suggests that PEU is an important factor that influences MCS adoption in service organizations. In hotels, Pavlatos (2015) finds that there is a positive association between PEU and sophisticated management accounting techniques. Auzair (2011) also finds that there is an association between PEU and MCS in hotels.

In this study, we assume that tourism start-ups that consider their environment to be more uncertain will search for broader information. This information is provided through increased MCS usage in order to decrease uncertainty and improve decision-making procedures.

Consequently, the following hypothesis is proposed:

H3. There is a positive association between PEU and the use of different types of MCS.

2.5. Historical financial performance

Research on MCS finds an association between business performance and MCS adoption (Cadez and Guilding, 2008; Chenhall, 2007; Langfield-Smith, 2007). Otley (2016) propounds the need for further examination into this relationship, as the existing literature presents mixed results. Historical financial performance is a factor that may affect MCS usage (Otley, 2016). Low financial performance creates a gap between the actual performance of business and the performance desired by its investors (Naranjo-Gil et al., 2009). Consequently, those business executives with low historical financial performance must change the systems they use, as proposed in the management science literature (Lant et al., 1992).

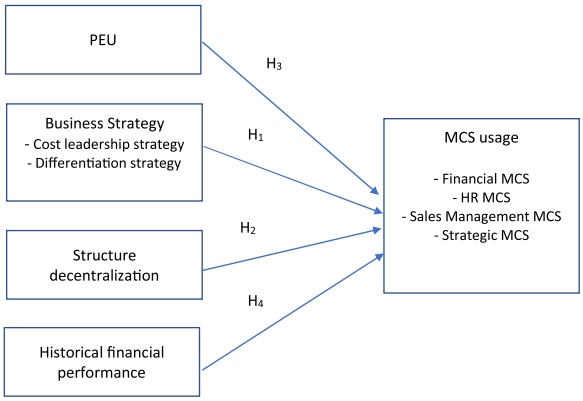

Fig. 1. Research model.

Empirical studies show that firms with low financial performance pursue more sophisticated management accounting information (e.g. Naranjo-Gil et al., 2009). Pavlatos (2015) finds that hotels with low historical financial performance use SMA more extensively. In addition, Crespo et al. (2019) find an association between historical performance and MCS adoption in a business start-up environment. Thus, this study considers that tourism start-ups with low historical financial performance are more likely to use more all types of MCS, as they look for more and better information to improve their low financial performance.

Therefore, we formulate the following hypothesis:

H4. There is a negative association between historical financial performance and the use of different types of MCS.

Fig. 1 presents the research model.

3. Methodology

3.1. Data collection

Following previous studies on start-ups (Davila and Foster, 2007, 2005a), our sample consists of independent start-ups that have been operational for less than 10 years and employ a workforce of 10–250 employees; these companies operate in the travel and tourism industry. To find firms that meet the above criteria, various databases were used (Crunchbase, HotRec Hospitality Europe). Information was also derived from venture capital businesses that have financed tourism start-ups. Eventually, 288 start-ups that meet the previous criteria were found. These companies were mainly mobile applications or web platform companies in the travel and hospitality industry. An accompanying letter communicating the goals of the study was sent out to the CEOs of these companies, asking them to fill the online survey. The procedure proposed by Dillman (2000) was followed for online surveys. A pilot study of the survey was performed with 5 tourism start-ups' CEOs and three academics. Within a month of initial contact with these companies, another reminder e-mail was sent. The research took place between August–November 2018. Initially, 179 responses were received. Three of these companies, which responded had been operating for less than 3 years, and thus, as we could not measure their historical financial

Table 2
Descriptive statistics of tourism start-ups firms participated in the study.

Panel A: Country	N	%
Greece	41	23 %
Spain	32	18 %
Norway	20	11 %
Italy	25	14 %
France	15	10 %
Sweden	8	5 %
Holland	8	5 %
UK	10	6 %
Germany	15	9%
	176	100
Panel B: Size (No of employees)		
1–50	42	24
51–100	62	35
101–200	50	28
201–250	22	13
	176	100

performance. As a result, they were excluded from the sample. Finally, 176 complete responses were collected (45 % response rate). The survey was filled by the CEOs of the respective companies.

As the sample size was greater than the number of correlations in input data matrix, a PLS analysis is appropriate for our study (Hair et al., 2017). No statistically significant differences were found among 20 % of the early respondents and 20 % of the late respondents. Moreover, no statistically significant differences were found concerning the size and age of the start-up among the companies that participated in the research and those that did not. Table 2 reports the demographic characteristics of the start-ups firms that participated in the survey.

3.2. Variable measurement

To measure MCS usage, 24 systems were used according to previous studies (e.g. Samagaio et al., 2018). Respondents were asked to indicate the extent of use for each system in a seven-item scale, taking values from 1 (no extent) to 7 (great extent). Subsequently, exploratory factor analysis was performed (Varimax method) using SPSS 19, where 4 factors were found, which interpreted 35 %, 24 %, 20 %, and 15 % of the items' variance, measuring the use of different types of MCS. The first factor refers to financial MCS, the second to human resources MCS, the third to sales management MCS, and the fourth to strategic MCS (Table 3).

Cost leadership and differentiation strategies were measured with items 4 and 7, respectively. Following Auzair (2015), we used a 7-point Likert scale, taking values from 1 (I totally disagree) to 7 (I totally agree). To measure PEU, we used a 6-point Likert scale, given instrument by Gordon and Narayanan (1984). The construct Structure decentralization was measured through a 5-point scale reported in King et al. (2010), and also used by Samagaio et al. (2018) in a start-up environment. The historical financial performance construct was measured using objective data from financial statements of start-ups during the 3-year period prior to the survey (Naranjo-Gil et al., 2009). Following previous studies on the measurement of historical financial performance (Pavlatos and Kostakis, 2018), we chose to measure three ratios: 1) Return on Investment—ROI (EBIT/ average total book value of assets); 2) Return on Sales—ROS (EBIT/sales); and 3) Return on Equity—ROE (EBIT/ average total book value of equity). We used the average values for each indicator during a period 3 years prior to the survey (2014–2017). Then, we used mean values as indicators of the latent construct, measuring the previous financial performance of start-ups. The variables cost leadership strategy, differentiation strategy, structure decentralization, and historical financial performance were measured as reflective constructs. Further, following previous studies on start-ups, we also used some control variables (Davila et al., 2015; Sandino, 2007). The variables Size and Age of the firm were measured using the natural logarithm of the number of employees and the natural logarithm of the business' years of operation, respectively. The Venture capital financing variable was measured as a dummy variable that takes the value 1 if the business has been financed by Venture Capitals companies, and 0 otherwise.

4. Results

We used the Partial Least Squares (PLS) method to analyze the data. This method is suitable for samples up to 250 observations and does not have strict implementation conditions (Hulland, 1999; Reinartz et al., 2009). Table 4 presents the descriptive statistics of the variables used in the study. In this table, we see that tourism start-ups use more sales MCS. Strategic and financial MCS usage follows, while HR MCS have the

Table 3
Descriptive statistics and factor analysis for MCS usage.

Items	Mean (SD[a])	Factor 1: Financial MCS	Factor 2: HR MCS	Factor 3: Sales Management MCS	Factor 4: Strategic MCS
Operating budget	5.74 (1.21)	0.81	0.19	0.18	0.23
Cash flow projections	5.68 (1.28)	0.78	0.21	0.17	0.24
Sales projections	5.98 (1.25)	0.82	0.24	0.19	0.20
Customer profitability analysis	5.38 (1.29)	0.84	0.15	0.23	0.19
Product profitability analysis	5.44 (1.32)	0.73	0.28	0.13	0.16
Operating expenses approval procedures	5.68 (1.15)	0.80	0.18	0.21	0.12
Routine analysis of financial approval against target	5.70 (1.34)	0.79	0.19	0.12	0.24
Written performance objectives for managers	5.78 (1.42)	0.14	0.82	0.24	0.20
Orientation program for new employees	5.55 (1.32)	0.25	0.84	0.19	0.09
Written job descriptions	5.61 (1.44)	0.10	0.79	0.22	0.15
Linking compensation to performance	5.22 (1.58)	0.24	0.77	0.21	0.19
Individual incentive programs	5.19 (1.24)	0.14	0.81	0.15	0.25
Sales targets for salespeople	6.05 (1.18)	0.15	0.24	0.84	0.19
Sales force compensation system	5.25 (1.22)	0.22	0.15	0.81	0.10
Customer satisfaction feedback	5.99 (1.24)	0.05	0.22	0.83	0.26
Sales process manual	5.89 (1.20)	0.23	0.19	0.77	0.16
Sales force training program	5.92 (1.15)	0.21	0.17	0.79	0.20
Customer Relationship Management system	5.57 (1.31)	0.07	0.25	0.84	0.21
Marketing Research projects	5.51 (1.44)	0.12	0.15	0.85	0.18
Customer development plan	5.44 (1.25)	0.19	0.22	0.14	0.85
Product portfolio plan (for future projects)	5.88 (1.18)	0.10	0.21	0.24	0.84
Investment budget	5.62 (1.23)	0.22	0.12	0.15	0.86
Headcount/human capital development plan	5.78 (1.19)	0.24	0.24	0.18	0.79
Strategic (non-financial) milestones	5.86 (1.25)	0.21	0.15	0.17	0.80

N = 176; [a] standard deviation.

lowest usage among all systems. Table 5 indicates the correlation between variables. We observe that correlations between variables are low (less than 0.30). Therefore, multicollinearity does not pose any issues for our model. In Table 5, we also see that there are statistically significant, positive associations between all MCS. This means that to implement management control, tourism start-ups use more than one system simultaneously.

Smart PLS 3.0 was used to evaluate measurements and structural models (Ringle et al., 2014). To assess the quality of the latent variables in our research, we calculated the internal composite reliability (ICR), Cronbach's alpha, and average variance extracted (AVE). Table 6 shows that the item loadings in 9 constructs are greater than 0.7, indicating that there is individual item reliability. In addition, ICR values for all constructs are more than 0.8, indicating satisfactory composite reliability (Hair et al., 2017). AVE values of all constructs cover the same minimum value of 0.5, resulting in satisfactory reliability. We reach the same conclusions as Cronbach's alpha values are greater than 0.7 for all constructs (Hair et al., 2017). The discriminant validity is acceptable for all constructs in our model as the AVE for each construct has a higher value than the squared correlations between the variables of the PLS model (Hulland, 1999).

To evaluate the structural model, we calculated R^2 values of each endogenous variable. The values were 26.1 %, 18.5 %, 19.4 %, and 22.5 % for financial MCS usage, for HR MCS usage, sales MCS usage, and strategic MCS usage, respectively. These values were quite higher than the threshold of 10 %. In addition, the Stone-Geisser Q^2 values for all cases (0.192, 0.184, 0.178, and 0.105 for financial MCS usage, HR MCS usage, sales MCS usage, and strategic MCS usage, respectively) were greater than zero, in line with the literature (Hair et al., 2017). These values prove sufficient predictive ability of our model. In addition, VIF values were between 1.034 and 1.189, being less than the acceptable threshold of 5 (Hair et al., 2017). This indicates that collinearity does not pose any issues in our model.

Table 7 reports the results of the PLS analysis (with 5000 bootstrapped samples) for the significance evaluation of path coefficients (Hulland, 1999). The cost leadership strategy variable has a positive and statistically significant effect in the use of financial MCS (b = 0.292, p-value = 0.004), thereby supporting hypothesis H1a. In addition, the differentiation strategy has a positive and statistically significant effect in the use of HR MCS (b = 0.212, p-value = 0.015), in sales MCS usage (b = 0.208, p-value = 0.019), and in strategic MCS usage (b = 0.219, p-value = 0.004), thereby supporting hypothesis H1b. Structure decentralization had a positive and statistically significant effect in all types of MCS: financial (b = 0.190, p-value = 0.024), HR (b = 0.174, p-value = 0.031), sales management (b = 0.198, p-value = 0.022), and strategic (b = 0.163, p-value = 0.038). These results support hypothesis H2. For PEU, the analysis showed that there is a positive and statistically significant association only with the use of strategic MCS (b = 0.274, p-value = 0.009). Consequently, hypothesis H3 was supported only for these systems. Moreover, the historical financial performance was found to have a negative and statistically significant effect in all types of MCS: financial (b = −0.301, p-value = 0.001), HR (b = −0.288, p-value = 0.006), sales management (b = −0.277, p-value = 0.010), and strategic (b = −0.294, p-value = 0.003). Thus, hypothesis H4 is supported. For the control variables, there is a positive and statistically significant effect of venture capital financing on financial MCS usage (b = 0.167, p-value = 0.031), and strategic MCS usage (b = 0.187, p-value = 0.026).

5. Discussion and conclusions

5.1. Conclusions

The objective of this study is to examine the factors that affect MCS usage in a tourism start-up environment. We conduct an empirical

Table 4
Descriptive statistics of the variables in the study.

Variable	Mean	SD[a]	Theoretical Minimum	Theoretical Maximun	Actual Minimum	Actual Maximum
Financial MCS usage	5.66	1.26	1	7	1	7
HR MCS usage	5.47	1.40	1	7	1	7
Sales Management MCS	5.74	1.24	1	7	2	7
Strategic MCS usage	5.71	1.22	1	7	1	7
Cost leadership strategy	4.02	1.55	1	7	1	7
Differentiation strategy	5.72	1.15	1	7	1	7
PEU	4.58	1.28	1	7	1	7
Structure decentralization	4.89	1.34	1	7	1	7
Historical financial performance	4.23	1.89	0	1	0.33	0.85
Control variables:						
Size (N of employees)	89.12	58.32	1	250	22	231
Age of firm	7.05	0.62	3	10	4	9
Venture capital financing	0.58	0.64	0	1	0	1

N = 176; [a] standard deviation.

Table 5
Correlations from PLS model.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Financial MCS usage	1											
2.HR MCS usage	0.24*	1										
3. Sales Management MCS usage	0.27*	0.28*	1									
4. Strategic MCS usage	0.22*	0.19*	0.22*	1								
5. Cost leadership strategy	0.25*	0.22	0.25	0.12	1							
6. Differentiation strategy	0.18	0.20*	0.22*	0.12	0.11	1						
7. PEU	0.15	0.24	0.24	0.15	0.18	0.24	1					
8. Structure decentralization	0.18*	0.21*	0.19*	0.16*	0.13	0.11	0.12	1				
9. Historical financial performance	−0.27*	−0.28*	−0.24*	−0.22*	0.12	0.13	0.05	0.18	1			
10. Size	0.22	0.24	0.17	0.14	0.19	0.18	0.14	0.14	0.14	1		
11. Age of firm	0.18	0.25	0.20	0.16	0.08	0.16	0.18	0.19	0.18	0.21	1	
12. Venture capital financing	0.24*	0.20	0.05	0.12*	0.12	0.10	0.06	0.17**	0.12	0.15	0.19	1

N = 176; *significant at the 0.05 level (2 tailed); **significant at the 0.01 level (2 tailed).

Table 6
Reliability and validity analysis of multi-item constructs.

Construct	ICR[a]	Alpha[b]	AVE[c]	Item	Loading
Financial MCS usage	0.824	0.882	0.644	Operational budget	0.814
				Cash flow projections	0.879
				Sales projections	0.812
				Customer profitability analysis	0.789
				Product profitability analysis	0.824
				Operating expenses approval procedures	0.799
				Routine analysis of financial approval against target	0.785
HR MCS usage	0.824	0.878	0.641	Written performance objectives for managers	0.782
				Orientation program for new employees	0.788
				Written job descriptions	0.766
				Linking compensation to performance	0.798
				Individual incentive programs	0.765
Sales Management MCS usage	0.832	0.788	0.633	Sales targets for salespeople	0.803
				Sales force compensation system	0.817
				Customer satisfaction feedback	0.824
				Sales process manual	0.798
				Sales force training program	0.801
				Customer Relationship Management system	0.812
				Marketing Research projects	0.814
Strategic MCS usage	0.805	0.765	0.602	Customer development plan	0.724
				Product portfolio plan (for future projects)	0.788
				Investment budget	0.793
				Headcount/human capital development plan	0.787
				Strategic (non-financial) milestones	0.766
Cost leadership strategy	0.822	0.774	0.638	Achieving lower cost of services than competitors	0.812
				Making services/procedures more cost efficient.	0.775
				Improving the cost required for coordination of various services	0.802
				Improving the utilization of available equipment, services and facilities	0.824
Differentiation strategy	0.854	0.819	0.664	Introducing new services/procedures quickly	0.812
				Providing services that are distinct from that of competitors	0.793
				Offering a broader range of services than the competitors	0.779
				Improving the time, it takes to provide services to customers	0.796
				Providing high-quality services	0.810
				Customizing services to customers need	0.802
				Providing after-sale service and support	0.788
PEU	0.812	0.788	0.624	The price competition in the industry is extremely intense	0.712
				The economic external environment facing your firm changing rapidly	0.722
				During the past 5 years many new services have been marked by industry	0.734
				The market activities of your competitors during the past 5 years becoming less predictable	0.745
				During the past 5 years, the tastes and preferences of your customers have become much harder to predict	0.777
				During the past 5 years, the legal, political and economic constraints surrounding your firm have proliferated greatly	0.766
Structure decentralization	0.814	0.810	0.615	Development of new services	0.734
				The hiring and firing of managerial personnel	0.783
				Selection of large investments	0.754
				Pricing decisions	0.766
				Other important operational decisions	0.724
Historical financial performance	0.824	0.812	0.678	ROI	0.824
				ROE	0.809
				ROS	0.817

N = 176; [a] internal composite reliability; [b] cronbach's alpha; [c] average variance extracted.

research in 176 European tourism start-ups. Data are collected via an online survey of startup CEOs, and supplemented though the financial statements of early-stage firms. Statistical analysis shows that tourism start-ups use MCS to a satisfactory degree. Sales management, and strategic MCS are being used more, compared to HR MCS. Financial MCS are also used by tourism start-ups. Thus, tourism start-ups use both financial and non-financial MCS.

The research findings support contingency—based MCS research (e.g. Chenhall, 2007; Otley, 2016) in a tourism start-up environment. These results provide supporting evidence for previous studies' observations on start-ups firms (e.g. Crespo et al., 2019; Samagaio et al., 2018; Sandino, 2007). Furthermore, the results indicate that firms following a cost leadership strategy focus more on financial MCS, while those following a differentiation strategy focus more on non-financial MCS. Tourism start-ups that follow a cost leadership strategy for management control focus on budgeting, use more cash flow and sales projections, monitor their costs, and analyze customer profitability more broadly. In contrast, tourism start-ups that follow a differentiation strategy need a broader scope of information for decision making, planning, and control of their operations. This information is utilized by non-financial MCS concerning sales management, HR, and strategy formulation of the business.

Results also shows that there is a positive association between structure decentralization and the use of all types of MCS in tourism start-ups. Decentralized start-ups have greater MCS usage, since low level managers need more information for decision making and management control. In addition, we find a positive association between the external environment and MCS usage. Tourism start-ups that perceiving the external environment as more uncertain have greater MCS usage. Consequently, they develop alternative scenarios to react faster under certain conditions.

We also find that tourism start-ups with low historical performance use all types of MCS more, compared to firms with higher historical financial performance. The use of professional management tools provides young and growing tourism firms' executives with better information so that they may improve their financial performance in the

Table 7
Results from PLS analysis.

Path	Path coefficient	p Value
Cost leadership strategy -> Financial MCS usage	0.292*	0.004
Differentiation strategy -> Financial MCS usage	0.110	0.141
PEU -> Financial MCS usage	0.124	0.154
Structure decentralization -> Financial MCS usage	0.190*	0.024
Historical financial performance -> Financial MCS usage	−0.301*	0.001
Cost leadership strategy- > HR MCS usage	0.128	0.157
Differentiation strategy -> HR MCS usage	0.212*	0.015
PEU -> HR MCS usage	0.117	0.139
Structure decentralization -> HR MCS usage	0.174*	0.031
Historical financial performance -> HR MCS usage	−0.288*	0.006
Cost leadership strategy -> Sales Management MCS usage	0.185	0.100
Differentiation strategy -> Sales Management MCS usage	0.208*	0.019
PEU -> Sales Management MCS usage	0.118	0.126
Structure decentralization -> Sales Management MCS usage	0.198*	0.022
Historical Financial Performance -> Sales Management MCS usage	−0.277*	0.010
Cost leadership strategy -> Strategic MCS usage	0.134	0.146
Differentiation strategy -> Strategic MCS usage	0.219*	0.014
PEU -> Strategic MCS usage	0.274*	0.009
Structure decentralization -> Strategic MCS usage	0.163*	0.038
Historical financial performance -> Strategic MCS usage	−0.294*	0.003
Control Variables		
Size -> Financial MCS usage	0.085	0.231
Age of firm -> Financial MCS usage	0.104	0.136
Venture capital financing -> Financial MCS usage	0.167*	0.031
Size -> HR MCS usage	0.134	0.089
Age of firm -> HR MCS usage	0.118	0.133
Venture capital financing -> HR MCS usage	0.087	0.218
Size -> Sales Management MCS usage	0.114	0.130
Age of firm -> Sales Management MCS usage	0.154	0.117
Venture capital financing -> Sales Management MCS usage	0.115	0.125
Size -> Strategic MCS usage	0.101	0.185
Age of firm -> Strategic MCS usage	0.134	0.089
Venture capital financing -> Strategic MCS usage	0.187*	0.026

N = 176; *significant at the 0.05 level (2 tailed).

future. Consequently, a lower historical financial performance is a driver of MCS adoption in a tourism start-up environment. Furthermore, the analysis shows that early-stage tourism firms financed by venture capital companies use financial and strategic MCS more compared with firms not been financed via venture capital firms. Venture capital companies become shareholders of start-ups and they sometimes participate in their management (Hellmann and Puri, 2002). It is possible that venture capital companies consider that rapid growth will come from extensively planning the start-ups' actions and monitoring their financial results, and less from other management tools regarding HR or sales management.

5.2. Limitations

This research has some limitations. First, it is widely known that there is no single valid explanation of what a start-up is. In this study, we consider that start-ups have 3 characteristics: (a) they were founded less than ten years ago, (b) they feature highly innovative technologies and/or business models, and (c) they strive for significant sales growth (Kollmann et al., 2016). This concept has been introduced in the first European Start-up Monitor in 2015 (Kollmann et al., 2016) and reported in the later European Start-up Monitor (2019/2020).

Second, the survey sample is not representative of the population of European start-ups in terms of the number of employees. The research sample consists of larger companies in relation to the population (European Start-up monitor, 2019/2020). According to Davila and Foster (2005a; 2007), start-ups that employ a small number of employees use informal mechanisms to a very large extent, and informal management styles that require constant personal interaction. MCS only become relevant when a start-up reaches a size of 40–50 employees (Davila and Foster, 2005b). Previous studies examining MCS in a start-up environment have sampled start-up firms employing between 50 and 150 employees, and in many cases, more than 150 employees (Davila and Foster, 2005a; 2007; Davila et al., 2009b). In addition, in small firms, it is not easy to find financial statements, or it is not required by accounting standards to publish them, making it unfeasible to measure historical financial performance. For these reasons, and to be able to compare the findings of our research with similar research in a business start-ups environment, we focus on tourism start-ups of larger size compared to the European population.

Third, this research examines only 4 different MCS types (Davila et al., 2015). The systems that were selected here have been used in previous start-up studies (e.g. Crespo et al., 2019; Samagaio et al., 2018). Fourth, as in every survey research, this study is also based on perception measures. An online survey prevents an assessment of the survey respondent's actual knowledge of MCS, although the surveys were mailed to CEOs. In addition, cross-sectional studies, as this paper presents herein, can establish associations, but not causality. Last, this research has focused on the European start-up environment, and therefore, its findings may be generalized only to that population.

5.3. Managerial implications and future research

The results of this research are useful for practitioners in the travel and tourism industry. The research findings can help practitioners, especially young entrepreneurs in tourism and hospitality, as it presents them with the professional management tools they can use to achieve their business plans (or entrepreneurial projects) in highly competitive environments. In addition, these findings can help tourism and hospitality entrepreneurs decide which MCS to invest in with the limited financial resources they typically have, a decision that may significantly affect their growth (e.g. Davila and Foster, 2005a). Furthermore, the findings are relatively relevant to tourism start-up managers, and tourism and hospitality accelerators, as it highlights which types of MCS are best suited based on the characteristics of their internal and external environment (e.g. business strategy, structure, PEU, size, historical performance). Thus, this research contributes to developing entrepreneurship in tourism and hospitality industry (Fu et al., 2019).

The findings of this study may be a motive for future research efforts. One may investigate how the characteristics of CEOs of tourism start-ups (age, tenure, expertise, and educational background) affect the adoption and usage of MCS. In addition, some additional factors of contingency theory, such as culture, and their effect on MCS design can be also examined. Lastly, one may investigate MCS in tourism start-ups outside Europe, and examine the possible differentiations in the extent of usage of formal management control systems and the factors affecting them.

Appendix A

Fig. A1.

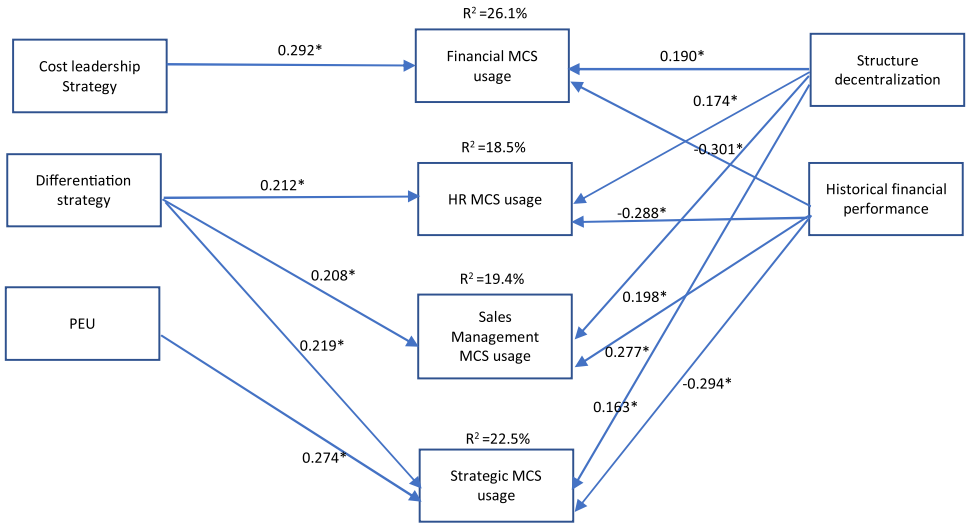

Fig. A1. Structural model from PLS analysis.
N = 176; *significant at the 0.05 level (2 tailed); Non-significant paths are suppressed.

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