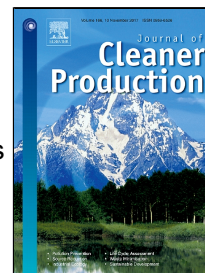


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Highlights

- The context-dependent approach is discussed in the context of corporate sustainability.
- The relationship between sustainability practices and organizational performance is examined.
- The results support the contingency view of the relationship between sustainability practices and organizational performance.
- The contingency factors (e.g. competitiveness and uncertainty) should lead the customization of sustainability practices.

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The role of contingency factors on the relationship between sustainability practices and organizational performance

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Abstract

This study intends to clarify the understanding of the role of the contingency factors (i.e. long-term orientation, competitiveness and uncertainty) in the relation between sustainability practices (sustainability exploitation and sustainability exploration) and organizational performance. [Using empirical data based on a large-scale survey among European organizations](#), this paper utilizes the regression analysis to gain insight into the relationship between sustainability practices and organizational performance. In general, the results support the contingency view of the relationship between sustainability practices and performance rather than relying upon “universal” view of sustainability practices. Particularly, the results show that in moderate environmental contexts (moderate competitiveness and uncertainty) sustainability exploitation practices seem to be a predominant predictor of organizational performance. Further, it appears that sustainability exploration practices are the most important predictor of innovation performance, especially when organizations are faced with high levels of competitiveness, uncertainty and long-term orientation. In contrast, sustainability exploitation practices seem to dominate in explaining the effects on quality performance. In this regard, we can argue that organizations with similar characteristics (capabilities, performance, and activity) may develop different and customised approaches for managing the interface between business and natural environment.

Keywords: sustainability practices, contingency factors, exploitation, exploration, organizational performance

1. Introduction

Numerous studies have addressed the principles of sustainable development and the need for organizations to pursue sustainability business strategies (e.g. Bansal, 2005). Prior studies have widely discussed the relevant issues concerning the integration of sustainability aspects into organizations' systems (Lozano, 2012). *It is argued that organizations should proactively integrate sustainability aspects into strategy to enhance corporate sustainability performance in terms of the environmental, economic, and social perspectives (Wijethilake, 2017).* Accordingly, several voluntary tools, approaches, and initiatives have been developed for organizations to address these sustainability aspects and issues. In this regard, prior studies have addressed the issue of the fit between an organization and sustainability-related practices, which can be articulated in many different forms (de Jong and van der Meer, 2015). However, as argued by Lozano (2012), there is a need to further clarify and explain how the sustainability initiatives address the different elements of the organization's system and how they contribute to the following perspectives of sustainability: economic, environmental, social, and time. However, a review of the current literature suggests that there is a substantial challenge in applying principles of sustainable development at the corporate level, especially in terms of translating and integrating the normative sustainability concepts into day-to-day business practices (Scherrer et al., 2007). *As proposed by Engert et al. (2016), the integration of corporate sustainability into strategic management and consequently into day-to-day business is dependent upon several issues (e.g. internal and external drivers, supporting and hindering factors, etc.).* Moreover, in spite of a generally expressed high level of relevance of sustainable development, the implementation of corporate sustainability practices diverges substantially (Hahn and Scheermesser, 2006). It could be argued that one of the key challenges for organizations is to ensure the success of a business model while simultaneously combining economic value with environmental and social benefits (Rosca et al., 2016; Witjes and Lozano, 2016).

Prior studies have devoted an immense effort in defining the corporate sustainability (e.g. Lozano, 2008; Amini and Bienstock, 2014). Yet there is still a debate on how to define and measure corporate sustainability practices (Montiel and Delgado-Ceballos, 2014). Accordingly, this paper draws on the work of Maletič et al. (2014) who conceptualized the sustainability exploitation (SEI) and sustainability exploration (SER) practices. Whereas SEI practices are focused on efficient deployment of current sustainability practices, SER practices reflect the development of new concepts and capabilities usually related to the sustainability-related innovation (Maletič et al., 2014).

It is proposed in this paper that research on exploration and exploitation may be of help in understanding how organizations may face business model innovation (Markides, 2013). By applying the exploitation and exploration perspectives to the business model context one might understand how and under which circumstances (e.g. environmental contingencies) organizations can gain competitive advantage. Literature (Gobbo and Olsson, 2010) appears to agree that exploration practices have the essential characteristics that facilitate value creation. In contrast, exploitation practices are essential to capture this value creation.

Following the contingency paradigm one might raise the question whether the deployment of the management practices is context dependent (i.e. influenced by the internal and external contingency factors) (Sousa and Voss, 2001). Even though there is a wide range of approaches concerning the concept of corporate sustainability, there is also a lack of clarity on how to best implement corporate sustainability practices and initiatives (Daily and Huang, 2001). To address this gap, since there is an enormous diversity in organizations and taking into account the fact that one can identify different types of approaches to corporate sustainability (Hahn and Scheermesser, 2006), we suggest that the use of contingency theory would offer a new and useful perspective on the implementation of sustainability practices. Contingency theory suggests that organizations achieve effectiveness by aligning the characteristics of the organization to contingencies that reflect the situation of the organization (Donaldson, 2001).

The application of contingency theory to sustainability can reveal several factors that might influence the implementation and configuration of sustainability oriented practices. However, empirical studies that would examine the role of contingency factors in the relationship between sustainability practices and organizational performance are rather scarce. The existing literature, although scarce, clearly points to the possibility of sustainability practices being context dependent (Campbell, 2007; Maletič et al., 2014). In order to address this research gap, this study intends to examine the role of internal contingency factors (long term orientation and proactiveness) as well as external contingency factors (uncertainty (dynamism) and competitiveness) in the relationship between sustainability practices and organizational performance.

Prior studies have extensively investigated the link between sustainability practices and organizational performance with the aim to justify the economic rationale for sustainability endeavour (Schaltegger and Wagner, 2006). Many authors have approached this issue by discussing the business case for corporate sustainability (Dyllick and Hockerts, 2002). As such, this link has become almost a non-trivial issue and was widely discussed amongst management theorists as well as among business executives. Increasingly, researchers have acknowledged

that integration of sustainability aspects into business can lead to better performance results (Wagner, 2010; Chang and Kuo, 2008). Yet, what seems to be missing in the literature is a critical view and empirical evidence regarding the role of the contextual/contingency factors in the relationship between sustainability practices and organizational performance.

The rest of the paper is arranged as follows. Section 2 lays the foundation for the paper by identifying the relevant literature and by developing the research hypotheses. Section 3 describes empirical data and measurement instruments. Section 4 presents the data analysis and results. Sections 5 and 6 conclude the paper with a discussion of theoretical and practical implications as well as limitations and possible future research.

2. Theoretical framework and hypothesis development

2.1. Sustainability exploration and sustainability exploitation

Defining the notions of sustainability exploitation (SEI) and sustainability exploration (SER) first requires specifying the common precepts underlying exploitation and exploration. The need for both exploration and exploitation is well accepted and recognised in the literature on ambidexterity (e.g. March, 1991; He and Wong, 2004; Jansen et al., 2006). Literature on organizational learning recognizes fundamental distinction between two types of organizational behaviour – exploitation and exploration (March, 1991).

It can be argued that the tension between exploitation and exploration also exists in corporate sustainability. SEI practices stress the need for organizations to continuously pursue incremental improvements (Stone, 2006). The latter can lead to improvements in material and energy efficiency and subsequently to lower costs. Given the complexity of the corporate sustainability, one should highlight the necessity for organizations to identify stakeholders' wants and expectations (Rocha et al., 2007), to integrate these needs into the products/services and process characteristics, and to develop suitable sustainability performance measurement systems (Searcy, 2011) in order to measure the results as the basis for improvement.

Additionally, organizations need to develop innovative approaches to sustainability to be able to contribute to the sustainable business management (Van Kleef and Roome, 2007). Recently, literature brought to the forefront the notion of sustainability-related innovation (e.g. Lopez-Valeiras et al., 2015) and its link with organizational performance (Maletič et al., 2016). Drawing upon previous literature (e.g. Maletič et al., 2014; Klewitz and Hansen, 2014), this paper suggests that SER can be characterized from the perspective of the process innovation (e.g. green process engineering), product innovation (e.g. new attributes or functions) as well

as sustainability oriented learning (e.g. developing capabilities and competence for sustainability-related innovation).

2.2. Contingency approach

It appears that there is not only disagreement concerning the definition of corporate sustainability, but also an ambiguity regarding the implementation of corporate sustainability practices (Epstein and Rejc Buhovac, 2010). However, there is an enormous diversity in organizations as well as different types of approaches to corporate sustainability can be identified (Hahn and Scheermesser, 2006). In this regard, we suggest that there is a need to adopt a contingency theory to broaden the understanding of the sustainability practices implementation. Accordingly, we can argue that the implementation of sustainability practices can vary significantly depending on different circumstances that organization are faced. One can recognise several factors that might influence the implementation and configuration of sustainability practices. Recently, Pryshlakivsky and Searcy (2015) have drawn upon contingency theory to develop and present the heuristic model for establishing trade-offs in corporate sustainability performance measurement systems. Accordingly, authors have emphasised the need to integrate the contingency factors into the frame of dealing with sustainability issues. However, the published empirical research concerning the contingency theory, corporate sustainability and its performance implications is quite scarce.

Considering the complexity of sustainability might itself bring to the forefront the necessity of using the contingency approach (Schneider et al., 2014; Lozano, 2012; Boons and Wagner, 2009). However, previous studies on corporate sustainability have merely used control variables such as industry type and company size as moderating variables to explain the relationship between sustainability related practices and financial performance (e.g. Fauzi et al., 2007). This study utilizes the following factors that have been widely used in strategic and operations management literature (e.g. Sousa and Voss, 2001; Zhang et al. 2012): Competitiveness, environmental uncertainty, long-term orientation and proactiveness. Thus, this study will address the gap by using the variables identified to explain the relationship between sustainability practices and organizational performance.

2.3. Competitiveness

Previous literature has emphasized the crucial role of competitiveness in responding to the demands of the external environment. In this context, Campbell (2007) suggested that the competitiveness of the organizations is dependent upon their approach towards corporate social

responsibility. This means that competition can be conceived as a driver of socially responsible behaviour. Campbell (2007) indicates that if organization operates in very intensive business environment it will be less likely to act in socially responsible ways. Similarly could be argued for the business environment where competition is very weak. Moreover, literature suggests that in a highly competitive market financial viability is one of the most important economic issues regardless of the approach taken in sustainability (Vogel, 2005). Following the findings of Jansen et al. (2006), one might argue that when organizations are facing high levels of competitiveness, exploitation practices appear to have dominant role in terms of economic performance. When faced with high levels of competitiveness organizations are more likely to reduce costs to be able to offer lower prices to customers (Prajogo, 2016). However, there is some indication suggesting that exploration is preferred to exploitation by means of strengthening the position of an organization in the markets (Lavie et al., 2010). Thus, under conditions of intensifying competition organizations must innovate and search for new markets in order to differentiate themselves from competitors (Zahra, 1993). In contrast, organization can pursue operational efficiency to ensure the current viability of the organization against its competitors (Auh and Menguc, 2005). Accordingly, an increase in the competitive intensity ultimately creates a climate for organizations to compete on price (Porter, 1980). In accordance with the above discussion, the following hypotheses are developed:

Hypothesis 1a: Sustainability exploration practices positively affect organizational performance to a greater degree than sustainability exploitation when competitiveness is low.

Hypothesis 1b: Sustainability exploitation practices positively affect organizational performance to a greater degree than sustainability exploration when competitiveness is high.

2.4. Environmental Uncertainty

The concept of environmental uncertainty has been a central construct in many research that focused on the relation between performance outcomes of an organization and its surrounding (e.g. Naranjo-Gil, 2009). In many areas of management studies, researchers consider environmental uncertainty as the organization's inability to predict customer demands accurately as well as the inability to compete in the markets (Aragon-Correa and Sharma, 2003; Baum and Wally, 2003). Uncertainty can also be defined with reference to technological change and instability or unpredictability of the environment (Tegarden et al., 2005). Prior studies suggest that environmental uncertainty affects the strategy development and the way that

organization cope with different circumstances (Parnell et al., 2000). However, little is known about how environmental uncertainty might affect the link between sustainability practices and organizational performance. As such, the following hypotheses are developed:

Hypothesis 2a: Sustainability exploitation practices positively affect organizational performance to a greater degree than sustainability exploration when environmental uncertainty is low.

Hypothesis 2b: Sustainability exploration practices positively affect organizational performance to a greater degree than sustainability exploitation when environmental uncertainty is high.

2.5. Long-Term Orientation

Referring to the literature on contingency theory, one might suggest that strategic orientation could be applied to corporate sustainability as well. The question arises whether long-term orientation has the influence on customization of the sustainability practices. In general, long-term organizational focus requires a dynamic capability enabling organizations to satisfy current demands while simultaneously being able to recognize and understand future stakeholder expectations as well (Gibson and Birkinshaw, 2004). As suggested by Dyllick and Hockerts (2002), corporate sustainability requires a long-term orientation as a basis for satisfying stakeholders' current and future needs. It is argued that organizations that adopt social and environmental practices grow faster over the long-term in comparison with organizations that are less responsive to social and environmental issues (Ortiz-de-Mandojana and Bansal, 2016). Prior studies (e.g. Chen et al., 2014) have suggested that organizations should integrate green exploration and exploitation practices into their long-term strategies to enhance their innovation performance. Thus, we can expect that organizations facing high levels of environmental uncertainty will need to increase the rate of innovation to survive in the market (Lavie et al., 2010). As such, the following hypotheses are developed:

Hypothesis 3a: Sustainability exploitation practices positively affect organizational performance to a greater degree than sustainability exploration within organizations with low long-term orientation.

Hypothesis 3b: Sustainability exploration practices positively affect organizational performance to a greater degree than sustainability exploitation within organizations with strong long-term orientation.

2.6. *Proactiveness*

It is assumed that organizations can react proactively to the pressure exerted by internal or external stakeholders (Bossle et al., 2016). Hahn and Scheermesser (2006) suggest that organizations adopt proactive sustainability strategy as a response to environmental and social concerns. Furthermore, it could be argued that external and internal factors might affect the adoption of sustainable behaviour and innovation (Bossle et al., 2016; Hahn and Scheermesser, 2006). As argued by Lozano (2015), internal corporate sustainability drivers are more proactive than external ones in the path to become more sustainability oriented organization. Moreover, corporate attitudes to sustainability can change considerably from a reactive to a proactive stance when organizations are moving towards sustainability (Lee, 2009). However, organizations are often faced with the challenge to link their proactive approach to managing sustainability issues by focusing on economic performance as well (Hahn and Scheermesser, 2006). Given the exploitation-exploration dilemma, Lubatkin et al. (2006) indicate that organizations that are predominantly pursuing exploration are surpassing at pro-actively responding to environmental changes by pursuing radical innovations. In the realm of corporate strategies, exploitation activities are related to more reactive attitudes and are merely focused on achieving the efficiency of processes and products (Auh and Menguc, 2005). As such, the following hypotheses are developed:

Hypothesis 4a: Sustainability exploitation practices positively affect performance to a greater degree than sustainability exploration within organizations with low levels of proactiveness.

Hypothesis 4b: Sustainability exploration practices positively affect performance to a greater degree than sustainability exploitation within organizations with high levels of proactiveness.

3. Method

3.1. *Sample and Procedures*

This study utilized a cross-sectional mail survey of a sample of European organizations, encompassing various sectors (based on the statistical industry classification). To ensure a

reasonable response rate, the survey was sent in two waves between April 2013 and January 2014. The questionnaire with the cover letter indicating the purpose and significance of the study was emailed to target respondents. The respondents to this survey are managers; in particular, target respondents were middle and senior managers estimated as having adequate knowledge of the sustainability and performance within their organisations. According to the results most respondents (42.7 %) indicate that their organization is in the “manufacturing” industry. The 247 usable responses consisted of 34.7 % respondents who held middle management position. 23.7 % of respondents held the position of frontline managers and 17.1 % of the respondents were the top managers. Of the 247 participating organizations, 34.8 % were large companies with more than 250 employees, 27.5 % were medium sized companies with more than 50 and less than 250 employees, 24.3 % were small companies with less than 50 employees, and 4.5 % were micro companies. Data were not available for 8.9 % of the sample organizations.

3.2. Measures

3.2.1. Sustainability exploration and sustainability exploitation measures and Organizational performance measures

Our multi-item scales (Appendix A) for measuring SER and SEI practices were drawn from earlier studies (Maletič et al., 2014, 2015). The validity and reliability of these scales are presented in Table 2. To measure organizational performance (Maletič et al., 2015), we asked the respondents to rate their performance according to the industry average during the last 3 years based on a five-point Likert scale. The complete items of Organizational performance measures scales are presented in Appendix B.

3.2.2. Contingency factors

In attempting to examine the contingency perspectives, the measuring items were compiled from works of various authors (Jansen et al., 2006; Baum and Wally, 2003; Zhang et al., 2012). Therefore, previously developed scales were used for measuring uncertainty and competitiveness. Both scales are based on Jansen et al. (2006). Furthermore, long-term orientation was measured by four items that were developed upon literature review (e.g. Johnson et al., 2012). Regarding the proactiveness we relied on the scale proposed by Morgan and Strong (2003) who proposed the proactiveness as one of the dimensions of strategic

orientation. All of these items were assessed on a five-point Likert scale. The validity and reliability of these scales are presented in Table 3.

4. Results and analysis

The results of empirical study are presented in the following section. A general overview concerning the validity and reliability of measurement scales is presented at the beginning of this section. Subsequently, regression analysis is presented with the aim of testing the research hypotheses. Additionally, cluster analysis is included to provide a better insight into the role of contingency factors (i.e. uncertainty and competitiveness) in in regard to the characterisation of sample organizations.

4.1. Exploratory measurement results

Exploratory factor analysis (EFA) was applied and corresponding factor loadings were used to assess the convergent validity. Furthermore, EFA was used to check for any possible cross loading problems of the measurement items as well. The results show five factors with eigenvalues greater than one, accounting for 64.709% of the variance (K-M-O statistic 0.948; Bartlett statistic 435; significance 0.000). Thus, a model with five factors may be adequate to represent the data. According to the results of the factor analysis, all factor-loading estimates exceeded 0.50 (ranged from 0.533 to 0.781). In addition, Cronbach's alpha and construct reliability were utilized to strengthen the EFA results (Table 1).

Table 1. Cronbach's alpha and reliability estimates

Construct	No. of items	Construct reliability	Cronbach's Alpha
Sustainability exploitation (SEI)			
SOEI	2	0.61	0.594
RSI	2	0.59	0.585
PMEI	2	0.75	0.749
Sustainability exploration (SER)			
SPPD	4	0.87	0.865
SOL	4	0.89	0.889

Notes. SOEI - stakeholder orientation for exploitation. RSI - stakeholder responsiveness and integration. PMEI - process management for exploitation. SPPD - sustainable product and process development. SOL - sustainability-oriented learning (SOL).

Cronbach's alpha of the five factors ranged from 0.585 to 0.889 (Table 1). The alpha value for SER was above the recommended value of 0.70, which is considered satisfactory for exploratory research (Hair et al., 2010). According to the results, the Cronbach's alpha for factors SOEI and RSI was below the recommended value. However, it should be noted that calculation of Cronbach's alpha is a function that includes the number of items. As such, there could be some issues with this index when the number of items is very low (Koufteros, 1999).

The scales for measuring contingency factors were subjected to convergent validity as well. The results of the factor analysis are illustrated in Table 2. The results show four factors with eigenvalues greater than one, accounting for 70.7% of the variance (K-M-O statistic 0.813; Bartlett statistic 66; significance 0.000). Following Hair et al. (2010), a significant value of 0.5 loadings is considered as a cut-off criterion. All items and scales exceed the threshold of 0.50 for convergent validity. According to the results, one item (CONT11) was excluded from further analysis because it cross-loaded on two factors. Due to the validity and reliability aspects, the construct "Proactiveness" was not a subject of further analysis. Subsequently, items were grouped together based on EFA and reliability tests results. Higher order factor variables are used in subsequent multiple regression analysis.

Table 2. Items, factor loadings and internal consistency measures

Construct	Measurement item	Loading	% of Variance	Reliability (Cronbach's α)
Long-Term Orientation	It is considered important to remain competitive for a long time (CONT9).	.870	34.556	0.850
	Strategies are planned with a focus on a long-term success (CONT7).	.820		
	Long-term performance is more critical than meeting this year's financial goals (CONT8).	.790		
	We are constantly seeking new improvement opportunities related to our present operations (CONT10).	.761		
Competitiveness	Our local markets are characterised by a strong price competition (CONT6).	.872	18.318	0.809

	Competition in our local markets is intense (CONT5).	.805		
	The organization is faced with high competitive pressures in global markets (CONT6).	.739		
Uncertainty	The demand for our organization's products and services is unstable and difficult to predict (CONT1)	.837	10.388	0.686
	Products/services quickly become obsolete in our industry (CONT3).	.694		
	Our organization must frequently improve its products and practices to keep up with competitors (CONT2).	.682		
Proactiveness	It is difficult for our competitors to imitate our processes and products/services (CONT12).	.911	7.459	0.582
	We are usually the first to introduce new brands or products in the market (CONT11).*	.614		

*item was excluded from further analysis

4.2. Common method variance

Since the study collected data on both the independent (sustainability practices) and dependent variables (organizational performance dimensions) from the same respondents, common method variance might be a potential problem (Podsakoff et al., 2003). As such, we used Harman's single-factor test by performing exploratory factor analysis on all of the measured variables and examined unrotated principal factor analysis. According to the results, the total variance for a single factor is less than 50 % (i.e. 38.7 %), thus it is suggested that common method bias is not a major problem in our data set.

4.3. Regression analysis results for contingency factors

The following results (Table 3) show the regression results of the two subgroups: low competitiveness and high competitiveness. A median cut-off criterion was used to distinguish between these two subgroups. The results show that coefficient for SER is positive and significant ($\beta = 0.361$, $p = 0.009$) in the regression model that corresponds to low level of

competitiveness. In addition, the explanatory power is reasonable (R square = 0.279). **These findings support the Hypothesis 1a.** Furthermore, when organizations are faced with high levels of competitiveness, both SER and SEI are positive and significant ($\beta = 0.324, p = 0.005$ and $\beta = 0.237, p = 0.038$, respectively). Although SEI has strengthened within the group of high level of competitiveness, the results did not provide the evidence that SEI influence organizational performance to the greater extent than SER. Hereby, Hypothesis 1b is not supported.

Table 3. Results of regression analysis within subgroups of low and high competitiveness

	Dependent: Organizational performance	
	Low	High
SER	0.361**	0.324**
SEI	0.220	0.237*
R^2	0.296	0.265
Adjusted R^2	0.279	0.251
F	17.666	19.297
P -value of overall model	0.000	0.000

* $p < 0.05$, ** $p < 0.01$

Furthermore, the regression analysis was also used to perform subgroup analysis in the context of low and high uncertainty. Consistently with the median cut-off criterion, two subgroups were defined (an organization was assigned to a low uncertainty subgroup if it scored less than 3 on uncertainty construct, and was categorised as part of a high level uncertainty subgroup if it scored above 3 on uncertainty construct). The results presented in Table 4 reveal that SER seems to be dominant independent variable when environmental uncertainty is low ($\beta = 0.397, p = 0.002$). As such, Hypothesis 2a is not supported. When environmental uncertainty is high, SER and SEI show significant positive relationships with organizational performance ($\beta = 0.286, p = 0.016$ and $\beta = 0.257, p < 0.030$; respectively). Accordingly, results are consistent with the theoretical assumptions stated in Hypothesis 2b.

Table 4. Results of regression analysis within subgroups of low and high uncertainty

	Dependent: Organizational performance	
	Low	High
SER	0.397**	0.286*

SEI	0.212	0.257*
R^2	0.320	0.250
Adjusted R^2	0.304	0.236
F	20.257	18.036
P -value of overall model	0.000	0.000

* $p < 0.05$, ** $p < 0.01$

Regarding the internal contingency factor, the results indicate (Table 5) that organizations with low levels (median cut-off value of 4.25 was used to distinguish between subgroups) of long-term orientation show significant positive coefficients for SER and SEI ($\beta = 0.250$, $p = 0.018$ and $\beta = 0.367$, $p = 0.001$; respectively). Accordingly, the results provided the evidence to support the Hypothesis 3a. In contrast, the positive and significant relationship between SEI and organizational performance becomes insignificant in the context of high level of long-term orientation, while SER shows positive and significant relationship ($\beta = 0.331$, $p = 0.010$). Hence, SER seems to be important predictor when organization aggressively follows long-term orientation. Hypothesis 3b, which proposed that SER affects the organizational performance to a greater extent than SEI when organizations express strong long-term orientation, is supported.

Table 5. Results of regression analysis within subgroups of low and high levels of long-term orientation

	Dependent: Organizational performance	
	Low	High
SER	0.250*	0.331*
SEI	0.367**	0.014
R^2	0.314	0.115
Adjusted R^2	0.301	0.094
F	24.227	5.477
P -value of overall model	0.000	0.006

* $p < 0.05$, ** $p < 0.01$

Moreover, several regression analyses were used to gain insight into the relationship between sustainability practices and organizational performance dimensions, depending on different levels of contingency factors. The main findings of dimension level analysis are summarised in Table 6. The selection of the performance indicators/measures was based on the

existing literature on organizational performance (Li et al., 2006; Maletič et al., 2015, Prajogo and McDermott, 2011) where specific dimensions of the overall organizational performance were studied. The Table 6 summarizes Beta coefficients of the regression models. All final regression models were significant, with R^2 ranging from 0.103 to 0.215 ($p = 0.000$).

Table 6. Main findings regarding regression analysis within subgroups of low and high levels of contingency factors

Performance dimension	Low	High
	Competitiveness	
Quality performance	SEI ($\beta = 0.332, p = 0.029$)	SEI ($\beta = 0.313, p = 0.013$)
Innovation performance	n.a.	SER ($\beta = 0.283, p = 0.021$)
Environmental performance	SER ($\beta = 0.467, p = 0.003$)	SEI ($\beta = 0.299, p = 0.016$)
Social performance	SER ($\beta = 0.340, p = 0.026$)	SER ($\beta = 0.382, p = 0.002$)
	Uncertainty	
Quality performance	n.a.	SEI ($\beta = 0.374, p = 0.003$)
Innovation performance	n.a.	SER ($\beta = 0.295, p = 0.021$)
Environmental performance	SER ($\beta = 0.525, p = 0.000$)	n.a.
Social performance	SER ($\beta = 0.446, p = 0.002$)	SER ($\beta = 0.338, p = 0.007$)
	Long-term orientation	
Financial and market performance	SEI ($\beta = 0.310, p = 0.008$)	n.a.
Quality performance	SEI ($\beta = 0.464, p = 0.000$)	n.a.
Innovation performance	SEI ($\beta = 0.312, p = 0.008$)	SER ($\beta = 0.340, p = 0.012$)
Environmental performance	SER ($\beta = 0.339, p = 0.003$)	SER ($\beta = 0.263, p = 0.044$)
Social performance	SER ($\beta = 0.342, p = 0.005$)	SER ($\beta = 0.340, p = 0.010$)

As shown by the results presented in Table 6, SEI practices are the most significant predictor of quality performance. The highest level of the Beta coefficient was found in the case of the

low uncertainty ($\beta = 0.464, p < 0.01$). In contrast, SER is the most important predictor of the innovation performance, particularly when organizations are faced with high levels of competitiveness, uncertainty and long-term orientation ($\beta = 0.283, p < 0.05$; $\beta = 0.295, p < 0.05$; $\beta = 0.340, p < 0.05$; respectively). Regarding the social performance SER practices are the most significant contributor in low and high levels within the all of the studied contingency factors. Similarly the SER is the strongest predictor within the low and high levels long-term orientation ($\beta = 0.339, p < 0.01$; $\beta = 0.263, p < 0.05$; respectively). The same conclusion cannot be drawn in the case of the uncertainty and competitiveness.

4.4. Cluster analysis

This analysis was used to derive a typology of the organizations with respect to the level of competitiveness and uncertainty. The identification of the variables that were included in the analysis is considered as a first step. A second step of the cluster analysis includes the determining of the number of clusters. For this purpose we applied Ward's hierarchical method using the Euclidean distance and an agglomeration schedule to determine the number of clusters to be used in a second K-means non-hierarchical analysis that provides the final categorisation of the organizations. In particular, the agglomeration schedule was used to identify relatively large percentage changes between agglomeration coefficients related to corresponding cluster solutions (Hair et al., 2010). The agglomeration coefficients increased noticeably from clusters 6 to 5, from cluster 5 to 4, from cluster 4 to 3 and from cluster 3 to 2, which in terms of the percentage change in the clustering coefficient, lead us to determine that the appropriate number of clusters is five.

The characterisation of clusters based on the final centres is presented in Table 7. Cluster 1 includes 42 organizations with moderate levels of competitiveness and low levels of uncertainty. Cluster 2 corresponds to high levels of competitiveness and moderate levels of uncertainty. Cluster 3 consists of 44 organizations that operate at moderate levels of competitiveness and uncertainty. Cluster 4 comprises of 21 organizations with low levels in both competitiveness and uncertainty. Finally, the high levels of competitiveness and uncertainty characterise Cluster 5.

Table 7. Results of cluster analysis of context dimensions (K-means)

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
			Low–Low	High–High

	Moderate– Low	High– Moderate	Moderate– Moderate		
Competitiveness	3.44	4.64	3.22	1.60	4.61
Uncertainty	1.70	3.06	3.28	2.00	4.39
n	42	78	44	21	57

Furthermore, the ANOVA test was applied to examine differences in SER and SEI as a consequence of differences in the context of competitiveness and uncertainty. The results of ANOVA test (Table 8) show significant mean difference among the clusters in terms of sustainability exploration ($F = 3.158, p = 0.018$). The Games-Howell post hoc testing revealed a significant difference between Cluster 2 and Cluster 3 and between Cluster 3 and Cluster 5.

Table 8. ANOVA test for effects of environment dimensions on sustainability practices

Cluster	SER	SEI
	<i>M (SD)</i>	<i>M (SD)</i>
Cluster 1: Moderate Competitiveness–Low Uncertainty	3.68 (0.9)	3.88 (0.7)
Cluster 2: High Competitiveness–Moderate Uncertainty	3.74 (0.8)	3.92 (0.6)
Cluster 3: Moderate Competitiveness–Moderate Uncertainty	3.31 (0.8)	3.74 (0.6)
Cluster 4: Low Competitiveness–Low Uncertainty	3.44 (1.2)	3.55 (1.1)
Cluster 5: High Competitiveness–High Uncertainty	3.88 (0.9)	4.02 (0.6)
<i>F (Signif.)</i>	3.12 ($p =$ 0.016)	2.314 ($p =$ 0.058)
Welch (Signif.)	3.158 ($p =$ 0.018)	1.645 ($p =$ 0.171)
Main Group differences (Games-Howell Test)	(2-3), (3-5)	

Table 8 shows that those environments with moderate and low competitiveness and uncertainty (Cluster 3 and Cluster 4) lead to the lowest mean values in SER (3.31 and 3.44, respectively). In contrast, environments with low competitiveness and uncertainty lead to low value in SEI (3.55). The environments with high levels of competitiveness and uncertainty (Cluster 5) lead to the highest mean values in SER (3.88) and a similar mean value in SEI (4.02). Furthermore, the environmental context with a higher level in competitiveness but lower levels

of uncertainty (i.e. Cluster 1 and Cluster 2) show higher mean values for SEI (3.88 and 3.92; respectively) than for SER (2.68 and 3.74; respectively).

To further analyse the differences between clusters, we performed regression analysis. Table 9 shows the results of regression analysis for different clusters (i.e. clusters that present environments with high competitiveness and moderate uncertainty, environments with moderate competitiveness and uncertainty and cluster with high levels of competitiveness and uncertainty). The results show that in moderate environmental contexts, SEI seems to be predominant predictor of organizational performance ($\beta = 0.393$, $p = 0.046$).

In contrast, it appears that when the level of competitiveness increases, SER becomes positively and significantly related to the organizational performance ($\beta = 0.420$, $p = 0.01$). However, when the criterion for sustainability practices becomes more stringent, the relationship for both SER and SEI becomes less significant. The regression model for low levels of competitiveness and uncertainty was not considered due to the low sample size.

Table 9. Comparison of regression analysis for different clusters

	Dependent: Organizational performance		
	Cluster 2	Cluster 3	Cluster 5
SER	0.420**	0.132	0.266
SEI	0.166	0.393*	0.217
R^2	0.286	0.243	0.199
Adjusted R^2	0.266	0.205	0.165
F	14.419	6.430	5.953
P -value of overall model	0.000	0.000	0.000

* $p < 0.05$, ** $p < 0.01$

5. Discussion

The context-dependent approach has been widely discussed in organizational theory literature (Sila, 2007). [Recently, the contingency approach has been highlighted in the field of corporate sustainability as well \(Pryshlakivsky and Searcy, 2015\).](#) This raises the question of whether organizations should use different sustainability practices depending on particular situational factor in order to achieve superior results. This study provides possible solutions to this question by investigating the performance implication of SEI and SER under different levels of competitiveness, environmental uncertainty and long-term orientation. Several regression

analyses were used to gain insight into the relationship between sustainability practices and organizational performance, depending on different levels of contingency factors.

Our findings show that both SER and SEI are effective sources of competitive advantage. The results show that the impact of SER practices on organizational performance is stronger in less competitive environment (supporting H1a). Considering organizational performance as a composite score, the results reveal that both SER and SEI are positive and significant within the sub-group of high levels of competitiveness. One plausible explanation is that highly competitive environment confronts organizations to ensure financial conservation through cost reduction as well as to provide solutions that cannot be easily imitated by competitors (Prajogo, 2016). Contrary to our straightforward prediction that organizations would pursue a strategy of greater exploitation in the presence of low uncertainty (H2a), our model captured that SER was the most important variable in predicting the organizational performance in the case of low uncertainty. One explanation might be that when market uncertainty is low, the organizations, particularly those with a technology-oriented strategy, may utilise radical innovations because they can outrun relatively stable markets with their novel solutions and proactive approaches (Sainio et al., 2012). Furthermore, the results indicate that both type of practices, SER and SEI, appear to be beneficial in influencing organizational performance when environmental uncertainty is high (supporting H2b). One plausible explanation is that when organizations are faced with high levels of uncertainty, they associated uncertainty with a risk rather than just an opportunity. Hence, it is suggested that organizations respond to high uncertainty in the environment with proactive innovative behaviour together with a tendency towards a stable business environment. Thus, the results suggest that in highly uncertain environments, it is necessary for organizations to provide efficiency, such as high level of stakeholder responsiveness, while at the same time being able to move into new areas. Another perspective suggests that in a business climate of increased uncertainty and complexity, so-called “best practices” are preferred among organizations since they are considered as legitimate (Matten and Moon, 2008).

The results also revealed that SER impacts the organizational performance to the stronger degree when organizations pursue long-term prosperity (supporting H3b). Hence, organizations should develop sustainable business models that are based on long-term orientation. One could argue that conventional business models need to be adapted or extended so as to incorporate notions relating to sustainability (Rauter et al., 2017) as well as to embrace long-term orientation on triple bottom line (Kurucz et al., 2017). Indeed, long-term benefits of corporate sustainability endeavour could be seen as the accumulation of intangible resources and

capabilities, including those related to innovation, human capital, reputation, organizational culture etc. (Ortiz-de-Mandojana and Bansal, 2016).

It is also interesting to observe the results obtained by the cluster analysis. According to these results, sustainability exploitation practices dominate in predicting the organizational performance when an organization is faced with moderate levels of competitiveness and uncertainty. It appears that when the level of competitiveness strengthens, sustainability exploration practices influence the organizational performance to a greater extent than sustainability exploitation practices. However, when both competitiveness and uncertainty reached high levels, significant effects of sustainability exploration and exploitation practices seem to disappear. Interestingly, alongside the high levels of these two contingency factors, our results indicate that organizations simultaneously deploy sustainability practices to a high extent. It is worth noting that our results indirectly support the findings of He and Wong (2004), who suggest that tension between exploration and exploitation may become unmanageable if organization is trying to excel in both types of practices. Accordingly, organizations need to find the way to cope with the organizational impediments and constraints that are related either to short-term goals or to more innovative and long-term solutions. The latter opens the debate on trade-offs in corporate sustainability, suggesting that all sustainability aspects cannot be achieved simultaneously (Hahn et al., 2010). This suggests that while the need for novel, exploratory sustainability-related innovation is necessary for future growth (e.g. Klewitz and Hansen, 2014), resource scarcity can force organizations to make strategic trade-offs with respect to where to focus their limited resources. From this perspective, contingency factors can be considered as a support in the decision process by concerning the way how organizations should respond to meet new and existing stakeholders' demands for modifications to existing products/processes or for the development of new products/processes.

5.1. Theoretical implications

This study provides a contribution to the literature on corporate sustainability performance (e.g. Wagner, 2010), by focusing on the link between sustainability exploitation and sustainability exploration practices and organizational performance. Even though prior literature has discussed the link between sustainability practices and economic performance (e.g. Schrettle et al., 2014), this study further explores the role of contingency factors in relation between sustainability practices and wider organizational performance dimensions. It has been suggested in the literature that research into corporate sustainability is often biased in that economic performance prevail over environmental and social outcomes and implications (e.g.

Hahn and Figge, 2011). As such, relatively few studies have investigated the relationship between sustainability practices and the overall organizational performance. Hence, the overall organizational performance dimensions reflecting corporate sustainability benefits related to financial and market performance, quality performance, innovation performance, environmental performance and social performance are also validated and supported through the research framework suggested in the present study.

Through the lens of contingency theory our study underscores the importance of achieving balance between exploration and exploitation (Jansen et al., 2006) in terms of gaining superior performance outcomes. In general, the results support the contingency view of the relationship between sustainability practices and organizational performance rather than relying upon “universal” view of sustainability practices. In this regard, we can argue that organizations with similar characteristics (capabilities, performance, and activity) may develop different approaches for managing the interaction between business and natural environment (Aragon-Correa and Sharma, 2003). Therefore, the results obtained in this study contribute knowledge to fill the gap in the line of recent research dedicated to the contingency perspective in relation to the sustainability issues (e.g. Sancha et al., 2016). Our study therefore emphasizes the importance of including contingency perspective in customizing sustainability practices to better explain the performance outcomes. Specifically, we have provided evidence for the importance of the competitiveness, uncertainty and long-term orientation, showing that organizations are more likely to adjust their corporate sustainability approach in achieving superior performance. Moreover, drawing on operations management literature (e.g. Sila, 2007), demographic contingency factors, such as company size, age and type might also play a role in the implementation of sustainability practices. In particular, company size was discussed in prior studies (e.g. Fauzi et al., 2007) related to corporate sustainability, suggesting that larger organizations are likely to be more socially responsible than smaller ones.

Given the fact that our study focuses on SER and SEI activities within organizations, it may provide useful insights into the discussion on green/sustainable organizational ambidexterity (Chen et al., 2014; Maletič et al., 2014). It is suggested in our study that SER and SEI practices play an important role in enhancing organizational performance. Furthermore, this study contributes to the literature organizational ambidexterity by means of conceptualizing and operationalizing sustainability exploration and sustainability exploitation practices. Accordingly, extending extant management literature and scholarly thinking on exploration and exploitation into the realm of corporate sustainability represents an interesting challenge,

especially because of the inconsistency of defining and measuring corporate sustainability practices (Montiel and Delgado-Ceballos, 2014).

5.2. *Managerial implications*

In addition, our results have also significant managerial implications. The results obtained permit us to draw a series of conclusions that managers should take into account, above all the decisions whether managers should put more focus on sustainability exploitation or sustainability exploration practices. While in stable, technologically certain settings sustainability exploration practices may be dominant, while in uncertain and rapidly changing contexts organization needs to broaden the focus by simultaneously pursuing both sustainability exploration and sustainability exploitation practices. Moreover, organizations that are committed to innovate their business models with sustainability in mind should take into account the contingency perspective while shaping the organization's value proposition and creation. In particular, business model innovation is conceived as a fundamental reconsideration of the organization's value proposition associated with new opportunities (Bock et al., 2012). Innovating the business model is crucial, particularly in uncertain and high competitive environment where traditional view of "action and planning" is not enough (Andries et al., 2013).

The results confirm the positive relationship between sustainability exploration and sustainability exploitation practices and organizational performance. We wish to emphasize to managers the need to implement sustainability practices as a way to foster both the exploration of new knowledge and the exploitation of the existing capacities within an organization. From this perspective, the study outlines the productivity dilemma posed by Adler et al. (2009). The productivity dilemma emphasises the tension between contradictory pairs of goals: efficiency and adaptability. Organizational long-term success depends on successfully managing this, as well as often other, sets of conflicting goals. With respect to this complexity, it is suggested that managers should take into account different situational conditions (internal or external) in successfully managing contradictory goals.

6. **Conclusion**

The purpose of this study was to analyse if and to what extent the sustainability exploitation and sustainability exploration can influence organizational performance by considering different **environmental** conditions. The findings of this study support a positive relationship between sustainability practices and organizational performance. Additionally, the findings of

this study suggest that contingency factors have an important role in this relationship. The study provides important insights on how organizations can develop appropriate organizational capabilities to pursue efficiency and innovativeness simultaneously, particularly in the environment of intensified competition and increased uncertainty.

The paper contributes to the knowledge on managing the tensions between exploitation and exploration activities within the field of corporate sustainability, which could be an important area for future research. Another promising area for future research could be emerging research field of sustainable organizational ambidexterity that appears to bridge interdisciplinary areas of knowledge such as organizational learning, strategic management, corporate sustainability, stakeholder theory, and organizational design. However, as research on the integration of exploitation and exploration notions into corporate sustainability framework continues to evolve, it will become necessary to address the inconsistencies concerning the definition of corporate sustainability. These inconsistencies may hinder the further development of corporate sustainability measures and could cause the variations among scholars in their preferred [conceptualization and operationalization](#) of sustainability constructs. In future studies, different exploitation and exploration conceptualizations can be compared to find a better solution for addressing the sustainability exploitation/exploration paradigm. In our study, concern might be expressed given that perceptual measures were used for measuring sustainability practices and performance outcomes.

Second, we recommend that future research should develop an in-depth understanding of the mechanisms of how to achieve balance between sustainability exploitation and sustainability exploration practices. Accordingly, multiple case studies could be used to enhance understanding of how organizations are developing exploitation and exploration capabilities and how they are coping with trade-offs between exploitation and exploration when they are faced with different situational conditions.

Third, it should be outlined that cross-sectional research design is limited by means of exploring how an organization's approach towards SER and SEI develops over time. In this regard, longitudinal studies could more precisely examine how the sustainability exploitation and sustainability exploration evolve and/or even co-evolve in terms of organizational ambidexterity over time and the influence that such patterns have on organizational performance (i.e. short and long-term performance).

Fourth, future research on sustainable business model design are needed, especially to examine whether some sustainable business models designs are better than others and how contingencies might influence and determine the sustainable business models design.

Finally, one limitation of our study is associated with the generalization of the research findings concerning the population from which our sample organizations are drawn. As such, future studies could improve the generalization of the results by taking caution in controlling sources of extraneous variability.

Appendix A. Measurement items – sustainability exploration and sustainability exploitation practices

Sustainability exploration practices

SPPD1: The organization makes improvements to radically reduce environmental impacts of products and services' life-cycles

SPPD2: We regularly make adjustments to existing products and services to reduce negative environmental and social impact

SPPD3: The organization undertakes regularly business process reengineering with a focus on green perspectives

SPPD4: We acquire innovative environmental-friendly technologies and processes

SOL1: The organization continuously strengthens employees' knowledge and skills to improve efficiency of current sustainability practices

SOL2: The organization is characterised by a learning culture stimulating innovation for sustainability

SOL3: The organization upgrades employees' current knowledge and skills based on examples of best practices in corporate social responsibility

SOL4: We search for external sources (e.g. partners, customers, research institutions) of knowledge in our search for innovative ideas related to sustainability

Sustainability exploitation practices

SOEI1: We always respond to existing stakeholder issues in a regular/systematic way

SOEI2: The organization constantly evaluates its external environment to uncover issues of importance to key stakeholders (customers, suppliers, local communities)

RSI1: The business processes are flexible allowing us to achieve high levels of responsiveness towards key stakeholder needs and demands

RSI2: The organization involves key market stakeholders (customers, suppliers) early in the product/service design and development stage

PMEI1: We make use of appropriate tools and techniques to reduce the variability of key processes

PMEI2: We have established key performance indicators (KPIs) to determine if the organization is meeting sustainability goals

Appendix B. Measurement items - organizational performance practices

Financial and market performance

PERF1: Return on investment (ROI) has increased above industry average during the last 3 years

PERF2: Sales growth has increased above industry average during the last 3 years

PERF3: Profit growth rate has increased above industry average during the last 3 years

PERF4: Market share has increased during the last 3 years

Quality performance

PERF5: The quality of our products and services has been improved during the last 3 years

PERF6: Customer satisfaction has increased during the last 3 years

PERF7: Customer complaints has decreased during the last 3 years

PERF8: The cost of poor quality has decreased during the last 3 years

Innovation performance

PERF9: The organization has introduced more innovative products and services than our main competitors during the last 3 years

PERF10: The number of innovations that provide the organization with a sustainable competitive advantage has increased during the last 3 years

PERF11: The speed of adoption of new technology is faster than at our main competitors

Environmental performance

PERF12: The efficiency of the consumption of raw materials has improved during the last 3 years

PERF13: The resource consumption (thermal energy, electricity, water) has decreased (e.g. per unit of income, per unit of production, ...) during the last 3 years

PERF14: The percentage of recycled materials has increased during the last 3 years

PERF15: The waste ratio (e.g. kg per unit of product, kg per employee per year) has decreased during the last 3 years

Social performance

PERF16: The turnover ratio has decreased during the last 3 years

PERF17: The employees' satisfaction has increased during the last 3 years

PERF 18: The employees' motivation has increased during the last 3 years

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