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Do corporate sustainability practices enhance organizational economic performance?

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Abstract

Purpose – Corporate sustainability is a growing area of importance for organizational development. Managing sustainability practices successfully is an imperative in achieving competitive advantage. This study intends to clarify the relation between sustainability practices and financial and market performance, and also, the role of non-financial performance outputs in this relation.

Methodology/Approach – Using empirical data based on a large-scale survey among organizations in five countries (i.e. Germany, Poland, Serbia, Slovenia and Spain), this paper utilized mediation analysis to estimate and test the mediated effects in a multiple mediator model. As such, the sizes of indirect effects of sustainability practices on financial and market performance through potential mediators were estimated.

Findings – The results showed that innovation performance exerts a mediation effect in the relation between sustainability practices and financial and market performance. The main conclusion is that a greater engagement in sustainability practices leads to an increased innovation performance, which in turn, leads to financial and market performance.

Originality/value – This paper is one of the first attempts to empirically validate sustainability exploitation and sustainability exploration practices. Besides, the analysis of the direct and indirect effects of sustainability exploration and sustainability exploitation practices on financial and market performance has not been yet addressed to a great extent.

Keywords: sustainability practices, exploitation, exploration, financial performance, market performance, mediation analysis

Paper type- Research paper

Introduction

The role of business in society has been a concern both of scholars and practitioners for a long time (Salzmann et al., 2005). As such, over the last decades, the literature has increasingly emphasized the importance of integrating the sustainability concept into organization's business models (Matos and Silvestre, 2013) with the focus on creating the sustainable organization which aims to act pro-actively in implementing environmental and social practices (Hart and Milstein, 2003). Similar idea has been reinforced by several authors (e.g. Van Marrewijk and Were, 2003; Jonker and Karapetrovic, 2004) indicating that the objective of a business is the creation of value and synergies between the economic, social and ecological realms of corporate performance, where the business focuses not only on the customers, but in all of the interested parties (stakeholders). It is important to involve stakeholders in the organization's operations, since this can lead to proactive environmental response and subsequently to improved environmental performance (Rasi et al., 2014).

The relation between corporate sustainability (CS) and financial performance has been investigated in theoretical and empirical studies by researchers on corporate social responsibility (CSR) (e.g. Weber, 2008), environmental performance (Koo et al., 2014; Wagner and Schaltegger, 2004) as well as sustainability performance (e.g. Wagner, 2010). Most previous studies confirmed that incorporating sustainability in business can yield economic benefits (Wagner, 2010). However, some authors advocate inversely U-shaped curve, especially when discussing the link between environmental performance and economic performance (Schaltegger and Synnestvedt, 2002), suggesting that there is an optimal level of environmental performance.

Although the current research analysing the link between CS and financial performance seems to provide some support for the existence of a business case for CS, there is a lack of empirical studies that would validate the CS practices and mechanisms that ultimately affect economic performance of an organization. Given this focus, one might highlight the question about which practices organizations should deploy to maximize their performance outcome. Should the focus be on increasing the resource efficiency to gain short-term financial gain, encouraging the innovation activities to support long-term sustainability or should organizations simultaneously pursuing both, at a first glance contradictory goals. The latter brings the exploitation and exploration dilemma to the forefront (Maletič et al., 2014a). Whereas prior studies have addressed the exploitation and exploration dilemma in a wide range of management research areas such as innovation strategy (He and Wong 2004) or quality management (Zhang et al., 2012), far less attention has been given to uncovering the underlying dimensions of sustainability exploitation and sustainability exploration practices.

Recently, literature has paid attention to developing an integrative framework to define and evaluate sustainability practices (Maletič et al., 2014a; Amini and Bienstock, 2014). Following the conceptualization of Maletič et al. (2014a), sustainability exploitation practices (SEI) can be conceived in the context of efficiency (e.g., reductions in materials, water and energy use), responsiveness (e.g., with respect to demands of various stakeholders), measurement (e.g.,

measuring progress towards goals of the organization) as well as in the context of exploiting and improving existing sustainability competencies. While SEI is characterised by practices aimed at making an organization more efficient through incremental improvements in processes and outputs (products/services), sustainability exploration (SER) is concerned with challenging existing sustainability solutions with innovative concepts and developing capabilities and competences for sustainability-related innovation. From the perspective of the sustainability-related innovations, prior studies have put the focus on searching the ways of how to manage product development in a more sustainable manner (Hallstedt et al., 2013) as well as on investigating the relationship between sustainability-oriented innovation practices and organizational performance (Maletič et al., 2014b).

This study adds to this emerging dialogue in at least three important ways. First, this paper is one of the first attempts to empirically validate sustainability exploitation and sustainability exploration practices. Second, this paper provides new insights into the relationship between sustainability practices and financial and market performance. Third, this paper examines potential mediators in the relationship between sustainability practices (in the context of SER and SEI) and financial and market performance.

Theoretical perspective of the link between sustainability and performance

As pointed out by Young and Tilley (2006), business approach to sustainability has moved from pollution control to eco-efficiency and socio-efficiency. The underlying notions of these concepts are focused in the so called win-win solutions, where economic benefits are aligned with environmental performance (e.g. reducing resource consumption and waste minimization) and social performance (e.g. minimization of negative social impacts or maximization of positive ones) (Young and Tilley, 2006). The business case for sustainability has been discussed for a long time focusing on the links between environmental and social practices and corporate economic performance (Schaltegger and Wagner, 2006; Salzmann et al., 2005). In this regard, much of the academic research has centred on the question of whether it “pays” to be green and sustainable (e.g. Marcus and Fremeth, 2009; Siegel, 2009). As discussed by Marcus and Fremeth (2009), businesses will not necessarily introduce sustainability practices because of the normative obligation, but because commitment to sustainable development coincides with their interest to satisfy key stakeholders and has an impact on the competitiveness and economic performance of an organization.

The link between environmental and economic performance has been widely discussed in the literature over the last decade (e.g. Wagner and Schaltegger, 2004). Prior studies have shown that organizations can benefit from greening their operations in terms of cost reduction, productivity, innovation and economic performance (e.g. Iraldo et al., 2009; Koo et al., 2014). As suggested by Psomas et al. (2011), there are several competitive opportunities associated with environmentally friendly management, ranging from internal performance benefits to external marketing benefits. Organizations’ commitment to build competitive resources in their operational system using an

environmental management system standard is therefore associated with the triple bottom line performance benefits: environmental, social, and market benefits (Prajogo et al., 2012). It could therefore be argued that environmental sustainability could contribute both to economic profitability and competitive advantages (Wagner, 2005). In contrast, some empirical studies also revealed a negative relationship between environmental performance and economic performance (Wagner et al., 2002).

Recently, the interactions between wider sustainability performance aspects and economic performance have also received considerable attention in the literature (e.g. Wagner, 2010). For example, empirical work by Chang and Kuo (2008), indicate that a positive reciprocal causality may exist between sustainability and profitability. Furthermore, literature also implies a positive relationship between the corporate social responsibility (CSR) engagement of an organization and its financial success (Weber, 2008). Moreover, proponents of CSR argue that socially responsible practices can have a positive impact on the bottom line (i.e. economic bottom line) in a way that helps organizations to reduce cost and risk, to gain competitive advantage, to strengthen their legitimacy and reputation as well as to create synergistic value between different stakeholders' demands (Carroll and Shabana, 2010).

Methods

Sample and data collection

The questionnaire with the cover letter indicating the purpose and significance of the study was emailed to target respondents. To ensure a reasonable response rate, the survey was sent in two waves. Managers were chosen because they were considered to be familiar with the implementation of sustainability practices and performance indicators. The questionnaire was responded by organizations that are located in Germany, Poland, Serbia, Slovenia and Spain, in portion of 8.1%, 23.1%, 8.1%, 47.0% and 13.8%, respectively. The profile of the organizations and respondents is provided in Table I.

Table I. Profile of the respondents in our sample

Sample distribution		Percentage
Respondent profile	Middle management	34.7
	Frontline management	23.7
	Top management	17.1
	Data not available	24.5
Organization profile (employees)	0–5	4.5
	5–50	18.1
	50–250	27.5
	250–500	8.9
	over 500	25.9

Mediation analysis

In order to test the mediation effects of proposed mediators on the relationship between sustainability practices and financial and market performance, we used SPSS procedure (SPSS macro) for estimating indirect effects in multiple mediation models proposed by Preacher and Hayes (2004, 2008).

The macros provide unstandardized coefficients as required to test mediation (Preacher and Hayes, 2008). Path a represents the effect of X on the proposed mediator, whereas path b is the effect of M on Y partialling out the effect of X (Figure 1B). All of these paths would typically be quantified with unstandardized regression coefficients. The indirect effect of X on Y through M can then be quantified as the product of a and b (i.e., ab). The total effect of X on Y is quantified with the unstandardized regression weight c (Figure 1A). The total effect of X on Y can be expressed as the sum of the direct and indirect effects: $c = c' + ab$.

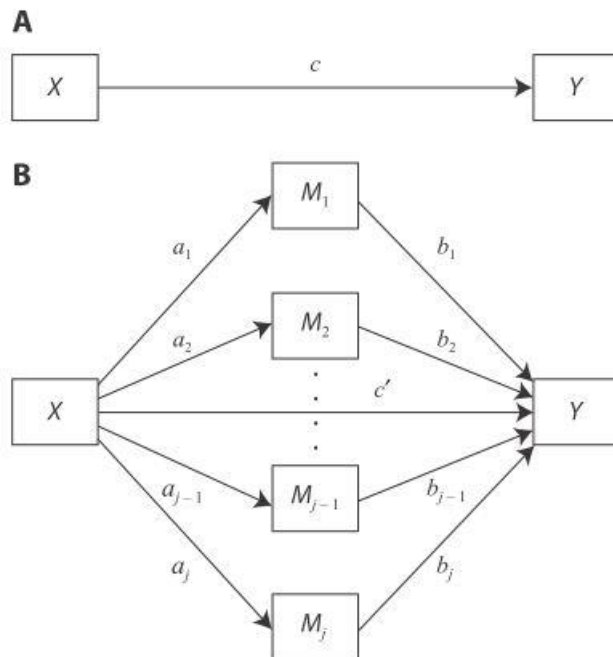


Figure 1. Illustration of a multiple mediation design. (A) X affects Y. (B) X is hypothesised to exert an indirect effects on Y through M_1 , M_2 , ... M_j (Preacher and Hayes, 2008).

Analysis and Results

Measures

Sustainability exploration and sustainability exploitation. As mentioned in the introduction section, this study adopts the conceptualization of the variables proposed by Maletič et al. (2014a) and operationalization suggested by the work of Maletič (2013). Content, convergent, and discriminant validity was used to validate measurement models. The content validity of the questionnaire was established from the existing literature as well as by examining the measurement items by several researchers and experts. In order to assess convergent and discriminant validity, a combined exploratory–confirmatory approach was applied. First, data were subject to exploratory factor analysis. Then confirmatory factor analysis (CFA) was applied, with the aid of the AMOS software.

The results revealed that sustainability exploration construct consists of two sub-constructs termed ‘Sustainable product and process development’ (SPPD) and ‘Sustainability-oriented learning’ (SOL). Regarding the sustainability exploitation construct, the best overall fit of the model corresponds to the following sub-constructs: Stakeholder orientation for exploitation (SOEI), Stakeholder responsiveness and integration (RSI), and Process management for exploitation (PMEI). A part of the results of the validation process are summarized in Table II.

Table II. Cronbach’s alpha and reliability estimates

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

In summary, the results of the validity tests provide sufficient evidence regarding the convergent and discriminant validity of the measurement models and, therefore, supported empirical justification for combining constructs process-based sustainability practices, sustainability-oriented learning, stakeholder orientation for exploitation, stakeholder responsiveness and integration, and process management for exploitation into aggregates. The corresponding items for measuring the sustainability exploration and sustainability exploitation practices are presented in Appendix A.

Organizational performance measures. This study used existing scales from the previous empirical study (Maletič et al., 2014b; Maletič, 2013). The resulting four-item scale financial and market performance captures the extent to which organizations achieve business success. While recognising that performance is multi-dimensional concept (Chenhall and Langfield-Smith,

2007), this study identifies four non-financial performance measures to test whether these variables serve as mediating variables. Study variables with their corresponding values of Cronbach's alpha are shown in Table III.

Table III. Study variables

Construct	No. of items	Cronbach's Alpha
<i>Dependent variable</i>		
Financial and market performance	4	0.865
<i>Potential mediators</i>		
Quality performance	4	0.845
Innovation performance	3	0.841
Environmental performance	4	0.798
Social performance	3	0.819

An exploratory analysis of the scales was used to check for any possible cross loading problems of the measurement items. According to the results of the factor analysis, all factor-loading estimates exceeded 0.50 (ranged from 0.658 to 0.866). The corresponding items for measuring the organizational performance are presented in Appendix B.

Multiple mediation analysis

Following Baron and Kenny (1986) who recommend that a mediator, rather than a moderator function, is better when there is a strong relationship between a predictor and a criterion variable, we consider that the predictor variable 'sustainability practices' is related with the criterion variable 'non-financial performance measures' and we take the position that non-financial performance measures have mediator functions on the relationship between sustainability practices and financial and market performance. Therefore, the purpose of this section is to examine whether SER and SEI affect financial and market performance indirectly through non-financial performance measures.

In the following, we present simultaneous mediation by multiple variables; SER as independent variable, financial and market performance as dependent variable and quality performance, innovation performance, environmental performance, social performance as mediators. The results of the multiple mediation analysis are presented in Table IV and Table V.

Table IV. Mediation of the effects of the SER on financial and market performance through proposed mediators

Coefficients				
Mediator	(a paths)	(b paths)	Total Effect (c path)	Direct Effect (c-prime path)

Quality performance	0.3469, p=0.000	0.1096, p=0.1880		
Innovation performance	0.4264, p=0.000	0.4173, p=.0000		
Environmental performance	0.4465, p=0.000	0.0382, p=0.6091	0.2883, p=0.0001	-.0101, p=0.8932
Social performance	0.4504, p=0.000	0.1451, p=0.0524		

The results indicate that direct effect is not statistically different from zero, indicating no relationship between SER and financial and market performance after controlling for mediators ($c' = -0.0101$, $p > .05$). The results indicate that mediation occurs in the relationship between SER and financial and market performance. It seems that innovation performance completely mediates the effect of SER on financial and market performance. However, other potential mediators appear not to be significant mediators. As can be seen in Table IV, the total and direct effects of SER on financial and market performance are 0.2883, $p < 0.01$, and -0.0101 , $p < 0.08$, respectively.

The difference between the total and direct effects is the total indirect effect through the four mediators, with a point estimate of 0.2984 and a 95% BCa bootstrap CI of 0.1774 to 0.4340 (i.e. we can claim that the difference between the total and the direct effect of SER on financial and market performance is different from zero).

However, in multiple mediation models, the researcher is concerned not only with the total indirect effect of X on Y, but also with specific indirect effects (Preacher and Hayes, 2008). The specific indirect effects are $a_1b_1 = 0.0380$ (through quality performance), $a_2b_2 = 0.1779$ (through innovation performance), $a_3b_3 = 0.0171$ (through environmental performance) and $a_4b_4 = 0.0653$ (through social performance) (Table V). The SEs and critical ratios (Z values) for these effects are also reported in Table V. Considering the potential mediators examined, we can conclude that innovation performance is likely an important mediator ($Z = 4.2806$, $p = 0.000$).

Table V. Bootstrap estimates of the mediated effect and its standard error - SER

Mediator	Point estimate	Product of Coefficients		Bootstrapping BCa 95% CI	
		SE	Z	Lower	Upper
Quality performance	0.0380	0.0291	1.3047	-0.0134	0.1254
Innovation performance	0.1779	0.0416	4.2806	0.1039	0.2785

Environmental performance	0.0171	0.0330	0.5171	-0.0611	0.0891
Social performance	0.0653	0.0344	1.8984	-0.0048	0.1500
TOTAL	0.2984	0.0555	5.3767	0.1774	0.4340

Bca -Bias Corrected and Accelerated Confidence Intervals, 1000 bootstrap samples

As mentioned in the introduction of this section, SEI is also a subject of mediation analysis. The results of the multiple mediation analysis are summarised in Table VI and Table VII. As can be seen in the results (Table VI), the total and direct effects of SEI on financial and market performance are 0.4316, $p < .001$, and 0.0797, $p < 0.4$, respectively. The difference between the total and direct effects is the total indirect effect through the four mediators, with a point estimate of 0.3519 and a 95% BCa bootstrap confidence interval (CI) of 0.2104 to 0.5245. Hence, we can claim that the difference between the total and the direct effect of SEI on financial and market performance is different from zero, which indicates that innovation performance is a mediator. Moreover, Baron and Kenny (1986) simply state that perfect mediation has occurred if c' becomes insignificant after controlling for M, which is so in our case ($c' = 0.0797$, $p = 0.3985$).

Table VI. Mediation of the effects of the SEI on financial and market performance through proposed mediators

Mediator	Coefficients			
	(a paths)	(b paths)	Total Effect (c path)	Direct Effect (c-prime path)
Quality performance	0.4992, $p=0.000$	0.0907, $p=0.2833$	0.4316, $p=0.000$	0.0797, $p=0.3985$
Innovation performance	0.5634, $p=0.000$	0.4063, $p=.0000$		
Environmental performance	0.4787, $p=0.000$	0.0250, $p=0.7336$		
Social performance	0.4761, $p=0.000$	0.1381, $p=0.0605$		

The point estimate of ab is simply the mean ab computed over 1,000 samples, and the estimated standard error is the standard deviation of the 1,000 ab estimates. As can be seen from the bootstrapped estimate of the indirect effect, the true indirect effect of innovation performance is estimated to lie between 0.1266 and 0.3676 with 95% confidence (Table VII). Neither quality performance, environmental performance nor social performance contribute to the indirect effect above and beyond innovation performance.

Table VII. Bootstrap estimates of the mediated effect and its standard error - SEI

Mediator	Point estimate	Product of Coefficients		Bootstrapping BCa 95% CI	
		SE	Z	Lower	Upper
Quality performance	0.0453	0.0421	1.0753	-0.0372	0.1387
Innovation performance	0.2289	0.0536	4.2711	0.1266	0.3676
Environmental performance	0.0119	0.0347	0.3444	-0.0643	0.1044
Social performance	0.0658	0.0365	1.8017	-0.0070	0.1521
TOTAL	0.3519	0.0671	5.2474	0.2104	0.5245

Bca -Bias Corrected and Accelerated Confidence Intervals, 1000 bootstrap samples

Overall, the results of multiple mediation analyses provide evidence that, taken as a set, innovation performance does mediate the effect of both SER and SEI on financial and market performance. According to the results, the directions of the a and b paths are consistent with the interpretation that greater engagement in sustainability exploration and sustainability exploitation leads to greater innovation performance, which in turn leads to greater financial and market performance.

Discussion and conclusions

Notwithstanding valuable contributions pointed out in previous studies (Maletič et al., 2014b, Fairfield et al., 2011; Pujari, 2006), both researchers and managers still struggle to understand how an organization may customize their sustainability practices (Maletič et al., 2014a; Amini and Bienstock, 2014). This study contributes to current literature and management practice by increasing conceptually and empirically validated understanding about how to distinct between sustainability exploitation and sustainability exploration practices. Given the diversity of sustainability practices, it can be argued that the field to which corporate sustainability is applied is extremely wide and can range from highly efficiency related approaches to others that are almost entirely focused on the innovation aspects or on human aspects of sustainability. The latter is (to a certain extent) consistent with the notion of March (1991), who emphasises that one of the more enduring ideas in organization science is that an organization's long-term success depends on its ability to exploit its current capabilities while simultaneously exploring new competencies. However, no prior study has provided a solution to the dilemma of exploration-exploitation within a corporate sustainability framework. In this regard, our study provides one of the first

empirical attempts to validate and discriminate between the two distinct aspects within the corporate sustainability framework. The results provide some intriguing insights into how exploration and exploitation concepts can be applied to the organisational sustainability. The first important observation that emerged from our empirical investigation concerning the dimensionality of sustainability exploration construct is that the construct consists of two dimensions. The first dimension 'Sustainable product and process development' (SPPD) refers to the innovation (either of the products or the processes), while the second dimension 'Sustainability-oriented learning' (SOL) underlines the learning environment that supports the sustainability strategies. Indeed, conceptual arguments assert that deployment of exploratory practices is inherently linked to pursuing new knowledge and developing new products and services (Jansen et al., 2006). The latter can be supported with the argument that transformation towards sustainability requires the adoption of innovative behaviours and new forms of consciousness (Edwards, 2009).

Further, another important theoretical contribution of the study is the investigation of the financial and market performance that might result from the deployment of sustainability practices. The results of our study therefore tend to lend credence to the literature on business case for sustainability (Salzmann et al., 2005). Prior literature on corporate sustainability has long argued that organizations capable of pursuing sustainability obtain superior performance and enhance their long term survival (Wagner, 2010; Figge, 2005). Although various studies have investigated the economic benefits gained from sustainability initiative, few studies have actually studied performance implications of a wider set of performance measures. Following this line of reasoning, it is relevant to consider that sustainability practices generate performance outcome (i.e. economic benefits) indirectly through performance outputs (i.e. non-financial benefits). Despite the literature appearing to favour the causal precedence of sustainability performance in the relation with economic performance (e.g. Wagner, 2010), having perceived sustainability practices as a predictor, for this exploratory study, it seems more logical to understand the relation with financial and market performance as the criteria variable, and to understand if non-financial performance variables are mediators of this process.

Regarding the investigation of the mechanisms through which sustainability practices can contribute to the financial and market performance, our study contributes to prior literatures concerning the importance of sustainability-related innovation activities (Maletič et al., 2014b; Wagner, 2008). Results from our study revealed that innovation performance is a significant mediator in the relationship between sustainability practices and financial and market performance. The interpretation of mediation analysis is that, taken as a set, innovation performance does mediate the relationship between sustainability practices and financial and market performance. Given our finding that innovation performance fully mediates the relationship between sustainability practices and financial and market performance, it may be the case that sustainability is a driver of innovation and competitive advantage. The latter brings to the forefront the importance of building capabilities and competence to innovate in ways that are

more sustainable (Van Kleef, and Roome, 2007). This can also strengthen organization's capacity to create competitive advantage (Forsman, 2013). While innovation is essential for organizations in order to remain competitive, it must be approached systematically and should be integrated and incorporated through the entire organization within the context of a well-established TQM philosophy (Augusto et al., 2014).

Regarding the sustainability exploration practices, our findings are somewhat supporting the argument that incorporating sustainability activities in product and process development can provide tools and mechanisms to organizations to enhance their economic benefits (Pujari, 2006; Schrettle et al., 2013). One should not overlook the importance of integrating the quality management principles into sustainability management (Kuei and Lu, 2013). This means that the organization needs to embed sustainability aspects into product/process quality characteristics during the early phases of product and process development. However, in order to internalize sustainability management in daily practice, prior literature suggests systems approach, such as Deming's PDCA approach (Kuei and Lu, 2013). Moreover, organizational learning as an important element of sustainability exploration practices appears to be crucial mechanism for improving the innovation performance (Chien et al., 2015).

Interestingly, the results indicate a strong indirect effect of SEI on financial and market performance as well. These findings should be interpreted in the context of stakeholder orientation, which is an underlying dimension of SEI. Accordingly, organizations that are able to pursue sustainability exploitation practices are not only able to efficiently exploit existing products, services and processes, but are also able to stimulate innovation activities, primarily through their strong commitment to stakeholder orientation. As suggested by previous studies (e.g. Sainio et al., 2012), stakeholder orientation, particularly the customer relationship orientation, plays an important role in stimulating innovations. Furthermore, previous studies have suggested that the effect of the stakeholder orientation on business performance may be mediated by innovation (Han et al., 1998).

Managerial implications

Despite the increasing popularity of sustainability practices, practitioners still experience mixed results. Overall, the results of this study offer several guidelines to help organizations to develop and to successfully deploy sustainability practices. By distinguishing two different fundamental orientations of corporate sustainability practices (sustainability exploitation and sustainability exploration), this study provides a basis of guidance for practitioners to adapt sustainability practices. In concrete terms, it sheds light on decisions regarding the relationship between sustainability exploitation and sustainability exploration. One of the main implications for managers is that both exploratory and exploitative sustainability competences should be considered in parallel when searching for superior performance. For example, in an organization, excessive exploration at expense of exploitation can be costly, as the tangible outcomes of exploration will only be realized in the distant future and then only with a considerable

uncertainty (Molina-Castillo et al., 2011). In contrast, a concentration on exploitation without exploration discourages the organization from pursuing learning and development (Auh and Menguc, 2005). To take advantage of integrating sustainability exploitation and sustainability exploration practices into their processes, organizations should carefully examine the differences between these two competencies and the particular situation under which each can be more or less effective to foster innovation performance and ultimately to gain economic benefits.

Limitations and future research

Our study is obviously subject to some limitations that need to be addressed, but there are also promising future research ideas that emerge from this study. We use subjective measures based on the perceptions of the managers participating in our survey. Despite the extensive use of such retrospective perceptual data in prior empirical studies, and especially in sustainability related studies (Fairfield et al., 2011), we should not rule out the potential shortcomings associated with subjectivity, which means a cautious interpretation of the findings is necessary. Therefore, future research should consider the findings of this study and revalidate measurement scales in order to enhance generalizability for measurement instrument.

Regarding the link between sustainability practices and organizational performance, future studies may also examine other dimensions, such as a sustainability-oriented organizational culture and quality management-oriented organizational culture. It would be valuable to examine the indirect effect of characteristics of the organizational culture on the organizational performance through sustainability practices. In this way, scholars as well as practitioners are provided with further insights how organizational culture influences important outcomes indirectly through sustainability practices. Organizations may, for instance, develop and pursue characteristics of the organizational culture that facilitate innovation and risk taking and may, therefore, not always follow maximum short-term economic benefits, but rather may aim at increasing long-term sustainable value.

Future studies should take into account that there could be a reciprocal causal mechanism linking the sustainability performance and economic performance. It can be argued that financially successful organizations may have the resources necessary to improve their sustainability performance, which in turn increases financial benefits. Thus, further examination of the mechanisms linking the sustainability and economic performance and the circumstances shaping that link might be an interesting area for future research.

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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 organisation 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 organisation 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 organisation 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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