Corporate Social Responsibility: A Driving Force for Exploration and Exploitation in SMEs?

Céline Bérard, **Bérangère L. Szostak**, **Rafik Abdesselam**

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Corporate Social Responsibility: A Driving Force for Exploration and Exploitation in SMEs?[1]

Céline BERARD[2]
University of Lyon 2
COACTIS, Lyon, France
Celine.berard@univ-lyon2.fr

Bérangère SZOSTAK
University of Paris Saclay
ISM-IAE Versailles Saint-Quentin-en-Yvelines, France
berangere.szostak@uvsq.fr

Rafik ABDESSELAM
University of Lyon 2
COACTIS, Lyon, France
Rafik.abdesselam@univ-lyon2.fr

ABSTRACT

While a growing body of research has investigated the relationship between CSR and innovation, the effect of CSR on exploration and exploitation, as *ex-ante* strategic objectives in pursuing innovation, has been overlooked. Our study therefore provides empirical evidence of the relationship between the adoption of CSR practices and the pursued strategies of exploration and exploitation in SMEs. Based on a survey conducted within 488 French SMEs and on a cluster and discriminant analysis, our study shows that CSR can contribute to ambidexterity, as the intense adoption of a large range of CSR practices is typical of firms that both explore and exploit. We also find that

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2. Corresponding author. Address correspondence to: Céline Bérard, COACTIS (EA 41 61), ISH - 14/16 avenue Berthelot, 69363 Lyon Cedex 07, France. E-mail: celine.berard@univ-lyon2.fr.

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SMEs that focus on exploitation are characterized by the intense adoption of a low range of CSR practices, whereas those that focus on exploration are characterized by the low adoption of several CSR practices.
KEYWORDS: CSR Practices, Ambidexterity, Exploration, Exploitation, SME
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While corporate social responsibility (CSR) has traditionally been associated with large firms (Ortiz-Avram *et al.*, 2018), more and more scholars have explored the added value that CSR can bring to small businesses (Gallardo-Vázquez *et al.*, 2019; Hadj, 2020; Stoian, Gilman, 2017; Zhu *et al.*, 2019). In particular, it has been suggested that small and medium enterprises (SMEs) that adopt CSR practices achieve increased performance and sustained competitive advantages, through higher levels of innovation (Gallardo-Vázquez *et al.*, 2019; Zhu *et al.*, 2019). Understanding the relationship between CSR and innovation in SMEs is therefore critical, especially because improving performance would be the crucial incentive for these firms to implement CSR practices, given their limited resources and risk of failure (Zhu *et al.*, 2019).

Although few empirical studies have examined the relationship between CSR and innovation in the specific context of SMEs (Bocquet *et al.*, 2019; Gallardo-Vázquez *et al.*, 2019), a growing number of scholars have recognized the potential of CSR as a driver of innovation (Broadstock *et al.*, 2020; Vishwanathan *et al.*, 2020), regardless of firm size. Nevertheless, it is not yet fully understood how CSR can strengthen innovation (Bocquet *et al.*, 2019). On the one hand, previous studies focusing on the relationship between CSR and innovation have led to mixed results (Szostak, Boughzala, 2021). On the other hand, many of them have not distinguished between different types of innovation (Bocquet *et al.*, 2013). A few rare studies have examined the effects of CSR on different types of innovation in terms of *ex-post* outcomes, *i.e.* incremental *versus* radical innovations (Luo, Du, 2015; López-Pérez *et al.*, 2007), but the results are also mixed.

In addition, to our knowledge no study has explored the effects of CSR on the different *ex-ante* strategic objectives of the firm in pursuing innovation, which here refer to exploration and exploitation (He, Wong, 2004), *i.e.* the "*different forms of the learning process through which innovations come forth*" (Li *et al.*, 2008, p. 117). However, the literature has long recognized the importance of exploration and exploitation to improve firm performance in different areas, such as innovation-related performance (Marín-Idárraga *et al.*, 2016). It has also been recognized that the innovation outcomes themselves do not allow consideration of the complex learning process by which

a firm innovates (Li *et al*., 2008). Moreover, CSR could actually bring value to firms regarding organizational learning (Heslin, Ochoa, 2008; Sharma, Vredenburg, 1998). We thus address this gap by exploring the effects of CSR on *ex-ante* strategic objectives in pursuing innovation, rather than the innovation outcomes themselves.

The present study therefore proposes to provide empirical evidence of the relationship between the adoption of CSR practices and the pursued strategies of exploration and exploitation in the specific context of SMEs. More specifically, we first established a typology of SMEs with respect to their exploration and exploitation strategies, by relying on a combined use of multidimensional data analyses. Accordingly, we distinguished four different exploration and exploitation strategies (focus on exploration, focus on exploitation, both exploration and exploitation, neither of the two). Second, a discriminant analysis model was applied with the aim of highlighting the possible effects of a set of explanatory variables relating to CSR practices on the realized division into four exploitation and exploration strategies of SMEs. In other words, our study seeks to highlight the significant effects of CSR practices on exploration and exploitation strategies, by raising the following questions: do SMEs that pursue different exploration and exploitation strategies differ in terms of CSR practices and, if so, which CSR practices differentiate them?

Our contribution is threefold. First, concerning empirical scope, our research contributes to a better understanding of the relationship between CSR and innovation in the specific context of SMEs. While SMEs are not just smaller versions of large firms when it comes to CSR (Fitjar, 2011; Stoian, Gilman, 2017), empirical studies in SMEs remain limited regarding the relationship between CSR and innovation. Yet, as SMEs play a key role in the economy in most countries, their CSR and growth remain essential for the community and local economy (Stoian, Gilman, 2017). As recalled by Ortiz-Avram *et al.* (2018, p. 255), SMEs are "*an important and sizeable economic force and the strategic outcomes of CSR in SMEs therefore merit investigation*". Second, while the literature has suggested that the link between CSR and innovation depends on innovation types (García-Piqueres, García-Ramos, 2020), in an *ex-post* outcome sense, we here propose to distinguish the different *ex-ante* strategic objectives of the firm in pursuing innovation, *i.e.* exploration and/or exploitation. More specifically, our results suggest that SMEs that more intensively adopt CSR practices tend to pursue both exploration and exploitation, or that they tend, to a lesser extent, to favor exploitation over exploration. Third, our research also contributes to the ambidexterity literature, by focusing on the drivers of exploration and exploitation. Such drivers still

deserve to be further investigated (Koryak *et al.*, 2018), especially in SMEs (Bérard, Fréchet, 2020; Prajogo, McDermott, 2014) that face greater challenges in dealing with the tensions associated with exploration and exploitation (Bierly, Daly, 2007; Voss, Voss, 2013; Zhang *et al.*, 2006).

In the next section, we introduce the literature underpinning our arguments about the possible relationship between CSR practices and exploration and exploitation strategies. We then explain our research method, which is based on a survey conducted within 488 French SMEs and on a cluster and discriminant analysis. Finally, the results are presented, then followed by a discussion about their implications, limitations and avenues for further research.

Theoretical Background

Exploration and Exploitation in SMEs

Exploration and exploitation are two broad types of different learning activities that tap different firm behaviors (He, Wong, 2004). Exploitation involves behaviors characterized by refinement, efficiency, and focus, whereas exploration implies behaviors characterized by experimentation, flexibility, and divergent thinking (March, 1991). On the one hand, exploration is "*search for new knowledge, use of unfamiliar technologies, and creation of products with unknown demand*" (Greve, 2007, p. 945). Exploration thus refers to the development of new capabilities that are necessary for firm survival (Gilsing, Nooteboom, 2006), and involves pursuing business opportunities that are fundamentally new for the firm (Gedajlovic *et al.*, 2012). On the other hand, exploitation is "*use and refinement of existing knowledge, technologies, and products*" (Greve, 2007, p. 945). Exploitation, which thus refers to the efficient employment of existing capabilities and assets of the firm (Gilsing, Nooteboom, 2006), mainly involves the pursuit of opportunities in order to refine and sustain current competitive advantages (Gedajlovic *et al.*, 2012), and can lead to improvements in current technologies or products for example (Chang, Hughes, 2012).

While exploration and exploitation are two fundamentally different approaches to organizational learning (He, Wong, 2004; Lubatkin *et al.*, 2006), it is widely recognized that both are crucial for firms (Koryak *et al.*, 2018; Sirén *et al.*, 2012). Exploitation is needed to survive in the short term, when exploration is needed to survive in the long term (Gilsing, Nooteboom, 2006). The ability of firms to simultaneously explore and exploit, or in other words to be ambidextrous, is thus associated with sustained competitive

advantage and considered a condition of firm survival (Dolz *et al.*, 2019; O'Reilly, Tushman, 2013). However, engaging in sufficient exploitation to ensure current viability and, at the same time, devoting enough energy to exploration to ensure future viability, represent a real challenge (Levinthal, March, 1993), especially for firms that lack slack resources (Bierly, Daly, 2007; Lubatkin *et al.*, 2006). Although the success and survival of firms rest upon a balance between the exploration of new possibilities and the exploitation of old certainties (March, 1991), firms may be trapped into dynamics of accelerating exploitation or exploration, skewing the balance towards excessive exploitation or excessive exploration, which is likely to be destructive (He, Wong, 2004). Indeed, excessive exploration generates high costs, especially for failed experiments, whereas excessive exploitation limits the discovery of opportunities and restrains the reaction to environmental changes (Greve, 2007).

The fact remains that exploration and exploitation are two distinct strategies that involve fundamentally different goals (Bierly, Daly, 2007; Sirén *et al.*, 2012) and different structures, processes, and capabilities (He, Wong, 2004). They compete for firms' resources (March, 1991) and create organizational tensions (Koryak *et al.*, 2018; Lubatkin *et al.*, 2006). The complexity of simultaneously pursuing exploration and exploitation is thus particularly problematic for SMEs (Dolz *et al.*, 2019; Voss, Voss, 2013). For instance, SMEs generally do not have the resources and hierarchical administrative systems required to facilitate the achievement of ambidexterity (Lubatkin *et al.*, 2006; Prajogo, McDermott, 2014). They can also be disadvantaged in terms of management expertise, access to capital, and talent (Dolz *et al.*, 2019). However, and despite the substantial amount of studies on exploration and exploitation, research on SMEs is still limited. Especially, there is a need to better understand the driving forces behind the ability of SMEs to both explore and exploit (Bérard, Fréchet, 2020; Lubatkin *et al.*, 2006).

This gap in the small business literature is all the more striking given that exploration and exploitation concern the *ex-ante* strategic objectives of a firm in its search for innovation (He, Wong, 2004), and that innovation has itself become a significant area of small business research (Moore, Spence, 2006). Indeed, innovation impacts the performance of SMEs (Rosenbusch *et al.*, 2011); it is instrumental to their success (Sok *et al.*, 2016), and is deemed essential to their ability to compete against larger, less resource-constrained firms (Withers *et al.*, 2011). Therefore, the question of the potential of CSR as a driver of innovation is critical for SMEs.

The CSR-Innovation Relationship in SMEs

In recent decades, CSR has received increased attention from both academics and practitioners (Bocquet *et al.*, 2013; Stoian, Gilman, 2017). Various definitions of CSR can be found in literature (Heslin, Ochoa, 2008; Moore *et al.*, 2009; Perrini, 2006). For instance, Perrini (2006) reminded that CSR is focused on a stakeholder-based approach, as well as the firm's overall objective of long-term value creation. According to Vilanova *et al.* (2009), CSR can be defined through five dimensions: (1) vision, or CSR conceptual development within the organization (values, codes); (2) community relations (stakeholders, community); (3) the workplace (human rights issues); (4) accountability (corporate transparency, reporting and communication); and (5) the marketplace (CSR practices related to core business activities such as R&D). Branco and Rodrigues (2006) put forward three sustainability pillars: economic sustainability, environmental sustainability and social sustainability. Most CSR definitions, however, "*share the theme of engaging in economically sustainable business activities that go beyond legal requirements to protect the well-being of employees, communities, and the environment*" (Heslin, Ochoa, 2008, p. 126). Beyond economic goals, CSR therefore implies both environmental and social goals (López-Pérez *et al.*, 2007). Thus, in accordance with Heslin and Ochoa (2008), CSR practices in this study include both environmental sustainability and human sustainability components.

The fact remains that firms may face challenges in implementing CSR practices, especially regarding SMEs (Fitjar, 2011; Fitzgerald *et al.*, 2010), which are more likely to lack sufficient resources to effectively address social issues (Thompson, Smith, 1991). Indeed, CSR initiatives in SMEs are limited by their lack of managerial time, financial resources, skills, and knowledge (Graafland, Noorderhaven, 2020). Scholars have however recognized that a wide variety of CSR strategies actually exists within SMEs (Bonneveux *et al.*, 2012) and that SMEs are even more likely to adopt socially responsible behavior than large firms (Lepoutre, Heene, 2006). CSR strategies have thus been adopted by a growing number of SMEs (Gallardo-Vázquez *et al.*, 2019), and scholars have recently been interested in how SMEs can benefit from CSR (Gallardo-Vázquez *et al.*, 2019; Hadj, 2020; Stoian, Gilman, 2017).

More generally, several studies have suggested that CSR may contribute to firms' performance and competitive advantage (Bocquet *et al.*, 2017; Husted, Allen, 2007). Many of them have assigned a central role to innovation in their research framework, in line with the so-called Porter hypothesis that asserts that firms can benefit from environmental regulations as they can enhance competitiveness by stimulating innovation (Porter, van der Linde, 1995). Since, the positive effect of environmental regulations on

firms' innovation has been confirmed in previous empirical studies, and this relationship has been more recently extended to CSR (Bocquet *et al.*, 2013), suggesting that CSR creates business opportunities but also innovations, allowing the firm to develop competitive advantages thanks to social progress (Bocquet *et al.*, 2017). A positive effect of CSR on innovation has thus been demonstrated in recent previous studies (Cook *et al.*, 2019; García-Piqueres, García-Ramos, 2020). Notably, it has been shown that the adoption of strategic CSR can favor technological innovations (Bocquet *et al.*, 2013), and product and process innovations (Bocquet *et al.*, 2017). It can be explained by the fact that CSR contributes to higher levels of managerial action monitoring and a better information environment (Cook *et al.*, 2019), including a broader access to valuable external knowledge (Luo, Du, 2015). In addition, applying CSR principles to products, processes and practices implies changes in the applied technology. CSR practices can therefore lead to innovation, taking into account social or environmental considerations for the creation of new ways of working, new products, services, and processes (Gallego-Alvarez *et al.*, 2011). In the specific context of SMEs, the positive relationship between CSR and innovation has also been demonstrated (Gallardo-Vázquez *et al.*, 2019). Stoian and Gilman (2017) thus suggested that CSR practices contribute to innovation in SMEs as they can notably participate in the deployment of intellectual capital, entrepreneurship and information among firms (through CSR practices related to the community), improve the quality of the workforce and attract better staff (through workforce-based CSR practices), encourage process and product development respectful of the environment (through CSR practices related to the environment).

Nevertheless, some studies have contradicted these claims, suggesting that all CSR practices do not create value and that CSR may even create barriers to innovation (Bocquet *et al.*, 2013; García-Piqueres, García-Ramos, 2020). Moreover, while the small business literature has also begun to suggest that CSR can be seen as a driver of innovation in SMEs, the relationship between CSR and innovation in SMEs remains uncertain (Bocquet *et al.*, 2019). This relationship may thus be fairly complex and needs to be further investigated, especially in small business settings (Bocquet *et al.*, 2019; Moore, Spence, 2006). In particular, different effects of CSR can be expected depending upon innovation types, such as product, process and organizational innovations (García-Piqueres, García-Ramos, 2020), or incremental and radical innovations. For instance, while Luo and Du (2015) revealed a positive relationship between CSR and both radical and incremental new products, López-Pérez *et al.* (2007) showed that firms that adopt a CSR strategy tend to introduce incremental, rather than radical, innovations. According to their empirical study, the adoption of CSR practices mainly

involves the adaptation of existing products and processes, thus in favor of incremental innovations. Indeed, taking social problems into account generally might lead to incremental improvements, rather than radical changes in firms' strategy, given the complexity of such problems (Aluchna, Roszkowska-Menkes, 2019).

Towards a Potential Relationship between CSR and Strategies of Exploration and Exploitation

While previous studies on the CSR-innovation link have focused on innovation outcomes, a few authors have also suggested a positive relationship between CSR and organizational learning (Heslin, Ochoa, 2008; Sharma, Vredenburg, 1998). This suggests that CSR may have an impact on the forms of the learning process through which innovations emerge, *i.e.* exploration and exploitation as *ex-ante* strategic objectives in pursuing innovation.

Since the key outputs of exploration are often associated with radical innovations, and those of exploitation with incremental innovations (Bierly, Daly, 2007; Jurksiene, Pundziene, 2016), one can here refer to the studies that focused on the relationship between CSR and radical *vs.* incremental innovations. Following López-Pérez *et al.* (2007), it can thus be suggested that SMEs that intensively adopt CSR practices might focus more on exploitation than on exploration:

P1: There is a positive relationship between the adoption of CSR practices in SMEs and their propensity to exploit.

P2: There is a negative relationship between the adoption of CSR practices in SMEs and their propensity to explore.

It can also be suggested that an intensive adoption of CSR practices may help to avoid being trapped into dynamics of excessive exploitation either excessive exploration. Indeed, CSR helps create a munificent environment of special resources that are ethical values, which can encourage individuals to engage in both exploration and exploitation as proactive strategies toward sustainable growth (Tuan, 2016). In the specific context of SMEs, the study of Berger-Douce (2011) also suggested that sustainable development reinforces the dynamic capacity of innovation in firms, that is, the capacity to reconcile explorative and exploitative innovations through ambidexterity. Besides, as recalled by Ciasullo *et al.* (2020, p. 2114), "*corporate sustainability objectives can be addressed through organizational ambidexterity*". Thus, one may suggest that SMEs that intensively adopt CSR practices may focus on both exploitation and exploration:

P3: There is a positive relationship between the adoption of CSR practices in SMEs and their propensity to both explore and exploit.

Methodology

Population and Sample Selection – Data Set

To study the relationship between CSR practices and strategies of exploration and exploitation in SMEs, a questionnaire for CEOs was developed. It was administered face-to-face to the CEOs of 502 French firms. Specifically, these firms, which were solicited by the Auvergne-Rhône-Alpes regional council, had to answer the questionnaire before entering a training program proposed by this institution. Having a sample of French firms from the Auvergne-Rhône-Alpes region is interesting for two main reasons. First, France is seen as a CSR-oriented country, as French firms rank at the top of international rankings regarding CSR performance (Beji *et al.*, 2020). Second, the Auvergne-Rhône-Alpes region is one of the most important in France regarding innovation[3].

In accordance with European classifications regarding SMEs (European Commission, 2019), we excluded the surveyed firms with a number of employees above 250. In total, 488 SMEs were retained in our final sample. In accordance with the French SME population, their average size is small (about 23.14 full time-employees). Moreover, to produce valid results for the target population, we used a weighting procedure (through a chi-square adjustment test) to redress the sample and to make it representative according to the distribution of economic sectors of SMEs in Rhône-Alpes given by the French National Institute of Statistics and Economic Studies. The statistical results presented hereafter rely on this corrected sample.

Variable Measures

A large part of the questionnaire concerned the CSR practices undertaken by the firm. In total, 23 CSR practices were evaluated (see Table 1). Most of them were inspired by the survey initiated in 2005 by the European Commission to raise SMEs awareness of CSR. They are consequently related to five types of CSR practices: workplace policies, environmental policies,

3. Domestic expenditures on Research and Development in France in 2018, by region : 7.1 million euros in Auvergne-Rhône-Alpes, that is the second most important region in France regarding R&D expenditures, after the region of Ile-de-France which attains 20.5 million euros (survey by "*Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche*").

marketplace policies, community policies, and company values. Respondents indicated on a 5-point scale (1=strongly disagree to 5=strongly agree) how accurately each statement described their practices. Beyond these five types of CSR practices, we added a dichotomous variable that indicated whether normalizations or certifications (such as ISO26000, ISO9001, etc.) related to sustainable development and/or societal responsibility have been established in their firm.

Table 1 – The 23 CSR practices measured

Workplace	WORK1	You encourage your employees to develop real skills
	WORK2	You fight against all forms of discrimination, both in the workplace and at the time of recruitment (*e.g.* against women, ethnic groups, disabled people, etc.)
	WORK3	Your enterprise applies suitable arrangements for health, safety and welfare that provide good protection for your employees
	WORK4	You promote social dialogue on all issues of work organization
	WORK5	You face problems of dissatisfaction in relation to conditions of work *(-)*
	WORK6	You consult your employees when you are taking an important decision
Environmental policies	ENV1	You try to optimize your energy consumption
	ENV2	You try to reduce waste and recycle
	ENV3	You try to prevent pollution (*e.g.* emissions to air and water, effluent discharges, noise)
	ENV4	You consider the potential environmental impacts when developing new products and services
	ENV5	You are able to measure the environmental impacts of your business
	ENV6	Your production system can control the environmental aspects and energy efficiency
Market policies	MARK1	You select your suppliers or subcontractors based on their societal practices
	MARK2	Your production system can meet a logical overall performance with your partners (customers, suppliers, subcontractors…)
	MARK3	You have the capacity to share with your customers performance data (products, processes, costs)
	MARK4	You have a formal system for monitoring customer complaints

Community policies	COMM1	Your enterprise tries to purchase locally
	COMM2	Your enterprise offers training opportunities to people from the local community (*e.g.* apprenticeships or work experience for the young or for disadvantaged groups)
	COMM3	Your enterprise gives regular support (financial or not) to local community activities and projects
Company values	VAL1	You have clearly defined your enterprise's values and rules of conduct
	VAL2	Your employees are aware of your enterprise's values and rules of conduct
	VAL3	Your partners (customers, suppliers…) are aware of your enterprise's values and rules of conduct
Standardization/ Certification	CERTIF	Have you implemented normalizations or certifications related to sustainable development and/or societal responsibility within your firm (such as ISO26000, ISO9001, ISO50001…)? *(Yes/No)*

Another part of the questionnaire focused on exploration and exploitation, which were measured using the two scales proposed by Bierly and Daly (2007). Respondents indicated on a 5-point scale (1=strongly disagree to 5=strongly agree) how accurately each statement described their firm over the three previous years. The exploration scale involves four items (α = .770) that focus on the extent to which the firm excels at developing radically new knowledge. The exploitation scale involves three items (α = .705) that focus on the extent to which the firm successfully exploits current knowledge areas (see Table 2).

As the scales and measures involved in the questionnaire mainly came from extant literature, we chose to not conduct a large pilot study. However, before administering the questionnaire, a pretest was conducted with ten CEOs in SMEs of various sizes and sectors.

Table 2 - The scales of exploration and exploitation

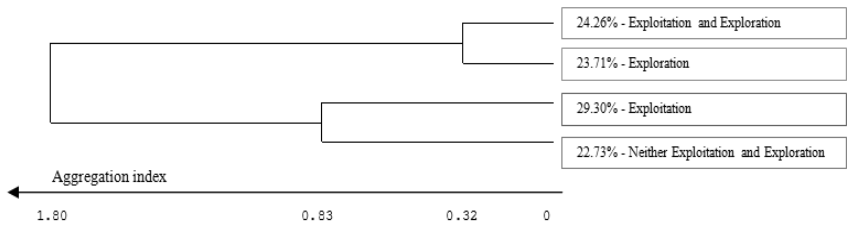
	Items	Component coeff. pattern matrix	
		Fact. 1	Fact. 2
Exploration	We frequently experiment with radical new ideas (or ways of doing things) [*Explore_Radical_New_Ideas*]	,310	
	At our company, employees frequently come up with creative ideas that challenge conventional ideas [*Explore _Creative_ Ideas*]	,280	
	Compared to our principal competitors, a high percentage of our company sales come from new products launched within the past 3 years [*Explore_ New_Products*]	,347	
	We are usually one of the first companies in our sector to use new, breakthrough technologies [*Explore_ New_ Technologies*]	,350	
Exploitation	At our company, a strong emphasis is placed on improving efficiency [*Exploit_Efficiency*]		,439
	Our company excels at refining existing technologies [*Exploit_ Existing_Technologies*]		,357
	We frequently adjust our procedures, rules, and policies to make things work better [*Exploit_ Procedures*]		,460
% of variance		44.609	16.492
Latent root		3.123	1.154
Cronbach's alpha		.770	.705
Sign. Bartlett's test of sphericity		0.000	

Data Analysis Methods

The empirical procedure aimed to recognize homogeneous groups of SMEs in terms of their exploration and exploitation strategies, and then to characterize these groups according to firms' CSR practices. Multidimensional data analyses were used to study the relationship between such strategies and CSR practices.

The first proposed approach is based on a methodological chain of a factorial analysis and a clustering method. To classify the firms according to their strategies of exploitation and exploration, we performed k-means clustering on the significant factors of the principal component analysis of items related to both exploration and exploitation. The k-means or mobile center method is the most used hierarchical classification or typology method in data analysis. It makes it possible to describe the similarities or the differences between individuals-firms of rather large sample size (n = 488) by optimizing a criterion of inertia, and distributes them into the most homogeneous possible classes of firms, according to the considered variables. Figure 1 shows the hierarchical tree (dendrogram or ClustanGraphics tree), generated by an ascendant hierarchical clustering using Ward's criterion (Ward, 1963) from the results of the k-means method. It summarizes the final classification into four groups of SMEs, which we qualified as follows: the "exploitation" group (29.30% of firms in our sample), the "exploration" group (23.71%), the "exploitation and exploration" group (24.26%), and the "neither exploitation, nor exploration" group (22.73%). A relative proximity can be noted between the "exploration" and "exploitation and exploration" groups, and to a lesser extent between the "exploitation" and "neither exploitation, nor exploration" groups. The statistical description of the content of each class, which led to these qualifications, is given in Appendix I and relied on the following principles. The standard profile of a class was based on comparisons of means of the variable in the class, and of this same variable out of the class. The selection of the most characteristic components of each class stemmed from the gap between the relative values and the global values of the class. These statistics were converted into a test-value criterion, organized in descending order (with an error risk of less than 5%) to allow us to organize the most characterized components of each firm class of exploration and exploitation strategies.

Figure 1 **– Hierarchical tree of SMEs according to exploration and exploitation**



To analyze the potential effects of CSR practices on exploration and exploitation, a barycentric discriminant analysis was then performed. Such an analysis (Nakache, 1981) is an adaptation of correspondence analysis to

the problem of discrimination based upon qualitative variables. More precisely, we applied an ascendant hierarchical clustering with Ward's criterion (Ward, 1963) to the significant principal components of the factorial correspondence analysis. In the underlying contingency or cross table, the rows were made up of the four modalities of the synthesis variable we wanted to explain (exploration and exploitation). The columns were built with a juxtaposition of the modalities of the explanatory variables (CSR practices). The results of the discriminant analysis model on qualitative variables were thus based on statistical tests for comparing proportions. While other more sophisticated methods could be used, this supervised clustering method allowed us to identify the CSR practices that discriminate the most between the groups of SMEs classified according to their exploration and exploitation strategies. Statistically, such a classification model consists in analyzing the prospective effects of CSR practices on exploration and exploitation.

Results

As mentioned above, the clustering method allowed us to distinguish between four groups of SMEs with regard to their exploration and exploitation strategies (see Appendix 1): those with high scores primarily on exploitation (namely the "exploitation" group) or primarily on exploration (the "exploration" group), those with high scores on both exploitation and exploration (the "exploitation and exploration" group), and those with low scores on both (the so-called "neither exploitation, nor exploration" group). Relying on this classification, the results about the prospective effects of CSR practices on exploration and exploitation are presented, by highlighting the discriminant CSR practices that differentiate each group and that were determined from a barycentric analysis. Results presented in Appendix 2 describe the discriminant practices that characterize and differentiate the most (positive value-test) or the least (negative value-test) each of the four classes of exploration and exploitation strategies. The standard profile of a class is based on comparisons of percentages of the modality in the class and of this same modality out of the class, taking into account the degree of inclusion of the class in the modality. Table 3 provides a visual representation of the results of this discriminant analysis.

Table 3 – Discriminant characterization of each class according to CSR practices

Barycentric Discriminant Analysis		Class 1: Exploitation	Class 2: Exploration	Class 3: Exploitation and Exploration	Class 4: Neither Exploitation, nor Exploration
Workplace policies	WORK1				
	WORK2				
	WORK3				
	WORK4				
	WORK5 (was reversed)				
	WORK6				
Environmental policies	ENV1				
	ENV2				
	ENV3				
	ENV4				
	ENV5				
	ENV6				
Marketplace policies	MARK1				
	MARK2				
	MARK3				
	MARK4				
Communities policies	COMM1				
	COMM2				
	COMM3				
Value values	VAL1				
	VAL2				
	VAL3				
CERTIFICATION	CERTIF				

Legend:

NS	Strongly disagree or Disagree	Medium	Agree or Strongly agree

The results reveal that among all the 23 CSR practices taken into account, only one practice (standardization/certification) has no effect on exploration and exploitation (*i.e.* not discriminant). In fact, there are persistent differences between exploration and exploitation strategies according to CSR: each class is characterized by a specific set of CSR practices.

On the one hand, the "exploitation" group is characterized and distinguished from others by a higher effort to consult employees when CEOs make an important decision (WORK6), and an awareness of working conditions (WORK5). This class also considers the potential environmental impacts (ENV4). Moreover, these SMEs are able to share performance data with their customers (MARK3). Although the number of CSR practices adopted is weak, the few adopted are intensively developed. The "exploitation" group is therefore characterized by a higher effort to develop the involved CSR practices, but the latter are relatively few in number. One may thus suggest that the intense adoption of a few CSR practices in a SME has a positive effect on its propensity to pursue an exploitation strategy. Proposition 1, which states that there is a positive relationship between the adoption of CSR practices in SMEs and their propensity to exploit, is thus partially supported.

On the other hand, the less frequent adoption of CSR practices of three different types characterizes the "exploration" group: workplace

(discrimination and protection for employees – WORK2 and WORK3), environmental (reduction of waste and recycling, consideration of potential environmental impact, and measure of environmental impact – ENV2, ENV4 and ENV5) and marketplace policies (selection of partners with societal view, sharing performance data with clients and a formal system for monitoring customer complaints – MARK1, MARK2 and MARK4). The weak adoption of this range of CSR practices is therefore typical of firms in the "exploration" group, and could indicate little attention of CEOs towards CSR. Thus, one may suggest that the adoption of CSR practices in a SME has a negative effect on its propensity to pursue an exploration strategy. Proposition 2, which suggests that there is a negative relationship between the adoption of CSR practices in SMEs and their propensity to explore, is therefore proved.

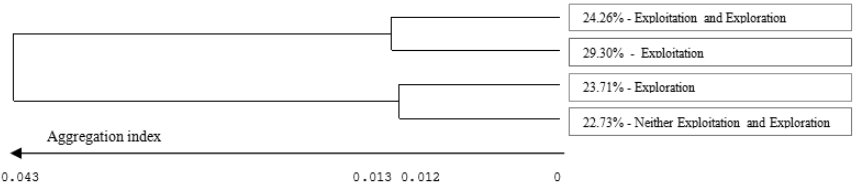
Concerning the "exploitation and exploration" group, it is concerned with most CSR practices, and the level of adoption is high for almost all of them. Only one practice is significantly not performed ('your enterprise tries to purchase locally' – COMM1). In fact, the intense adoption of the five types of CSR practices defines this group. Results thus suggest that the high adoption of CSR practices in a SME has a positive effect on its propensity to pursue both an exploration and exploitation strategy. Proposition 3, which supposes a positive relationship between the adoption of CSR practices and the propensity of SMEs to both explore and exploit, is therefore proved. On the contrary, the "neither exploitation nor exploration" group is characterized by a lower adoption of CSR practices. For instance, these SMEs do not give regular support to local community activities (COMM3), they do not consult their employees for crucial decisions (WORK6), and the employees are not aware of the company values (VAL2).

To sum up, the "exploitation" group is characterized by four strongly adopted CSR practices, whereas the "exploitation and exploration" group is differentiated by sixteen intensive CSR practices. SMEs in the "exploitation and exploration" group are those that adopt more intensively CSR practices. On the contrary, the "exploration" group and the "neither exploitation, nor exploration" group are distinguished by weak CSR practices. In fact, the "neither exploitation, nor exploration" group involves firms with the least adoption of CSR practices. The results then suggest that SMEs which more intensively adopt CSR practices tend to pursue both an exploration and exploitation strategy, or that they tend, to a lesser extent, to favor an exploitation strategy over an exploration strategy.

In conclusion, the hierarchical tree depicted in Figure 2 shows the proximity between the four groups, according to the overall CSR practices. While a relative proximity was previously noted between the "exploration" and

"exploitation and exploration" groups, and between the "exploitation" and "neither exploitation, nor exploration" groups (see Figure 1), the barycentric discriminant analysis that involved CSR practices leads to a different conclusion: (1) the "exploration" group is rather far from the profile of the "exploitation and exploration" group, and more similar to that of the "neither exploitation, nor exploration" group; (2) the "exploitation" group is rather far from the profile of the "neither exploitation, nor exploration" group, and more similar to that of the "exploitation and exploration" group. Therefore, taking into account CSR practices in such analyses has changed the configuration of proximities between the four groups of SMEs regarding their exploration and exploitation strategies.

Figure 2 **– Barycentric discriminant analysis – Typology of exploration and exploitation strategies according to CSR practices**



Discussion and Conclusion

While previous studies have suggested a positive relationship between CSR and innovation (Bocquet *et al.*, 2017; Bocquet *et al.*, 2013; Gallardo-Vázquez *et al.*, 2019; McWilliams, Siegel, 2001), their results are mixed (Cook *et al.*, 2019; García-Piqueres, García-Ramos, 2020) and few of them empirically tested this relationship in SMEs (Bocquet *et al.*, 2019). In addition, they have neglected the relationship between CSR and firms' *ex-ante* strategic objectives in pursuing innovation, which can refer to exploration and exploitation according to He and Wong (2004). Thus, the purpose of this paper is to address this gap, by first characterizing four groups of SMEs with regard to their exploration and exploitation strategies (the "exploitation", "exploration", "exploitation and exploration", and "neither exploitation, nor exploration" groups), and then analyzing the similarities and dissimilarities between firm groups according to the CSR practices adopted.

Our findings thus offer empirical evidence of the effects of CSR on exploration and exploitation. They indeed show that SMEs that pursue different exploration and exploitation strategies are distinguished by the extent and the nature of their CSR practices adopted. On the one hand, we contribute

to the debate on CSR adoption by SMEs (Stoian, Gilman, 2017), by showing that CSR can contribute to ambidexterity. Indeed, the very high (low) adoption of a large range of CSR practices may be typical of firms in the "exploration and exploitation" ("neither exploitation, nor exploration") group. This result, which associates CSR with a driver of ambidexterity in SMEs, is of great importance as it has been widely recognized that ambidexterity represents a difficult challenge for SMEs (Dolz *et al.*, 2019; Voss, Voss, 2013). In addition, it is in accordance with previous studies that have suggested that CSR plays a key role when it comes to ambidexterity (Berger-Douce, 2011; Tuan, 2016). On the other hand, the results suggest that SMEs in the "exploitation" group may be characterized by a higher effort to develop CSR practices, however few in number, whereas the low adoption of a range of CSR practices may be typical of SMEs in the "exploration" group. This last result may seem surprising. Indeed, Cook *et al.* (2019) showed that CSR performance positively influences the number of patents, which is often considered as one of the key outputs of exploration. In the same vein, Luo and Du (2015) found a positive relationship between CSR and radical new products, which are often associated with exploration outputs (Bierly, Daly, 2007; Jurksiene, Pundziene, 2016). However, our results regarding the negative relationship between CSR and exploration are in accordance with previous studies that have suggested that the complexity of social issues, underlying CSR, tends to restraint radical changes (Aluchna, Roszkowska-Menkes, 2019).

Overall, our results thus suggest that SMEs that intensively adopt a large range of CSR practices tend to combine both exploration and exploitation, rather than overestimate only one of these strategies. While extensive and intense CSR can be a driving force for ambidexterity, it is therefore not a driving force for exploration without exploitation, and vice versa. Although this may seem counterintuitive, it could be explained by the fact that exploration and exploitation are highly complementary (Cao *et al.*, 2009; Costanzo, 2019). Indeed, they can be mutually reinforcing, as a high degree of exploitation often leads to improving a firm's ability to explore new knowledge and develop resources to develop new products or markets; while proficiency in exploration can also improve a firm's ability to engage in successful exploitation (Cao *et al.*, 2009). Therefore, our study suggests that extensive and intense CSR could help strengthen this complementarity between exploration and exploitation.

The above discussion thus highlights the complexity of the relationship between CSR practices and SME's exploration and exploitation strategies. In particular, the group of "exploitation and exploration" is more similar to the profile of the "exploration" group when considering only exploration

and exploitation strategies, but more similar to profile of the "exploitation" group when considering CSR practices. As CSR is not associated with an exploration strategy when it is not combined with an exploitation strategy, we wonder whether CSR could be a limitation to the development of flexible SMEs in the long term, in particular for firms that have difficulty being ambidextrous and fall into the exploitation trap (Sirén *et al.*, 2012). A key research implication therefore lies in the idea that exploration and exploitation might be the missing elements in the relationship between CSR and innovation outcomes, in previous studies that have yielded mixed results.

These findings lead us to consider specific managerial implications. On the one hand, as SMEs are constrained by their limited resources and capacities when it comes to intensively adopting CSR practices, it is important for them to know which practices should be favored (Stoian, Gilman, 2017). For instance, our results show that firms that seek to mainly exploit should favor only few specific CSR practices. On the other hand, our study suggests that the intense adoption of several CSR practices can be a powerful lever for ambidexterity in SMEs, given that it is typical of firms in the "exploration and exploitation" group. As ambidexterity represents a critical challenge for SMEs (Dolz *et al.,* 2019; Voss, Voss, 2013), identifying such a lever is essential for SME managers. Our findings have also important policy implications. In particular, public administrations should take into account the effects of CSR practices on innovation when CSR programs are developed for SMEs. More generally, our results imply that these administrations should encourage more CSR initiatives in SMEs, as this could help them achieve ambidexterity and then survive. This is all the more important as SMEs are under less pressure than large firms to engage in CSR (Gallardo-Vázquez *et al.*, 2019).

Nevertheless, some limitations restrict the scope of this study and suggest avenues for more research. First, as our level of analysis concerns the various CSR practices adopted themselves, we did not seek to distinguish the strategic objectives or motives pertaining to CSR. Yet, CSR could be seen as a cosmetic or strategic effort (Vilanova *et al.*, 2009), and two distinct approaches could be distinguished: responsive CSR, which is not connected to the firm's core business and is seen as a response to social and competitive environments; and strategic CSR, which is more proactive as firms deliberately decide to include CSR practices as part of their strategy (Porter, Kramer, 2006). Second, to go further, it would be useful to explore the mutual interaction between CSR and strategies of exploration and exploitation. Indeed, if CSR has been studied in previous work as a driver of innovation, some authors have suggested that innovation itself can have an effect on CSR (Temri *et al.*, 2015). Third, our results are closely related to the 23 CSR

practices taken into account in this study. Obviously, our list of practices does not claim to be exhaustive. However, they were inspired from a survey initiated by the European Commission, relevant to our context of French firms. Finally, the measures of CSR practices, exploitation and exploration rely on the CEOs' perceptions only. Thus, it would be interesting to administer such a survey to individuals working in different positions within the firm for triangulation purposes. It might otherwise be useful to use Environmental, Social and Governance scores, which are indeed "*objectively and consistently defined measures permitting like-for-like measurement of firm-specific CSR activities*" (Broadstock *et al.*, 2020, p. 100).

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Appendix 1 – Characterization of the classes of SMEs according to their exploration and exploitation strategies

CLASS 1/4: EXPLOITATION (29.30%)				(WEIGHT=142.96; FREQUENCY=144)		
V.Test	Proba	Mean		Std. Deviation		Characteristic variables (item)
		Class	Overall	Class	Overall	
5.96	0.000	3.90	3.38	0.82	1.19	Exploit_ Procedures
5.18	0.000	3.87	3.45	0.77	1.10	Exploit_ Efficiency
3.37	0.000	3.82	3.57	0.79	1.05	Exploit_ Existing_ Technologies
-3.88	0.000	2.58	2.95	1.02	1.28	Explore_ Creative_ Ideas
-4.56	0.000	2.58	3.05	1.17	1.43	Explore_ Radical_ New_Ideas
-6.84	0.000	1.94	2.55	0.83	1.20	Explore_ New_ Products
-7.38	0.000	2.00	2.79	0.99	1.46	Explore_ New_ Technologies

CLASS 2/4: EXPLORATION (23.71%)				(WEIGHT=115.73; FREQUENCY=114)		
V.Test	Proba	Mean		Std. Deviation		Characteristic variables (item)
		Class	Overall	Class	Overall	
8.80	0.000	3.85	2.79	0.92	1.46	Explore_ New_ Technologies
8.61	0.000	3.39	2.55	0.94	1.20	Explore_ New_ Products
3.07	0.001	3.41	3.05	1.14	1.43	Explore_ Radical_ New_Ideas
1.42	0.078	3.09	2.95	1.04	1.28	Explore_ Creative_ Ideas
-2.35	0.009	3.24	3.45	0.71	1.10	Exploit_ Efficiency
-5.51	0.000	2.84	3.38	0.90	1.19	Exploit_Procedures

CLASS 3/4: EXPLOITATION AND EXPLORATION (24.26%)				(WEIGHT=118.37; FREQUENCY=117)		
V.Test	Proba	Mean		Std. Deviation		Characteristic variables (item)
		Class	Overall	Class	Overall	
12.12	0.000	4.44	3.05	0.77	1.43	Explore_Radical_ New_Ideas
12.00	0.000	4.17	2.95	0.91	1.28	Explore_Creative_ Ideas
10.43	0.000	4.37	3.38	0.66	1.19	Exploit_ Procedures
9.55	0.000	4.29	3.45	0.78	1.10	Exploit_Efficiency
9.41	0.000	3.90	2.79	1.21	1.46	Explore_New_ Technologies
7.71	0.000	4.21	3.57	0.74	1.05	Exploit_Existing_ Technologies
7.28	0.000	3.29	2.55	1.07	1.20	Explore_New_ Products

CLASS 4/4: NEITHER EXPLOITATION NOR EXPLORATION (22.73%)				(WEIGHT=110.94; FREQUENCY=113)		
V.Test	Proba	Mean		Std. Deviation		Characteristic variables (item)
		Class	Overall	Class	Overall	
-8.84	0.000	1.63	2.55	0.79	1.20	Explore_ New_ Products
-9.55	0.000	1.92	2.95	1.02	1.28	Explore_Creative_ Ideas
-10.62	0.000	1.79	3.05	1.07	1.43	Explore_Radical_ New_Ideas
-10.69	0.000	1.47	2.79	0.82	1.46	Explore_New_ Technologies
-11.42	0.000	2.24	3.38	1.02	1.19	Exploit_ Procedures
-12.62	0.000	2.46	3.57	1.00	1.05	Exploit_Existing_ Technologies
-12.91	0.000	2.28	3.45	0.95	1.10	Exploit_Efficiency

Appendix 2 – Discriminant analysis: Characterization of the SME groups according to CSR practices

V.TEST	PROBA	PERCENTAGES CLA/FRE	FRE/CLA	OVERALL	FREQUENCY CHARACTERISTICS VARIABLE . LABEL	WEIGHT
				29.30	**Class: EXPLOITATION**	
1.94	0.0260	39.61	1.18	0.87	ENV4 : 5-Strongly agree	95
1.89	0.0295	36.15	2.05	1.65	WORK5 : 2-Disagree	181
1.75	0.0397	40.96	0.80	0.57	MARK3 : 5-Strongly agree	62
1.67	0.0475	40.44	0.77	0.56	WORK6 : 5-Strongly agree	60
-1.70	0.0443	15.80	0.19	0.35	VAL2 : 1-Strongly disagree	38
-1.75	0.0403	21.87	0.74	0.99	WORK4 : 3-Medium	108
-1.81	0.0355	20.22	0.49	0.71	ENV1 : 2-Disagree	77
-1.95	0.0258	19.80	0.47	0.69	MARK2 : 2-Disagree	75
-2.06	0.0197	15.61	0.25	0.47	ENV2 : 2-Disagree	51
-2.17	0.0150	10.93	0.10	0.26	WORK1 : 2-Disagree	29
-2.62	0.0043	14.06	0.22	0.45	COMM2 : 1-Strongly disagree	49
-2.64	0.0041	10.40	0.11	0.32	MARK2 : 1-Strongly disagree	34
-2.66	0.0039	17.37	0.52	0.87	MARK4 : 2-Disagree	95
-3.30	0.0005	7.44	0.09	0.33	ENV1 : 1-Strongly disagree	36

V.TEST	PROBA	PERCENTAGES CLA/FRE	FRE/CLA	OVERALL	FREQUENCY CHARACTERISTICS VARIABLE . LABEL	WEIGHT
				23.71	**Class: EXPLORATION**	
3.37	0.0004	40.53	1.48	0.87	MARK4 : 2-Disagree	95
2.73	0.0032	38.78	1.12	0.69	MARK2 : 2-Disagree	75
2.58	0.0050	50.24	0.47	0.22	WORK3 : 2-Disagree	24
2.08	0.0189	34.41	1.20	0.83	ENV5 : 2-Disagree	91
1.89	0.0293	33.38	1.29	0.93	WORK2 : 3-Medium	101
1.89	0.0297	32.18	1.59	1.19	MARK1 : 2-Disagree	130
1.83	0.0336	32.71	1.28	0.94	ENV4 : 3-Medium	102
1.69	0.0458	35.26	0.69	0.47	ENV2 : 2-Disagree	51
-1.65	0.0491	14.94	0.36	0.57	MARK3 : 5-Strongly agree	62
-1.79	0.0365	17.63	1.03	1.40	WORK4 : 5-Strongly agree	153
-1.82	0.0342	15.05	0.43	0.69	VAL3 : 5-Strongly agree	75
-1.86	0.0314	14.38	0.33	0.56	WORK6 : 5-Strongly agree	60
-1.87	0.0305	15.38	0.48	0.74	COMM2 : 3-Medium	81
-1.92	0.0275	10.34	0.13	0.31	ENV6 : 5-Strongly agree	33

V.TEST	PROBA	PERCENTAGES CLA/FRE	FRE/CLA	OVERALL	FREQUENCY CHARACTERISTICS VARIABLE . LABEL	WEIGHT
				24.26	**Class : EXPLOITATION & EXPLORATION**	
4.26	0.0000	40.96	2.08	1.23	WORK3 : 5-Strongly agree	134
3.91	0.0000	38.78	2.25	1.40	WORK4 : 5-Strongly agree	153
3.74	0.0001	38.43	2.22	1.40	WORK1 : 5-Strongly agree	153
3.55	0.0002	39.15	1.89	1.16	VAL2 : 5-Strongly agree	127
3.22	0.0006	35.88	2.22	1.49	VAL1 : 5-Strongly agree	163
3.21	0.0007	34.42	2.53	1.78	WORK2 : 5-Strongly agree	194
2.94	0.0016	40.56	1.15	0.69	VAL3 : 5-Strongly agree	75
2.33	0.0099	38.95	0.89	0.55	MARK2 : 5-Strongly agree	60
2.23	0.0130	33.71	1.58	1.13	WORK6 : 4-Agree	123
2.16	0.0153	38.09	0.90	0.57	COMM3 : 5-Strongly agree	62
2.15	0.0157	44.17	0.56	0.31	ENV6 : 5-Strongly agree	33
2.06	0.0197	32.71	1.57	1.16	ENV3 : 5-Strongly agree	126
1.92	0.0272	41.43	0.55	0.32	MARK1 : 5-Strongly agree	35
1.73	0.0414	29.77	2.20	1.78	WORK5 : 1-Strongly disagree	195
1.70	0.0448	35.88	0.73	0.49	COMM1 : 1-Strongly disagree	54
1.69	0.0451	32.86	1.24	0.91	MARK4 : 5-Strongly agree	100
1.67	0.0473	40.31	0.52	0.31	ENV5 : 5-Strongly agree	34
-1.67	0.0471	15.99	0.47	0.71	ENV1 : 2-Disagree	77
-1.85	0.0323	16.30	0.62	0.92	ENV2 : 3-Medium	100

V.TEST PROBA	PERCENTAGES CLA/FRE	FRE/CLA	OVERALL	FREQUENCY CHARACTERISTICS VARIABLE . LABEL	WEIGHT
			22.73	**Class: NEITHER EXPLOITATION & EXPLORATION**	
4.01 0.0000	40.96	1.61	0.89	WORK6 : 1-Strongly disagree	97
2.95 0.0016	37.03	1.39	0.85	WORK1 : 3-Medium	93
2.88 0.0020	35.58	1.56	0.99	WORK4 : 3-Medium	108
2.88 0.0020	35.04	1.54	0.99	MARK4 : 1-Strongly disagree	108
2.83 0.0023	37.88	1.24	0.74	COMM2 : 3-Medium	81
2.62 0.0044	43.28	0.61	0.32	MARK2 : 1-Strongly disagree	34
2.47 0.0067	46.85	0.55	0.26	WORK1 : 2-Disagree	29
2.18 0.0146	40.52	0.63	0.35	VAL2 : 1-Strongly disagree	38
2.16 0.0152	46.16	0.37	0.18	WORK4 : 2-Disagree	19
2.06 0.0197	37.01	0.69	0.43	VAL1 : 2-Disagree	46
2.04 0.0207	40.95	0.60	0.33	ENV1 : 1-Strongly disagree	36
1.89 0.0291	44.66	0.43	0.22	VAL1 : 1-Strongly disagree	24
1.88 0.0303	33.07	1.04	0.71	ENV1 : 2-Disagree	77
1.84 0.0329	30.95	1.25	0.92	ENV2 : 3-Medium	100
1.68 0.0462	46.10	0.35	0.17	WORK5 : 4-Agree	19
1.66 0.0489	29.28	1.68	1.30	COMM3 : 1-Strongly disagree	142
-1.67 0.0479	16.63	0.90	1.23	WORK3 : 5-Strongly agree	134
-1.78 0.0375	14.91	0.57	0.87	ENV4 : 5-Strongly agree	95
-1.83 0.0336	9.31	0.13	0.31	ENV5 : 5-Strongly agree	34
-1.87 0.0310	14.46	0.44	0.69	VAL3 : 5-Strongly agree	75
-2.07 0.0193	13.62	0.40	0.67	ENV6 : 4-Agree	73
-2.10 0.0178	12.52	0.32	0.57	MARK3 : 5-Strongly agree	62
-2.96 0.0015	12.53	0.64	1.16	ENV3 : 5-Strongly agree	126

Significance (PROBA) less than 5%. V.TEST(+) significantly larger, V.TEST(-) significantly smaller