Eco-innovation in the textile industry: the strategic importance of data privacy and environmental knowledge management

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Abstract

Aim

This study investigates the impact of the ethical management of data privacy on the overall reputation of businesses.

Design/methodology/approach

A conceptual model was proposed and tested. Data was collected from 208 SMEs in the textile industry in Valencia, Spain using a survey instrument. Partial Least Squares allowed for the analysis of the data collected.

Findings

The theoretical model explains 46.1 per cent of the variation in the organisational reputation variable. The findings indicate that ethical data privacy has a beneficial effect on an organisation's reputation and eco-innovation. They also demonstrate how eco-innovation drives the development of new knowledge and green skills that, in turn, communicate to stakeholders a company's ethical commitment. These results should encourage small and medium-sized enterprises to invest in data privacy in order to meet the needs of their increasingly technology- and environment-sensitive stakeholders and to improve their reputation.

Originality

This study provides the first empirical evidence that ethical data privacy management has a positive impact on the reputation of firms. Furthermore, the originality of the research derives from the analysis of the results from an environmental perspective. Indeed, this study shows that effective data privacy management can indirectly support organisational reputation through eco-innovation and green skills.

Plain Language Summary

Ethical management of data privacy and environmental knowledge is key to the overall reputation of businesses.

Keywords – Data privacy practices, green knowledge management, organisational reputation, eco-innovation, textile sector.

1. Introduction

Information is power. In the case of companies, obtaining data from their clients or potential clients is vital to surviving in an environment as competitive as the current one. The collection of data enables the development of more market-oriented strategies that are suited to customer needs. Since the irruption of Information and Communications Technologies (ICTs) and the advance of online services, accessing and collecting customer data has become easier. Society's digitisation has resulted in a rise in firms' access to data, for example, 70% of organisations report having expanded their acquisition of personal data since 2020 (KPMG, 2021). Additionally, it has contributed to the complexity and multilayering of the meaning of data privacy by obscuring its actual definition (Winegar and Sunstein, 2019). Thus, stakeholders express concerns over the collection and management of their personal data by firms in this context. For instance, 40% of customers stated that they don't trust businesses with how their personal information is handled (KPMG, 2021). Although cultural factors may influence an individual's concerns and perspective about data privacy (Hong *et al.*, 2021; Paupini *et al.* 2022), the literature indicates that these concerns primarily centre around the improper data collection, unauthorised use of private data inside the company, data breaching and data management errors (Lulandala, 2020; Roberts *et al.*, 2022).

To address such issues, companies should implement data governance principles that ensure their stakeholders can manage and control the "flow" of their information (Nissenbaum, 2011). Therefore, data privacy related-issues affect all organisations regardless of their size or sector. Indeed, according to Da Conceiço Freitas and Da Silva (2018), SMEs are not exempt from the effects of digitalisation, and a company's size does not affect the amount of data it handles. Hence, data privacy has evolved into a societal concern that requires attention from researchers and merits further investigation, as evidenced by the introduction of regulations and guidelines such as the GDPR in Europe or the ISO 27701. Moreover, it has been found that data privacy may serve as a strategy for differentiating from the competition and so constitute a competitive advantage enhancing stakeholders' trust and consumer satisfaction (Bak *et al.*, 2023; Beier *et al.*, 2020; Cegarra-Navarro *et al.*, 2019).

Over the last few years, the importance of corporate reputation has grown both for individuals and for organisations, especially because of the increasing use of the Internet and social media platforms by companies. With this growth, the business sector has had to improve their use and ethical management of customer data. Considering the value of data

and information, corporate reputation now also depends on the companies' ability to protect sensitive customers' data (Corradini and Nardelli, 2020). In this context, the reputation management field stresses that there is little empirical evidence about the consequences of poorly managed data privacy on corporate reputation (Confente *et al.*, 2019). In parallel, the recent literature about data privacy calls for studies addressing the interface between the needs of acquiring data for innovation from an environmental perspective (Cegarra-Navarro *et al.*, 2019; Jové-LLopis and Segarra-Blasco, 2018; Kiani-Mavi and Kiani-Mavi, 2021). In that regard, given the market's growing interest in environmental protection (Statista, 2022), businesses might think about their innovation in connection to the data supplied by their customers and to keep up with consumers' rising environmental consciousness (Bleier *et al.*, 2020) and stringent international environmental regulations. In doing so, companies actively engaged in environmental management and eco-innovation can minimise their environmental footprint (Costantini *et al.*, 2017) but may also improve corporate reputation. In addition, the literature also shows that eco-innovation can support employees in reducing their environmental footprint, building a more sustainable and climate change-resilient economy and improving their working conditions (Cabral and Lochan Dhar, 2019; Larbi-Siaw *et al.*, 2022; Pavlova, 2018). Therefore, eco-innovation supports the ability of employees to act appropriately in a company that wants to be an actor of change toward a more ecological and environmentally responsible society (Jansen *et al.*, 2006; Sern *et al.*, 2018). These green skills may increase a company's profits and improve its reputation by developing sustainable innovations and relations with local communities (Cegarra-Navarro *et al.*, 2021; Sern *et al.*, 2018; Weaver *et al.*, 2017).

Based on the above, this research addresses the call for further research on the impact of data privacy management policies on the overall reputation of businesses providing their stakeholders with, as their major contribution, a perspective based on the environment and ecology. In doing so, green skills and eco-innovation are proposed as mediator variables in the relationship between business reputation and the management of data privacy. In the following section, four hypotheses and a conceptual model are developed. Then, the methodology adopted to construct the survey and the sample details are presented with the results from the hypotheses testing. Finally, the results are discussed.

2. Theoretical framework

2.1 Data privacy management and organisational reputation

Corporate reputation is considered one of the critical building blocks of an organisation's success. It is thus a crucial intangible capital for a company that is developed through its positive or negative interactions with its stakeholders (Argenti and Druckenmiller, 2003). The literature recognises various benefits of corporate reputation, whether in terms of competitiveness (Awang and Jusoff, 2009), performance (Ye *et al.*, 2021), favourable public opinion (Fombrun and Gardberg, 2000) or customer loyalty (Caruana and Ewing, 2010). Therefore, a company's reputation is a differentiation tool representing a competitive advantage over the competition (Maduro *et al.*, 2018). In addition, the development of web 2.0, particularly social media, has added to the criticality of a reputation for organisations. Indeed, 93% of SMEs surveyed by KPMG declared thinking about their reputation frequently or all the time (KPMG, 2015).

The development of ICT and the knowledge economy also allows businesses to observe consumers' actions at a very detailed level or to give them the means to obtain this potentially personal information (Goldfarb and Tucker, 2012). This collection of data allows companies to generate relevant content (Martin and Murphy, 2017; Zhou, 2020) such as personalised marketing messages (Tong *et al.*, 2020), product offerings (Aguirre *et al.*, 2016) and promotion (Chong *et al.*, 2015). On the other hand, as noted by Martin and Murphy, it may have detrimental effects, "including vulnerability to fraud, privacy invasions, unwanted marketing communications, and highly targeted, obtrusive marketing communications" (2017, p. 135). Thus, the emergence of this data-driven economy benefits individuals and businesses, but it raises concerns about the potential risks and negative consequences of sharing personal data (Baruh *et al.*, 2017). For example, in 2015, the taxi service Uber received a lawsuit for its mobile application, which geolocated users even after they had already closed it. Similarly, in 2018 almost 400,000 British Airways customers had their personal details and bank cards stolen in one of the most severe cyber-attacks in UK history. In response, the airline was fined £20 million by the UK's Information Commissioner's Office (BBC, 2020). Inevitably, these actions had a negative impact on the reputation of these companies.

Given the wide range of opportunities for businesses to conduct business online, their capacity to safeguard sensitive customer data should be seen as an integral aspect of their commitment to acting ethically (Aitken *et al.*, 2021; Singh and Misra, 2021). Along the same

line, Kwangsawad and Jattamar (2022) demonstrated that a company's transparency in its privacy management could reduce customer mistrust and dissatisfaction. Therefore, digital marketing to raise consumers' awareness about data privacy practices can be a mean for companies to gain legitimacy, build trust with their stakeholders and improve corporate reputation (Li, 2014; Saura, 2021). Indeed, when a company's misuse of personal data is publicly revealed, it will immediately and directly affect its reputation (Corradini and Nardelli, 2020). Along the same lines, Gwebu *et al.* (2018) argue that stakeholders perceive any inappropriate use of data as a violation of their expectations of ethical firm behaviour and this may ultimately affect the organisational reputation.

These arguments lead to the following hypothesis:

H1: Data privacy practices positively influence organisational reputation.

2.2 Data privacy management and eco-innovation

Eco-innovation can be a strategic solution for a company to respond to increasing environmental and economic pressure (Fernando *et al.*, 2016). It allows the development of products and processes (Chen *et al.*, 2012), significantly reducing a company's or industry's environmental footprint (Horbach *et al.*, 2012). Customers' information is a valuable resource for the implementation of eco-innovation strategies (Liu *et al.*, 2020), providing a deeper knowledge of their expectations and preferences for green products and services (Hojnik and Ruzzier, 2016; Liu *et al.*, 2013; Xie *et al.*, 2022). Wieringa *et al.* (2021) found that data privacy practices and the exploitation of the consumers data by an organisation are not mutually exclusive but rather complementary. Also, according to Wu *et al.*, "*data-analytics technology can accelerate the innovation process by enabling existing knowledge to be identified, accessed, combined, and deployed to address new problem domains*" (2019, p. 1). More specifically, Imran *et al.* (2022) and Martínez-Ros and Kunapatarawong (2019) identify customers' data as a crucial driver for green innovation.

Hence, customers' data presents an invaluable opportunity for firms to innovate but only if customers want and agree to share it (Khan *et al.*, 2021, Du *et al.*, 2018; Melander, 2018). Culnan and Armstrong (1999) and, more recently, Saura (2021) showed that consumers would be willing to disclose personal information when the firm treats their information fairly, for example, to protect the environment. Furthermore, Dimitropoulous (2011) demonstrated

that customers who have a favourable opinion of a firm's environmental commitment are more inclined to believe that it manages their data ethically. Customers have increasingly become environmentally aware and, with it, their demands for eco-friendly products and manufacturing process increase (Chen *et al.*, 2023; Adrita and Mohiuddin, 2020). We argue that that eco-friendly customers will be more willing to share their personal data if they believe that it will be used to promote eco-innovation practices. Therefore, the following hypothesis is proposed:

H2: Data privacy practices positively influence eco-innovation.

2.3 Eco-innovation and green skills

Eco-innovation is driven by the shift in market demand toward green products and the green economy that increases the need for green jobs and skills (Masterson, 2022). Therefore, eco-innovation requires adjusting employees' skills and implementing an eco-friendly culture within the company (Chuang and Huang, 2018; Pavlova, 2018). Indeed, studies highlighted the need for companies to maintain the necessary green skills to ensure their green ambidexterity (Ahmed *et al.*, 2020; Imran *et al.*, 2022; Úbeda-García *et al.*, 2022). Moreover, studies demonstrated that innovation results in the need for organisations to access skilled and qualified employees to replace low skills jobs (Evangelista and Savona, 2003; Ra et al., 2019). Thus, an eco-innovative company will need to train employees with green skills and will increase its green knowledge.

The strong and close relationship between innovations and knowledge (Popadiuk and Wei Choo, 2006) can also be found from a process perspective, as a company can learn from its past eco-innovation projects and experience. This feedback loop allows for the assessment of what worked and what did not work, and incorporates this new knowledge and skills into the next innovation project (Chirumalla, 2017). Similarly, Kuo *et al.* (2022) argue that eco-innovations lead to a competitive advantage when the company provides feedback from the innovation process to its employees and improve their eco-literacy via training and green awareness programmes. The literature shows that successful and sustained innovation in companies allows for the creation of new knowledge resulting from the innovation process that, in turn, will feed the organisational knowledge base (Correia De Sousa, 2006).

Furthermore, eco-innovation can reduce the environmental footprint of a company's employees, contribute to building a more sustainable and climate-resilient economy and offer more desirable work environments (Cabral and Lochan Dhar, 2019; Pavlova, 2018). Thus, eco-innovation supports employees' ability to act appropriately in a company that aims to develop and support a society that mitigates the impact of human activity on the environment (Jansen *et al.*, 2006; Larbi-Siaw *et al.*, 2022; Sern *et al.*, 2018). For instance, Karatepe *et al.* (2022) show that a company's employees' proactive pro-environmental behaviour will increase if it communicates its green efforts and investments to them. Therefore, following the above considerations, it is possible to hypothesise that:

H3: Eco-innovation supports the development of green skills.

2.4. Green skills and organisational reputation

As discussed in the previous sections, there is increasing market pressure on companies to eco-innovate, translating into the need to acquire the necessary green skills (Masterson, 2022) to meet the demands of stakeholders. Therefore, a company that supports the development of the green skills of its employees can meet the expectations of its customers and market. Furthermore, doing so can strengthen the trust it receives from its external stakeholders and, in turn, its reputation (Carmeli and Tishler, 2005). Indeed, Opoku *et al.* (2021) showed that green human resource management and eco-citizenship of a company's employees positively influence its reputation. According to Cegarra-Navarro *et al.* (2021), this can be explained by the fact that the public's perception of a firm can be influenced by the image projected by its personnel. Also, employees who embrace environmental issue become more committed to the company and its environmental management objectives, thus enhancing its reputation and image (Opoku *et al.*, 2021).

Furthermore, building on the signalling theory, it is argued that a company employee's green skills may be a signalling tool that conveys its intention to behave ethically (Hirsch, 2013). Consequently, stakeholders interpreting these signals will make inferences about the company's ethical commitment, informing their beliefs about its reputation (Truong *et al.*, 2021). Hence, companies that accumulate environmental knowledge and develop green skills among their employees signal their environmental objectives to their internal stakeholders (Dangelico, 2015; Pham and Paillé, 2019). Also, a company can positively influence its

reputation by attracting, retaining, and supporting employees whose values and green skills are aligned with its environmental commitment (Dögl and Holtbrügge, 2014; Larbi-Siaw *et al.*, 2022; Pham and Paillé, 2019). Indeed, a company's ability to maintain and advance the green skills of its workers can have a beneficial effect on the employer's green branding, enabling it to draw in more candidates with green-skilled applicants (Dögl and Holtbrügge, 2014; Karatepe *et al.*, 2022; Pham and Paillé, 2019). Finally, Dangelico's (2015) study demonstrates that the constitution of green teams of employees within a company that aims to improve environmental performance can positively impact its reputational performance.

Thus, the following hypothesis is proposed:

H4: The development of green skills positively influences organisational reputation.

Figure 1 provides a synopsis of the arguments above.

Figure 1. Proposed research model - here

3. Methodology

3.1 Data collection

In recent publications, the textile sector of Valencia has been considered one of the most relevant in the Spanish economy (Cegarra-Navarro *et al.*, 2021). The Valencian Community is a suitable context since their companies have implemented a model in recent years based on privacy, ethics, and transparency as triggers for technological innovation (Cegarra-Navarro *et al.*, 2021; Dangelico, 2015).

According to the 2019 records of the SABI (Iberian Balance Analysis System) database, a total of 760 SMEs represent the population of SMEs in the textile sector in the community of Valencia. Between January and February 2020, a total of 208 responses were obtained from these companies, which represents a response rate of 27.36% with an error factor of 5.79% for p = q = 50% and a reliability level of 95.5%. To eliminate the potential bias of non-response, the first and last respondents were compared with respect to ecological skills (Armstrong and Overton, 1977), the independent samples t-test did not show significant differences between both groups (p = 0.848).

All measures were self-reported and, to prevent the common method bias (CMB), we implemented a priori activities to ensure the respondents' ability and motivation to respond to survey questions accurately. We ensured, responders a possibility to withdraw from the

study at any stage without any consequence, confidentiality in the introductory note and emphasised that individual opinions of responders were in the primary interest of the study. We also applied physical distance between dependent and independent variables together with different anchors of scales for those variables (Podsakoff *et al.*, 2012). First, we operated a post hoc common method variance (CMV) assessment with Harman's single factor with the use of exploratory factor analysis (EFA; one factor explained 41.18 of variance, which is well below the threshold of 50%). Second, we compared the fit between the one-dimensional model (Satorra-Bentler $\chi^2_{(65)}$= 310.42; χ^2/d.f=4.77) versus the measurement model (Satorra-Bentler $\chi^2_{(59)}$= 104.95; χ^2/d.f=1.77), resulting in a better fit of the measurement model, which reveals that there is not a great problem with CMV (Podsakoff *et al.*, 2003).

3.2 Measures

As shown in the appendix, a total of 13 items on a 7-point scale were used to operationalise our constructs.

The items used to measure privacy were adapted from a scale developed by Smith *et al.* (1996). The three selected items focus on customers' personal information and its use by the company. These items reflect that privacy is important for the company and its customers emphasising that privacy generates trust among customers, to the extent that they do not hesitate to provide personal information about them (Smith *et al.,* 1996).

Three items measured eco-innovation and assessed the extent to which companies were able to improve their green products, services or processes through minor modifications (Jansen *et al.*, 2006). Such items offered an overview of the evolution of the company's sustainable innovation and its environmental commitment to its local market. These are relevant indicators to support decision-making at the organisational level on the different aspects related to reducing the costs of internal processes associated with ecological products or services (Jansen *et al.*, 2006).

Green skills may be considered the necessary knowledge to meet sustainable economic growth. Based on Pavlova's study (2018), four items were used to assess the presence of this knowledge to promote greener products and services. These items also describe how organisational members use communication and negotiation skills to deal with conflicts of interest in complex contexts.

Organisational reputation was assessed with a 3-item scale developed by Carmeli and Tishler (2005). Among the indicators of organisational reputation, the ability to attract, develop and retain talent is most often used (Carmeli and Tishler, 2005; Midtsundstad, 2011). We also used companies' intention to optimise the use of their assets, which is also certainly one strong indicator of environmental responsibility (Carmeli and Tishler, 2005).

3.3 Measurement model

The PLS-Graph software version 3.2.6 Build 1058 was used to analyse the data. All the constructs were specified as composite reflective constructs (mode A), given that there is a high level of correlation between indicators (Cepeda-Carrion et al., 2019).

Table 1 shows the weights, loadings, Dijkstra and Henseler rho (pA), the average variance extracted (AVE) and the variance inflation factors (VIF), In all cases, the values are adjusted to the common standards, justifying that all the constructs do not have collinearity problems and that the convergent validity of the constructs is met (Cenfetelli and Bassellier, 2009; Kock, 2009; Petter *et al.*, 2007).

Table 1. Measurement Model Evaluation - here

As shown in Table 2, the discriminant validity was contracted using The Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio of Correlations (HTMT), in both cases the established criteria are met, thus discriminant validity was also found (Fornell and Larcker, 1981).

Table 2. Construction correlation matrix - here

4. Results

As noted above the construct loading matrix of the composites was estimated as "Mode A" since all items have been considered human-designed tools to measure the latent variables that otherwise would not be possible to measure directly in nature (Henseler, 2017). The fit of the measurement model is good since all elements had a standardised loading greater than 0.7 on the composites, which is the appropriate level at which 50% of the variance of the

indicators can be explained (Cepeda-Carrion *et al.*, 2019). After verifying that the measurement model meets all requirements, we perform the assessment of the structural model by testing the sign, size (relevance) and significance of the path coefficients (see Table 3).

The structural model was examined to test the hypotheses by using bootstrapping (5,000 resamples). Table 3 shows the parametric results (i.e., test t-values) and non-parametric tests (i.e., percentile confidence intervals) carried out to test our hypotheses. As can be seen in Table 3, results show a positive relationship between data privacy and eco-innovation (a_1=0.254, *p<0.01*), data privacy and organisational reputation (a_2=0.205, *p<0.01*), eco-innovation and green skills (a_3=0.675, *p<0.01*), and green skills and organisational reputation (a_4=0.600, *p<0.01*). Furthermore, results show that the explained variance was 46.1 and, in all cases, the value of Q2 in the dependent variables exceeded the value of 0, indicating predictive relevance (Kock, 2014).

Table 3 also shows that test t-values are significant in all indirect links. In addition, the percentile confidence intervals do include zero in both cases, the direct and indirect effects. Based on all these results, we can consider the four hypotheses proposed to be supported.

Table 3. Model statistics - here

5. Discussion

Ackoff (1989) presented the Data-Information-Knowledge-Wisdom hierarchy as a pyramid with raw data at its base, followed by information, then knowledge, and wisdom at the top. Building on the pyramidal nature of the scheme besides being causal and hierarchical, and on the risks associated with the growing volumes of data in the current business environment, the present study has investigated the potential effects of data privacy on organisational reputation among CEOs from the Spanish textile industry. The relationship between such concepts has been studied through the analysis of the role of eco-innovation and green skills in SMEs.

Our findings suggest that organisations that can protect their stakeholders' data to ensure customers' higher levels of privacy are likely to engage in more eco-innovation activities,

supporting the development of communication and other green-related skills. Such green skills then mediate the relationship between eco-innovation and organisational reputation. In addition, we found that perceived data privacy directly affects organisational reputation. In other words, the organisation's reputation strengthens when managers perceive that they conform strongly to data privacy regulations.

Concerning hypothesis 1, our results support the importance of data privacy in any effort to increase the reputation of the organisation and its business. This means that often efforts made by the organisation to implement data privacy strategies may also positively impact its reputation. These findings support the views of Corradini and Nardelli (2020) and Wei *et al.*, (2017), while referring to the way the ability of organisations to protect sensitive customer data has a direct effect on their reputation. However, it should be noted that in certain contexts, the subject of data protection becomes a "risk" rather than an "opportunity" (Quach *et al.*, 2022). In this direction, our findings support the views of Kamleitner and Mitchell (2019), whereby perceived failure to protect customers' data will not only scare away customers who have previously placed their trust in the company but also, as a side effect, damage the reputation of the business.

Regarding hypothesis 2, we have found that eco-innovation strategies require adopting and exploiting data to design new production processes and improve existing ones (Hojnik and Ruzzier, 2016; Liu *et al.*, 2013). These results can be explained by the advantages of data protection strategies, which ensure speedy transit to sustainable growth and lower environmental costs (Arya *et al.*, 2019; Saura *et al.*, 2021). These results are in line with Li's study (2014), who found that data protection is essential in translating information into an enhanced customer perception of the organisation and its business. Based on these results, we argue that executive leadership should promote data protection to successfully implement eco-innovation processes. Such a need goes beyond compliance with existing and emerging regulations to a clear understanding of how data governance may impact eco-innovation processes.

The study of hypothesis 3 led to the question of whether innovation can be considered as an "outcome" or a "process", as initially discussed by Simeone *et al.* (2020). In the current study, we have considered eco-innovation as a process that has the potential to trigger the creation of new knowledge (i.e., green skills). Therefore, our findings lead to a debate on the application of eco-innovation as a driver for the acquisition of new knowledge and skills, in

line with the findings of other scholars such as Chirumalla *et al.* (2017) and Popadiuk and Choo (2006). As Aboelmaged and Hashem (2019) pointed out, this type of prior learning makes it easier for organisations to understand and apply agile approaches to the industrialisation process and allows managers to identify and implement new sustainable solutions.

Concerning hypothesis 4, our results highlight the potential impact of green skills on the reputation of organisations. A possible explanation for this result would be that with the necessary green skills, organisations find themselves in a better position to assure a sustainable supply, reduce certain risks, improve their reputation, and secure new consumer niche markets more efficiently than if they were to start from scratch. This aligns our findings with previous research (Baah *et al.*, 2021; Carmeli and Tishler, 2005; Dangelico, 2015). Similarly, this finding confirms that as argued by Dögl and Holtbrügge (2014), an organisation's reputation can benefit positively from attracting, retaining, and supporting employees whose values and green skills are aligned with its environmental commitment.

From the management point of view, this study provides some relevant results. Firstly, eco-innovation is presented as a transformation of data into knowledge. That is, eco-innovation mediates the relationship between data protection and green skills. Eco-innovation, therefore, becomes a learning process for developing green skills and environmental knowledge. For this reason, it becomes imperative for managers to invest resources not only in protecting data but also in transforming the available data into green skills by using the appropriate knowledge management strategies and tools. Secondly, we have learned that while eco-innovation is today an essential part of a business strategy, it does not guarantee an improved reputation for the business. Therefore, organisations must support employees in the adoption of green knowledge through both learning and reuse. The creation of green skills represents the internalisation of eco-innovation knowledge, which in turn enables external stakeholders to perceive the sustainability efforts, ultimately leading the organisation to an increase in reputation.

6. Conclusions

This study adds to the body of knowledge by providing the first empirical evidence of the positive impact of ethical data privacy management on the business's overall reputation. In a context defined by both the increased availability of data and increasing challenges with the relevance and reliability of such emerging data, the reputation of most businesses is often

influenced by the rigour of the data-driven decisions they make. This study confirms that appropriate management of data privacy is a factor that positively affects the reputation of organisations.

Thus, this research's key contribution is raising awareness of the existing tension between data privacy and organisational reputation. Customers are increasingly aware of risks associated with how organisations use their personal data, making them less willing to share their data unconditionally. While some organisations may see investments in data privacy as an additional cost to their business, others may base their strategy on protecting their customers' data. We have found that when customers believe their data is secure with the organisation, they will positively perceive the organisation and its reputation. Through mechanisms such as online reviews and word of mouth using social networks and digital media, the perception of individuals about data protection soon becomes public knowledge, directly impacting reputation.

Another contribution of this research derives from analysing our findings from an environmental perspective. This study shows that effective data privacy management can indirectly support organisational reputation via eco-innovation and green skills. The use of data by an organisation for environmental purposes encourages its customers to share their personal data, thus providing a source of knowledge for the business to develop eco-innovations in products, services and processes that meet the needs and concerns of consumers. Moreover, our results suggest that green skills derived from using customers' data can benefit both the environment and society, which can improve the organisation's reputation. Public perception of the environmental commitment by a particular business through the development of green skills in its workforce can enhance the organisation's reputation. Hence, investments in data privacy indirectly facilitate a strategy that improves the business's reputation while protecting the environment.

This research has been driven by the need for a better understanding of the potential impact of digital transformations on societal perception of commitment of businesses to protecting the environment. We have found that prudent governance of information systems holding sensitive data is of upmost importance as the reliance of business in digital technologies increase. Through a sustainable integration of data privacy into the management strategy of the organisation, measures for the protection of the cyber infrastructure of the organisation and, indirectly, the privacy of their customers, must be prioritised and regularly tested.

Furthermore, we argue that such efforts to combine data-driven innovation with solid data privacy efforts should be communicated to key stakeholders –from customers to the wider value chain, in order to improve trust in the organisation. Improved trust would encourage customers to share their data which, in turn, enables the organisation to develop new products and services that meet not only their customer demands but also environmental practices.

These results should also encourage small and medium-sized enterprises to invest in data privacy in order to meet the needs of their increasingly technology- and environment-sensitive stakeholders and to improve their reputation. This study presents some limitations that can open new research opportunities. Indeed, the data were collected before the covid-19 crisis in SMEs in the textile industry in Spain. Future research could investigate the impact of Covid-19 on the results and digital privacy practices and other industries in other regions. Moreover, future research may complete our theoretical framework with more variables (i.e., financial performance). Finally, investigating the impact of the type of business activity (B2B or B2C) on these results could be an interesting avenue of research.

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Kybernetes

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Figure 1. Proposed research model
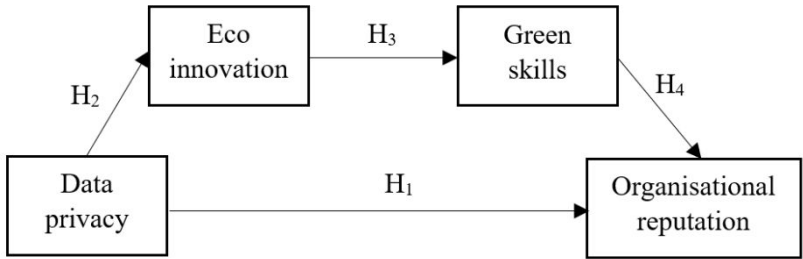
Table 1. Measurement Model Evaluation.

Construct	VIF	Weight	loading	Reliability (ρ_A^a., AVE^b)
Data Privacy				
DP1	1.729	0.395***	0.846***	ρ_A= 0.831
DP2	1.868	0.488***	0.898***	AVE=0.698
DP3	1.488	0.300***	0.756***	
Eco-innovation				
EI1	2.539	0.380***	0.897***	ρ_A= 0.855
EI2	2.575	0.375***	0.899***	AVE=0.776
EI3	1.765	0.380***	0.846***	
Green skills				
GS1	1.550	0.329***	0.783***	ρ_A= 0.808
GS2	1.673	0.282***	0.787***	AVE=0.630
GS3	1.631	0.301***	0.784***	
GS4	1.696	0.347***	0.820***	
Organisational reputation				
OR1	1.701	0.363***	0.818***	ρ_A= 0.766
OR2	1.372	0.458***	0.813***	AVE=0.675
OR3	1.709	0.397***	0.833***	

Notes:

Global goodness of fit and bootstrap-based 95% and 99% quantiles (estimated model): [SRMR= 0.059; SRMR$_{95}$=0.059 and SRMR$_{99}$=0.067; d$_{ULS}$=0.314; d$_{ULS\_95}$=0.321 and d$_{ULS\_99}$=0.548; d$_G$= 0.161; d$_{G\_95}$=0.170 and d$_{G\_99}$=0.235]

VIF→ variance inflation factor; ^{a} Dijkstra-Henseler's rho → (ρ_A); ^{b} Average variance extracted→ (AVE)

*** <0.01

Table 2. Construction correlation matrix

	Mean	S.D	CA	HTMT	(Correlation matrix)			
					1	2	3	4
1. Data privacy	5.880	1.214	0.786	0.445	*0.835*			
2. Eco-innovation	4.588	1.719	0.855	0.811	0.249	*0.924*		
3. Green skills	4.946	1.378	0.804	0.812	0.234	0.675	*0.793*	
4. Organisational reputation	5.514	1.007	0.761	0.812	0.345	0.436	0.633	*0.875*

Notes:

Mean = the average score for all items included in this measure; S.D. = Standard Deviation; CA = Cronbach's Alpha; Intercorrelations are presented in the lower and shady triangle of the matrix. Bold numbers on the diagonal are the square root of the Average Variance Extracted.

Table 3. Model statistics

Direct effects	Path coefficients	t-values	5%CI$_{lo}$	95%CI$_{hi}$	R^2	Q^2
DP → EI	a_1=0.254***	3.007	0.084	0.401	0.064	0.048
DP → OR	a_2=0.205***	4.189	0.101	0.287	0.461	0.298
EI → GS	a_3=0.675***	17.297	0.583	0.739	0.456	0.281
GS→ OR	a_5=0.600***	13.222	0.512	0.686	0.461	0.298
Indirect effects though		Point estimate	5%CI$_{lo}$	95%CI$_{hi}$	Sig	
DP →EI →GS→OR=	0.103***	0.038	0.169	0.000		
DP →EI →GS=	0.171***	0.062	0.273	0.000		
EI →GS →OR=	0.405***	0.329	0.490	0.006		

Notes:

*** <0.01

DP: Data Privacy EI: Eco-innovation GK: Green Skills OR: Organisational Reputation