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Does digital transformation increase firms' productivity perception? The role of technostress and work engagement

The role
of technostress
and work
engagement

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Abstract

Purpose – To understand how organizations, public or private, must increase their productivity perception (PP), independently of the sector. This article aims to analyze PP in the digital transformation (DT) process to determine how it is affected by technostress (TS) and work engagement (WE), two concepts that seem to be forces opposing PP.

Design/methodology/approach – The authors use data from a questionnaire addressed to personnel in two organizations (public and private). The analysis applies partial least squares technique to the 505 valid responses obtained from these organizations. This analysis is based not on representativeness but on uniqueness.

Findings – The results suggest a positive, significant relationship between DT and PP. This article integrates DT and its effects on aspects of people's health, PP and WE. The model thus includes interactions of technology with human elements. In both business and administrative environments, PP is key to optimizing resources and survival of organizations.

Research limitations/implications – DT processes are different and complex because every organization is different. The authors recommend expanding this study to other sectors in both spheres, public and private. Aligning the objectives of the institutions for aid with DT is also quite complicated.

Practical implications – This study contributes to improving participating organizations. It also provides government institutions with a clear foundation from which to encourage actions that promote the health and WE of their workforce without reducing productivity. In addition, this study adds novelty to the research line.

Originality/value – The authors have deepened this line of research by developing fuller knowledge of the relationships among novel and necessary variables in organizations. The authors provide complementary, different and inspiring value in addressing this line of research.

Keywords Digital transformation, Technostress, Work engagement, Productivity perception

Paper type Research paper

1. Introduction

We are experiencing a digital transformation (DT) in all spheres, both public and private. The European Commission has classified the 2030s as the digital decade, the decade during which the business fabric will experience changes in its business models due to the process of DT.

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A report entitled “The digitization of the economy,” prepared by the Economic and Social Council of Spain (2022) convened by Telefonica, analyzes the impact of DT on organizations: more knowledge of customers, improved productivity, transformation of internal processes and creation of new products and services.

Outside our borders, the International Labor Office’s (ILO) governing body presented a significant report, “Decent work and productivity,” at its 341st meeting in March 2021 in Geneva. The report places special emphasis on studying this new paradigm of technological revolution, which identifies the indicators that lead to increased productivity, consideration of decent work, inclusive growth and shared prosperity. In response to this need, our study provides a novel vision of the impact of DT in two organizations in Spain, one public and one private, by contemplating DT’s relationship to technostress (TS) (Salanova, 2003) and work engagement (WE). This article studies DT as a technical system, analyzing it through the lens of Emery and Trist’s sociotechnical theory (1960), which argues that the DT process must be programmed so that implementation considers the interaction of people and machines, environmental issues and DT’s effect on these elements.

Because DT provides an immense range of technologies and applications, achieving a holistic view is difficult. In their study attempting to understand DT, Hausberg *et al.* (2019) verified that the literature contains little bibliography on finance, Human Resources (HR) and sustainability. DT and innovation in the business model caused by DT have changed consumers’ expectations and behaviors, producing changes in markets (Verhoef *et al.*, 2021). Further, organizational structure is important to achieving success. Our study’s results and conclusions therefore seek to contribute to this line of research, as well as to the line’s applicability to strengthening decision-making in organizations.

Studies have been performed to advance understanding of the phenomenon of DT and its characteristics (Mahraz *et al.*, 2019; de Bem Machado, 2022). The exhaustive review by Ragazou *et al.* (2022) of 765 post-pandemic articles published 2014–2022 shows that companies have begun to integrate emerging technologies such as big data, artificial intelligence (AI), machine learning and 3D printing into their business models. In addition, the technology-organization-environment (TOE) framework shows the relevance of the niche in the field of DT research on SMEs. The two participating organizations in this study, one semipublic and the other private, are leaders in their sectors. They have decades of activity and have for years been immersed in a DT process distinguished for its business models.

As for the semi-public organization, its activity focuses on health prevention. According to the report of the Union of Mutual Societies of Spain’s Ministry of Labor and Social Security (2019), it participates in two strategic alliances.

The private organization leads Spain in commercial, financial, sectoral and marketing information. This firm manages more than 400 companies around the world. Our analysis is based not on representativeness but on singularity. Our literature analysis yields few research findings on how employees perceive their increasingly automated work and its influence on WE. Authors researching work automation (Brougham and Haar, 2017b) have already noted that the type of work produced by the fourth industrial revolution can impact personnel’s professional satisfaction, especially their self-esteem.

Various studies have deepened understanding of the impact of DT in the company, on work and productivity in generation of expectations around AI and modern productivity (Brynjolfsson *et al.*, 2017) and the effect of TS on the firm’s human capital (Salanova and Cifre, 1999). This issue is vitally important for organizations for two fundamental reasons – the pressures they are under to adopt DT in their processes and their need to increase their productivity to face the competition. Further, persons, digital technology and organizations must understand one other to advance in a world with a gradual but increasing trend toward dehumanization of organizations (Ritzer, 2005).

Research on human resources management recognizes WE as one of the most significant predictors of productivity (Borst *et al.*, 2020), although some controversy is found among existing studies, based on the sector researched (Akingbola and Van den Berg, 2019).

These studies have asked whether WE benefits public vs. private-sector firms in similar ways. WE, such as bureaucracy, changes in political leadership and different motivations for working as a public servant. One question of interest for organizations is whether the positive effect of WE experienced in the private sector is also experienced in the public.

Given the opposing results and small number of studies of WE in public- and private-sector firms (Borst *et al.*, 2020), we believe it is necessary to analyze the effect of WE on the relationship between TS and working persons' productivity perception (PP) in two firms, one from the private and the other from the public sector. This distinction between organizations is especially important because environmental pressures for PP are stronger in private firms.

Our fundamental goal is thus to determine the mediator effect between the variables TS, PP and WE.

This study makes several important contributions to the literature. First, it fills a gap by studying the organizational DT process from a sociotechnical theory perspective (Trist, 1981). Considerable scholarly literature tackles technology use and its impact on people, although we must differentiate between the way people perform their activity with a specific technology and the way they perceive the DT process. This study focuses on the latter.

While the literature identified does not reach consensus on the relationship between technology use and productivity, our study advances understanding of this relationship through analysis of two examples from two samples in very different organizations.

Finally, our study aims to resolve the lack of consensus in research relating WE, TS and PP in the organizational DT process. Few studies tackle (as ours will) the importance of confirming WE during and within the DT process, not merely as a result of use of one or more technologies. We therefore consider WE and knowledge of it as important in this study.

To formulate the proposed objectives, we reviewed the literature on the research variables. Next, we justify the proposed hypotheses and subsequently describe the process of collecting information from the sample. We then validate the variables and contrast the hypotheses. Finally, we present the results, main conclusions, implications, limitations and future lines of study.

2. Literature review

The concept of DT is very controversial, due to its many definitions. We focus on the definition proposed by Multisectoral Association of Spanish Electronics and Communications Companies (AMETIC):

Digital transformation is a set of actions oriented to improving and modernizing organizations' and persons' processes, procedures, habits, and behaviors, which makes use of digital technologies to improve the global competitiveness of public administrations, companies, and citizens. (2017, p. 5)

This definition must be analyzed using sociotechnical theory (Trist and Bramforth, 1951), which argues that increasing DT's success requires performing it as a programmed process interdependently with progressive iterations of technological and human change.

Trist (1981) suggests that the social system and influence of the environment are key to design of the organization's work when the organization is facing a paradigm change. Relationships become more complex, including psychological, group and cultural factors that affect the daily life of an organization. An organization will be more efficient when the use of machines and their relationship to people generates a balance that strengthens organizational efficiency.

Technology use in organizations affects persons' stress – a phenomenon more concretely termed TS (Brod, 1984) – which can affect PP (Walton, 2019). Investigating the impact of five techno-stressors, two role stressors and productivity, La Torre *et al.* (2020) verified that different techno-stressors are significantly associated with women workers.

This study defines TS as “a negative psychological state related to technology use or the threat of its use in the future. This state is conditioned by the perception of misfit between demands and resources related to technology use, which leads to a high level of unpleasant psychophysiological activation and the development of negative attitudes toward technology” (Salanova, 2003, p. 225). As organizations are applying digital technologies in this fourth “technological revolution,” research has shown more TS to occur in people who hold positions related to use of these technologies (Tu *et al.*, 2005).

This study tackles PP from the work perspective – that is, from the perspective of the useful work a person performs when working with technology at a specific time, based on belief in efficacy. It is thus important to consider the self-efficacy the person can achieve when performing tasks related to or based on technology (if this is the case), as self-efficacy is a resource that mitigates the process of TS this person could ultimately develop.

In this study, we constructed the variable PP based on various studies by various authors authorship studies on jobs where digital technology is used.

Jorgenson *et al.* (2008) highlighted the considerable uncertainty concerning concept of productivity, specifically in the United States of America (USA) Very rapid growth of technology – specifically of information and communication technologies (ICTs) in the so-called “new economy” – caused expectations of change in business processes, resulting in increased productivity.

Deepening knowledge in this field, Brynjolfsson (1993) reported that only by understanding the “productivity paradox” can we learn, identify and act on the obstacles to increasing productivity. This author proposed a thorough review of the productivity of technology to study how to measure the productivity derived from technology use.

Brown (2014) continued to advance this research line by seeking evidence, for example, in the public sector. He attempted to prove the productivity benefits of ICTs, a question that remains unanswered. Brown has shown that the technology used had little influence on productivity gains, whereas research on private companies has shown that DT plays a key role in their productive efficiency (Tao *et al.*, 2022).

For Atanasoff and Venable (2017), technology use can improve efficiency, productivity and flexibility in the workplace, but it can also have negative effects on employees' cognitive state and psychological and physical health, generating TS. TS affects work satisfaction and employees' WE and results. The analysis by Langelaan *et al.* (2006) shows that personnel committed to their work can adapt more rapidly to changes in the environment and shift more easily from one activity to another than can people who are not committed to their work.

WE includes participation, commitment, passion, enthusiasm, absorption, concentrated effort and energy. Bakker *et al.* (2011) concluded that employed persons who are “engaged” can generate their own resources to maintain this level of WE to the firm. Our study is based on the concept of WE identified by Bakker *et al.* (2003), which focuses on “work commitment,” to the firm as a whole, not to a specific role.

2.1 Effect of the firm's DT on TS and employee PP

The speed of technological advances is altering organizations' leadership and design. Speed and fragmentation (Schwarz Müller *et al.*, 2018) change in work life and TS, information overload and physical presence in the workplace are key factors influencing productivity (Madden *et al.*, 2015). Roles of technology use and their overload in customer service

professionals in various organizations lead to TS (Christ-Brendemühl and Schaarschmidt, 2020). In the public sphere, research has verified that the use of ICTs increases TS (Camarena *et al.*, 2022).

While technology overload increases productivity in a mobile work environment (Hung *et al.*, 2015), it can also reduce productivity in the presence of communication overload unless proactive behavior is shown.

Based on all the foregoing, we thus propose the first hypothesis, which seeks to demonstrate the influence of the DT process on PP:

H1. The worker's perception of the firm's DT has an inverted-U shaped relationship to PP.

That is, in an environment of DT, workers can come to perceive that technology use is not helping them to be more productive, even though the incorporation of technology into their tasks is intended to obtain greater productivity.

Wilke *et al.* (1985) also explore their results in depth, suggesting a U-shaped relationship between technology, the stress technology causes and productivity. Years later, Karr-Wisniewski and Lu (2010) researched Parkin's principle of diminishing marginal benefit (Parkin, 2000), arguing that productivity is negatively affected when technology overload passes an optimal point.

Some studies contradict this negative relationship, however. Hung *et al.* (2015) found a positive correlation between general TS and productivity. This phenomenon can be explained by the Yerkes-Dodson Law (1908), which establishes that stress correlates positively with PP up to a point but that excessive stress causes a negative correlation between these variables.

Based on all the foregoing, we propose the second hypothesis, which permits us to advance in analysis of the model:

H2a. Workers' perception of the firm's DT increases their TS.

We can affirm that the stress caused by technology use (TS) affects PP, while studies have also confirmed that work stress impacts productivity. The new way of working represents an opportunity for organizational research to continue taking TS into account, among other factors (Giorgi *et al.*, 2022).

TS can affect people differently, depending on the user's type of work and socioeconomic status (Stadin *et al.*, 2016). Salanova *et al.* (2014) confirmed that TS is perceived differently in large and small organizations. It may thus be possible to mitigate TS by providing training to increase self-efficacy prior to changes in the ICTs used in firms. Interest in the study of work related TS has increased in recent years. Yue *et al.* (2022) analyzed a moderated mediation model, examining the relationship of two stressors resulting from the use of social networks for work purposes (time pressure and learning demand), with change-oriented organizational citizenship behavior.

Zainun *et al.* (2020) verified that TS was a predictor of WE to change in the public sector and concluded that techno-invasion and techno-insecurity were negatively associated with WE to change, whereas techno-uncertainty was positively related to WE to change.

Technology use is being considered as a source of increasing stress (Barley *et al.*, 2010), as it demands being more connected to work. In this line, analyzing the intensity of DT in 3,961 global Information and Communication Technology (ICT) companies in 2020, El Khouri *et al.* (2022) verified that electronic government and cyber security WE were key to boosting productivity.

Trist's sociotechnical theory (1981) argues that the organization achieves efficiency when the relationship between technology and persons is balanced. The effect of DT on TS breaks this balance, negatively affecting PP.

Based on the foregoing explanation, we propose the following hypothesis:

H2b. The worker's perception of TS has an inverted U-shaped relationship to PP.

This hypothesis seeks to show that people who work with technology can perceive that they are experiencing situations of TS because they have reached a point at which use of the technology itself overwhelms them. If people reach this situation, they could perceive that they are less productive because they are suffering from TS.

2.2 Work TE, PP and WE

Studies of the interaction between working persons and the DT process in the firm have shown that this interaction can generate responses of somatic stress (Riedl, 2013) related to tension at work (Stadin *et al.*, 2016). TS add to general stress at work, even when we control for job demands and sociodemographic conditions (Ayyagari *et al.*, 2011).

Some studies have related tension at work to willingness to rotate, productivity, WE to the organization and work satisfaction (Moore, 2000). Borst *et al.* (2020) showed in the public sphere that WE is very important for job well-being, resulting in high job satisfaction, high commitment, low turnover intention and high performance. The last two of these studies placed the most emphasis on studying the significance of the impact of TS, concluding that people who suffer tension – especially those who experience exhaustion – feel less WE to the organization and greater desire to leave it, while also being less satisfied at work. The public sector must consider the negative aspects of the relationship between people and technology in the workplace. Part of the literature on this topic addresses understanding of the relation between work-life balance and TS (Trittin-Ulbrich *et al.*, 2021).

Atanasoff *et al.* (2017) adopt the idea that technological instruments can negatively impact personnel's cognitive, psychological and physical health, affecting the WE of working persons. This study reinforces the need to research the effects of TS on organizations in different sectors and industries. Okolo *et al.* (2018) also conclude a positive and significant relationship between job design, TS and personnel commitment.

Recent studies of this topic have indicated that WE is associated with performance results, such as employee retention and PP (Hanaysha, 2016). Molino *et al.* (2020) use evidence of the positive relationship of resilience, information and training opportunities to the acceptance of technology to demonstrate a positive association with work commitment. WE is a key factor in work-related well-being that can change the effects of self-efficacy on job performance (Tian *et al.*, 2019).

Based on the material explained in this section, we propose the following hypothesis:

H3a. TS reduces the organization's employed persons' capability for WE.

H3b. Greater WE from employees increase the organization's PP.

2.3 Private-public context and effects on the model

Trist's sociotechnical theory (1981) shows that an organization is more efficient when technology, persons employed and context are in balance, whether the organization is private or public. Personnel with greater mastery of key technological variables have better results and greater work satisfaction.

DT is a continuous process requiring frequent adjustment of its processes, services and products, producing a change in organizational and bureaucratic culture in the public sector (Mergel *et al.*, 2019). Few studies have been performed on the effects of technology on productivity in the public sector (Fontaine, 2001). Dunleavy *et al.* (2006) foresaw that these changes in information technologies meant significant changes in organizational digitalization.

The public sector must be careful in transferring solutions to the private (Hofmann and Ogonek, 2018), due to the differences between the two sectors and the digital competences needed in each case.

Pilat and Criscuolo (2018) show evidence of an emerging relationship between productivity and DT in the private sector. Currently, numerous public entities perform smart work practices, with special emphasis on technology to improve its relationship to the workforce (Veglianti *et al.*, 2023).

Public-sector DT is a necessity for many governments at global level (Alvarenga, 2020), where the DT process not only brings business growth (as in the private sector) but also intensifies citizens' participation for economic progress and development.

Currently, DT's impact on working persons' productivity differs based on type of sector (public or private) in which the firm operates (Brynjolfsson *et al.*, 2017).

The foregoing leads us to formulate the following hypothesis:

H4. DT's effect on PP is greater in the private than in the public sector.

3. Methodology

The empirical part of our study uses data from surveys of numerous employees from two organizations to test the hypotheses proposed. As in other empirical analyses (Borst *et al.*, 2020), we believe it interesting to interview one organization from the public sector and another from the private, as various authors believe that significant differences may exist in the relationship among our study variables depending on the sector to which the organization belongs (Jansen *et al.*, 2010). Further, we compare two organizations of different natures, a private service firm that works in a digital field and a public firm (also a service firm) that focuses on improving organizational health and risk prevention. In the former, we start from the premise that the staff is more familiar with technology, a factor that may reduce TS. The second firm attempts to avoid TS, due to the firm's nature and WE to preventing health risks in the workplace. Thus, although these firms differ in legal status and mission, both include elements that can mitigate the factor of TS, ultimately making differentiation between them of great interest for this study.

The sample obtained from the public organization is composed of 404 records, of which 56.4% are women. Over 70% of respondents had been with the firm more than 10 years. The second sample, obtained from the private-sector firm, was composed of 101 records, of which 56.4% are women. As in the first case, 77% of respondents had seniority of over 10 years at the firm.

The data were gathered by online survey, a method appropriate for maximizing number of participants (Dillman *et al.*, 2009). In both firms, the questionnaires were sent, and the data gathered in 2019. The private firm's response rate was 29% and the public organization's 21.3%. For Camelo *et al.* (2011), this is a satisfactory response rate.

Chang *et al.* (2010) argues that telling respondents that their responses are confidential and anonymous reduces bias. To reduce common method bias in our survey (Podsakoff *et al.*, 2003), we stressed the WE to absolute confidentiality of responses. We developed a confidentiality agreement that explicitly requested a written WE. Finally, our questionnaire was based on point values, a format that Chang *et al.* (2010) reason has a lower tendency to common method bias.

We used structural equations method for the data analysis, adopting partial least squares technique (PLS-SEM) (Fornell and Cha, 1994) and the program Smart PLS 3.0 (Ringle *et al.*, 2015). PLS-SEM is appropriate for our study because it facilitates use of both formative and reflective scales, whereas covariance-based SEM have some limitations when formative

constructs are introduced (Chin, 1998; Henseler *et al.*, 2009). Our model used two formative variables, PP and WE. This analysis is based not on representativeness but on uniqueness.

The study variables were measured as follows:

Digital transformation: To analyze DT, we used 12 items. Eight were chosen from the scale used by McElheran (2015) and 4 additional items were generated. We subsequently consulted 2 recognized scholars and experts in DT and global digitalization, who helped us to agree on additional items to include in the questionnaire, especially on industry 4.0.

Technostress: The measure for TS used 17 items and was adapted from the scale validated by Salanova *et al.* (2007). The Resources/Experiences/Demands TIC (RED-TIC) study (Salanova *et al.*, 2007) can diagnose the phenomenon of TS and determine its antecedents (demands, and lack of work and personal resources), as well as the emotional consequences of TS.

Productivity perception: PP was measured using 6 items adapted from 3 leading study scales (Harter *et al.*, 2003; Schaufeli and Salanova, 2007; Syed and Jamal, 2012).

Work Engagement: WE was measured using 17 items and a scale adapted from that validated by Schaufeli and Bakker in 2003. WE indicate “work commitment” as a whole, not WE to a specific role (Schaufeli and Bakker, 2010). The UWES (Utrecht Work Engagement Scale) scale was developed empirically by these authors and carefully operationalizes constructs, including engagement.

All variables were measured using a Likert scale ranging from 1 to 7 points (1 = a little, 7 = a lot).

4. Results

Tables 1 and 2 present the results of the descriptive analysis of the data and the correlation matrix. The tables show higher means for the DT variables, PP and TS in the private firm operating in the digital environment. This finding indicates that workers in this firm perceive more impact of digitalization, stress involved and its effects on PP. In the public firm sector, these values are lower, showing that employed persons in this firm perceive neither the pressure from DT nor the effects of DT on TS and PP perceived by employees in the private firm. Instead, these effects are more moderate.

Table 1.
Correlation among variables analyzed (private)

	Mean	S.d	1	2	3	4
DT (1)	5.25	0.96	1	0.231*	0.388***	0.220*
WE (2)	5.10	0.68		1	0.237*	0.302***
PP (3)	4.34	0.87			1	0.091
TS (4)	5.86	0.89				1

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
Source(s): The authors

Table 2.
Correlation among variables analyzed (public)

	Mean	S.d	1	2	3	4
DT (1)	4.24	1.24	1	0.339***	0.214***	0.333***
WE (2)	4.21	0.79		1	0.244***	0.487***
PP (3)	4.47	0.68			1	0.124**
TS (4)	5.01	0.99				1

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
Source(s): The authors

We performed an exploratory analysis of reliability and dimensionality (Anderson and Gerbing, 1988). Tables 3 and 4 display information from analysis of the reflective variables.

Next, Tables 5 and 6 present the weights of the formative variables, enabling us to confirm their behavior.

Although some loadings are not significant, the analysis of the weight-loading relationship for these indicators (Hair *et al.*, 2014) shows that their corresponding load is high (>0.6) and eliminating a dimension would alter construction of the scale. We therefore believe it best to maintain the items. Elimination of indicators also risks changing the construct itself (Diamantopoulos and Winklhofer, 2001). We only dismissed two items in the case of private and public firms due to collinearity problems (Variance Inflation Factor (VIF) above 3.3) (Mooi and Sarstedt, 2011).

To confirm discriminant validity, we used a recently proposed Heterotrait-Monotrait criterion (Henseler *et al.*, 2014). This analysis also considered only the reflective variables (Chin, 1998). Tables 7 and 8 present the information on discriminant validity.

We evaluated common method bias using Harman's Test (Podsakoff *et al.*, 2003, 2012). The data obtained show no problem of common method bias in our data, since the total variance extracted from one factor was 17.42% in the public organization and 21.41% in the private – both values below the recommended threshold of 50%.

Prior to the mediation analysis, we validated the presence of quadratic effects between DT and PP, and between TS and PP, since prior studies argue for this effect (Hung *et al.*, 2015). Table 9 presents this relationship.

As the tables show, our results confirm a nonsignificant quadratic effect for both samples, indicating no support for either H1 or H2b.

		Factor loading	CA	CR	AVE
DT	DT3	0.515***	0.700	0.770	0.500
	DT5	0.558***			
	DT8	0.641***			
	DT9	0.568***			
	DT10	0.861***			
TS	TS3	0.865***	0.757	0.862	0.678
	TS7	0.88***			
	TS14	0.715***			

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source(s): The authors

Table 3.
Analysis of measurement model variables for sample (private)

		Factor loading	CA	CR	AVE
DT	DT3	0.752***	0.743	0.827	0.500
	DT5	0.700***			
	DT8	0.700***			
	DT9	0.736***			
	DT10	0.700***			
TS	TS3	0.785***	0.700	0.821	0.606
	TS7	0.726***			
	TS14	0.843***			

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source(s): The authors

Table 4.
Analysis of measurement model variables for sample (public)

Construct	Item	Weights	t-Value	VIF
PP	P1	0.021	0.445	1.094
	P2	0.551**	2.581	1.049
	P3	-0.048	0.675	1.136
	P4	0.422	1.512	1.080
	P5	0.668***	2.937	1.112
	P6	0.020	0.240	1.035
WE	WE1	-0.148**	2.521	2.645
	WE3	0.435***	3.394	2.029
	WE4	0.516***	7.576	1.698
	WE5	-0.306**	2.389	3.179
	WE7	0.083***	4.168	2.464
	WE8	-0.256	0.670	1.356
	WE9	0.181***	3.296	1.947
	WE10	-0.262*	2.333	2.730
	WE11	0.068***	4.690	2.319
	WE12	-0.099	0.660	1.420
	WE13	0.268**	2.832	1.410
WE14	0.050**	2.589	2.414	
WE15	0.156	1.874	1.664	
WE16	0.167	4.197	2.634	
WE17	0.328***	3.297	2.758	

Table 5. Weights of formative variables (private) **Note(s):** * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ **Source(s):** The authors

Construct	Item	Weights	t-Value	VIF
PP	P1	0.002	1.396	1.080
	P2	0.471***	7.608	1.074
	P3	-0.088	1.385	1.081
	P4	-0.091	1.637	1.086
	P5	0.774***	15.617	1.133
	P6	0.051	0.469	1.006
WE	WE1	-0.290***	8.345	3.178
	WE2	0.026***	14.648	3.104
	WE3	0.194***	15.782	1.719
	WE4	0.326***	16.551	1.658
	WE5	0.146***	9.025	1.679
	WE7	0.129***	16.536	2.068
	WE8	-0.097	0.933	1.215
	WE9	0.169***	10.367	1.668
	WE10	0.183***	11.362	2.072
	WE11	0.119***	13.994	2.416
	WE12	-0.001***	5.220	1.318
WE13	0.139***	9.584	1.455	
WE14	0.078***	10.309	1.738	
WE15	0.062***	4.981	1.285	
WE16	0.030***	10.604	2.406	

Table 6. Weights of formative variables (public) **Note(s):** * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ **Source(s):** The authors

Next, Table 10 presents our analysis of the interaction of the mediating effect in each sample. Evaluating the variance of the dependent latent variables explained by the constructs that predict them (R^2) indicates a variance higher than 0.1 (Falk and Miller, 1992). Simultaneous with our analysis of the size of R^2 as criterion of predictive relevance, we applied the sample reuse technique (Q^2 by blindfolding) proposed by Stone (1974) and Geisser (1975). Q^2 is greater than zero for the dependent latent variable, implying that the model has predictive validity. Finally, to evaluate the significance of the structural relationships, we applied the bootstrapping procedure (with 500 samples from the original sample).

Table 10 displays the 4 models designed to confirm the hypotheses proposed. First, we analyzed mediation models I and II, which show the results of the PLS-SEM analysis for the private and public firms. Both cases confirm a positive and significant relationship between DT and TS ($\beta = 0.36$ and $\beta = 0.39$; $p < 0.001$, respectively). The relationship between DT and PP is positive and significant in the case of private firm ($\beta = 0.39$ $p < 0.1$) but nonsignificant in the case of public firm ($\beta = 0.39$ $p < 0.1$). This result supports H2a but not H1, as mentioned above. That is, greater intensity of perception of the firm's DT process will influence working persons' TS and PP positively and significantly in the case of the private firm, but this perception will not affect PP in the case of the public firm.

Further, our analysis confirms that the relationship between TS and PP is positive and significant in the case of the public firm ($\beta = 0.35$ $p < 0.001$) but nonsignificant in the case of the private firm ($\beta = 0.35$ $p < 0.001$). As mentioned above, this result does not confirm H2b. Despite the argument established in the second hypothesis, TS has a positive and significant effect on personnel in the case of public organization but not in the case of the private one.

	1	2
DT (1)	0.641	0.345
TS (2)		0.823
Source(s): The authors		

Table 7.
Discriminant validity
(private)

	1	2
DT (1)	0.699	0.366
TS (2)		0.786
Source(s): The authors		

Table 8.
Discriminant validity
(public)

	Quadratic effect Private firm		Quadratic effect Public firm	
	Standardized beta	t-value Bootstrap	Standardized beta	t-value bootstrap
Quadratic effect DT → PP	0.101	1.43	0.034	0.955
Quadratic effect TS → PP	0.034	0.178	0.025	0.765
R^2 (PP)	0.22		0.15	
R^2 (TS)	0.09		0.14	
Q^2 (PP)	0.00		0.02	
Q^2 (TS)	0.04		0.07	
Source(s): The authors				

Table 9.
Calculation of
quadratic effect

Table 10.
Validation of hypotheses. Analysis of interaction of mediator effect in each sample (private and public organization)

	Mediation model I private firm		Mediation model II public organization		Mediation model III private firm		Mediation model IV public organization	
	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value
DT → TS	0.36***	3.03	0.39***	9.05	0.35**	2.26	0.37***	8.39
DT → PP	0.39*	2.17	0.09	1.08	0.178	1.35	0.01	0.16
TS → PP	0.21	0.96	0.35***	4.83	-0.15	0.31	0.04	0.99
TS → WE					0.62***	5.03	0.52***	11.69
WE → PP					0.67**	2.50	0.61***	11.13
R^2 (PP)	0.21		0.15		0.36		0.39	
R^2 (TS)	0.10		0.14		0.10		0.13	
R^2 (WE)					0.36		0.26	
Q^2 (PP)	0.0001		0.02		0.02		0.06	
Q^2 (TS)	0.05		0.07		0.05		0.07	
Q^2 (WE)					0.04		0.09	

Note(s): * $p < 0.05$; ** $p < 0.01$; *** $p < 0.01$
Source(s): The authors

To confirm Hypotheses H3a and H3b, we follow the analysis proposed by Baron and Kenny (1986).

In this analysis, the independent variable must significantly affect the mediator variable, and the mediator variable must significantly affect the dependent variable. Mediation Models III and IV fulfill this condition. The relationship between TS and PP ceases to be significant, and positive and significant relationships occur between TS and WE ($\beta = 0.62$ and $\beta = 0.52$; $p < 0.001$, respectively) and between WE and PP ($\beta = 0.67$ and $\beta = 0.61$; $p < 0.001$, respectively). This finding supports hypotheses H3a and H3b; engaged employees achieve high PP, independently of the organization’s activity and of the legal environment in which they operate.

Further, the findings support H4. The results show a greater effect of DT on PP in the private sector than in the public ($\beta = 0.39$ private firm, $\beta = 0.09$ public; $p < 0.01$ and $p < 0.1$, respectively). This finding supports Ragu-Nathan *et al.* (2008), who affirm that adoption and use of ICTs have led to redefinition of organizational structures and business processes and have altered the means of interaction among individuals and between individuals and the organization, causing TS in private organizations.

Next, Figures 1 and 2 present the double mediation model for the public and private firms.

To provide more rigorous analysis, we analyzed this effect using the “Variance Accounted For” (VAF) criterion (Hair *et al.*, 2014). In our case, the mediation effect of WE on the relationship between TS and PP is 84% in the public organization and 79% in the private firm, indicating total mediation in both firms ($VAF \geq 80\%$). The mediation models (Models III and IV) thus confirm that WE mediate the relationship between working persons’ TS and their PP, and that PP depends on the type of firm.

Finally, the levels of R^2 obtained suggest that the causal model partially explains the endogenous variables studied. The proposed model also shows good fit according to most of the indicators considered.

5. Discussion and conclusions

The DT process in organizations is causing us to relate to each other in different ways in the workplace, which can affect our PP. Trist (1981) affirmed that the design of an organization’s work, as well as the social system and influence of the environment, are key when facing a

paradigm change, and millions of organizations are currently experiencing such paradigm change. Trist (1981) concluded that an organization is more efficient when it achieves a balance between persons and the machines they use. Special attention is thus paid to this issue, since organizations must work to make the DT process efficient and to preserve the balance between persons and technology based on the public or private context.

Our article therefore analyzes perception of the DT process and its relationship to TS, as well as its effect on workers' PP in two organizations with different sector-related and legal characteristics. Given the few studies of WE in public- and private-sector firms (Borst *et al.*, 2017) and the contradictory results in the literature analyzed (Ragu-Nathan *et al.*, 2008; Okolo *et al.*, 2018), we also investigate whether employed persons' WE is the means through which TS increases PP. TS can cause serious damage, and this damage can be mitigated better through personal than through professional methods (Salo *et al.*, 2022).

Our results show that the DT process influences generation of TS. Further, the data from our analysis affirm that the way the DT process is conducted in the firm is not significantly related to PP and thus does not support the first hypothesis proposed. This relationship may be explained by overload of information, communication and tools due to excessive ICT use, leading to lower productivity (Karr-Wisniewski and Lu, 2010).

Although one line in the literature (Ahearne *et al.*, 2004) supports the second part of H2, our data (contrary to our predictions) show a positive relationship between TS and PP. The data indicate that persons employed in both the public and the private firm (each operating in a different work context) can neutralize the negative effects of TS on PP. Sociotechnical theory (Trist, 1981) explains that greater mastery of key technological variables by the firm's workers yields better results and ultimately greater work satisfaction.

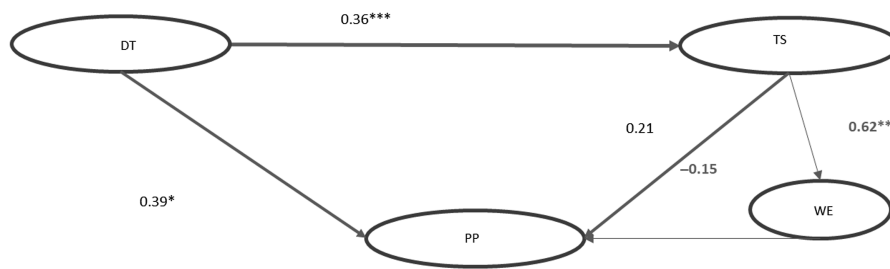


Figure 1. Double mediation model for private organization

Source(s): The authors

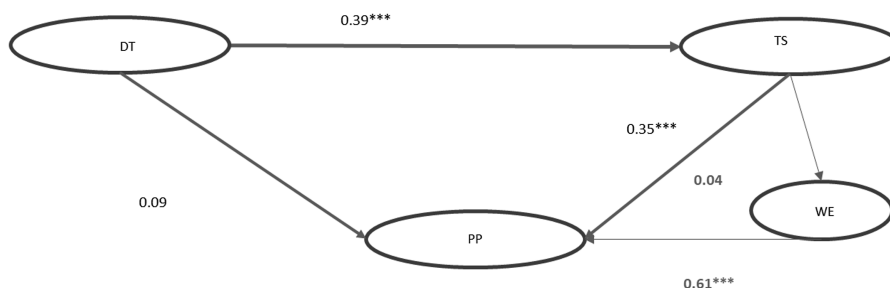


Figure 2. Double mediation model for public organization

Source(s): The authors

According to Tarafdar *et al.* (2017), people with high self-efficacy have more control over the stressors that affect their PP. Their response to stressors is thus likely to be moderate (Spector, 1988). Pierce *et al.* (1993) conclude that people with high self-efficacy and greater faith in their capability at work show a less consistent relationship between stressors of work performance. Our analysis would therefore benefit from introducing items to measure self-efficacy in both samples, as this information would complement our results.

Finally, the results of the mediation analysis confirm that WE is the means through which TS influences working people's PP. WE mediates fully in the public-sector firm and partially in the private-sector firm. This finding suggests that persons who feel connected and committed to the work they perform in the firm translate DT more easily into greater PP. This effect is more salient in the public sector, where mediation is total.

As to the impact of the variables used on personnel, the private-sector firm has higher levels of DT, TS and PP than the public. The impact of WE is similar in both firms.

It is worth highlighting that this study tackles WE from the user's perspective (Blacker, 1986), focusing responsibility for mastery of technology on its users. The social sciences defend this stance, and it has a positive impact on psychosocial wellbeing, resulting in less stress and greater work performance, while also affirming that lack of resources in work performed with technologies can make technologies into stressors.

For our fourth hypothesis, the empirical data show that the relationship between DT and PP is more pronounced in the private-sector than in the public-sector firm. The information shows that the private sector uses DT to improve service delivery and change organizational processes and culture (Fountain, 2001). This process inevitably impacts its employees; more specifically, Mergel *et al.* (2019) concluded that organizational change because of the DT process involves both the most significant achievement and the most significant impact.

In conclusion, organizations undergoing the DT process must achieve people committed to the organization. This change is necessary and challenging, as the very nature of the process is quite dynamic and thus clearly more complex to analyze.

In both business and administrative environments, productivity is key to optimizing resources and survival of organizations. At this time of generalized DT in all sectors, this study invites us to design and implement the right measures to help mitigate the effects of TS, a process that requires managing WE as a vital factor.

Although the research performed advances our perception of the DT process in the firm, many questions remain to be studied. First, as this study focused on private and public firms, other sectors and public firms remain to be studied. A second question involves the extent to which we can generalize these results to large firms. The sample in our study focused on two organizations operating at national level. Future studies could translate our study to analyze the DT process in large global firms to determine working persons' level of WE in these firms, as well as in SMEs in other sectors and in different types of public organizations. DT processes are different and complex because no organization is the same. Aligning the objectives of DT aid institutions is also quite complicated, as these institutions must design the measures that contribute to this research line by comprehending the battery of aid resources with greater precision.

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Impacts of transformational leadership on organizational change capability: a two-path mediating role of trust in leadership

Transformational leadership and change

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Abstract

Purpose – Given the important role of change capability for organizational development and competitive advantage, the purpose of this study is to clarify the influences of transformational leadership (TL) on organizational change capability (OCC) via mediating roles of two specific aspects of trust in leadership namely disclosure-based trust and reliance-based trust.

Design/methodology/approach – Structural equation modeling is applied to test the degree of influences of TL and employee trust on OCC via empirical data collected from 376 participants in 115 small and medium firms in China.

Findings – The results show the positive and significant impacts of TL and aspects of employee trust in leadership on OCC. It indicated that disclosure-based trust in leadership has a greater influence on change capability in comparison with the effect of reliance-based trust in leadership. Especially, the findings have shown the evidence supporting the mediating mechanism of aspects of employee trust in leadership between TL and OCC.

Research limitations/implications – This study provides the practical initiatives that highlight the importance of applying TL style to build and improve the trust of employees in their leadership for fostering OCC.

Originality/value – The paper has significantly advanced and deepened insight of how transformational leaders nurture employee's specific shades of trust in leadership for fostering OCC. The valuable findings of this study contribute to enriching the theoretical basis of organizational behavior and change management, and can be used to analyze and explain the relationships between TL, employee's trust in leadership and organizational capability for change.

Keywords Transformational leadership, Organizational change capability, Employee trust, Disclosure-based trust, Reliance-based trust

Paper type Research paper

1. Introduction

Today's business environment is changing rapidly and becoming very difficult to predict (Lei *et al.*, 2019). Change occurs everywhere with increasing speed and complexity that has put

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tremendous pressure on scholars and practitioners to effectively manage change and sustain competitive advantage for firms (Ramezan *et al.*, 2013; Al-Haddad and Kotnour, 2015). Despite spending a lot of time and effort on discovering different approaches or methods, organizations still face many challenges to change with high failure rate of their change initiatives (Al-Haddad and Kotnour, 2015). Leadership serves as a key agent for change and innovation in organizations because they are mainly responsible for bringing the necessary changes by creating a vision, identifying the need for change and implementing the change itself (Gilley *et al.*, 2009; Tayal *et al.*, 2018). However, they sometimes fail for poor change management and lack of change leadership practices (Judge, 2011; Lei *et al.*, 2019). On such situations, this study endeavors to find a suitable leadership style for fostering organizational change capability (OCC).

Transformational leadership (TL) has emerged as one of the most effective leadership styles contributing to positive and key outcomes for most organizations in the context of rapid change of business environment (Tayal *et al.*, 2018; Pasamar *et al.*, 2019; Son *et al.*, 2020). Transformational leaders inspire their followers to follow the change strategy and motivate them to achieve the change goals beyond expectations through their positive impacts on employee trust in them (Yasir *et al.*, 2016; Lei *et al.*, 2019; Islam *et al.*, 2021). This is very important to improve organizational capability for change because the major changes considerably depend on the employees' competencies, trust and skills developed to match the demands of changes and innovation (Tayal *et al.*, 2018; Berraies and Zine El Abidine, 2019). So, this study focuses on investigating the influences of TL on OCC via mediating role of employee trust in leadership. This study is expected to significantly expand the theory of leadership and change management by many motives.

First, leadership–change relationship is one of the most contentious issues of organizational life with much discussion and argument over what constitutes leadership style that can support change (Burnes and By, 2012). Although TL is recognized as one of the most crucial leadership styles in shaping followers' responses to change and improve organizational capability for change, literature on the correlation between TL and change capability is not properly concerned (Tayal *et al.*, 2018; Lei *et al.*, 2019). Accordingly, investigating the TL–change capability relationship is very necessary to identify and apply an appropriate leadership style for managing change and sustaining success of firms.

Second, change can be explained as the series of events happening in the organization that requires the support and consensus of employees toward change efforts (Yasir *et al.*, 2016; Tayal *et al.*, 2018). The ability to maximize the participation and innovative potential of employees is the main drive for firms to improve OCC (Tayal *et al.*, 2018). According to Lei *et al.* (2019), organizations can only follow and implement change initiatives successfully if their leaders get the involvement of employees through fostering their trust in leadership. However, it is still a scarcity of research on how TL affects specific aspects of employee trust for building and enhancing the change capability of organizations (Yasir *et al.*, 2016; Lei *et al.*, 2019). Thus, to increase the understanding of the different ways by which transformational leaders can arouse the diverse aspects of employee trust for improving change capability, this study seeks to explain and clarify the influence of TL on employee trust in leadership in two new aspects namely disclosure-based trust and reliance-based trust.

Finally, employee trust in leadership plays a critical role in change efforts due to the risks and uncertainties inherent in the process of pursuing new ideas and change plans (Lei *et al.*, 2019). It is the main mechanism to enhance the process of exchanging information, power and relationship between leaders and employees for changes (Shazi *et al.*, 2015; Yasir *et al.*, 2016; Bligh, 2017). Previous studies supported the significant relationship between TL and employee trust (Yasir *et al.*, 2016; Le and Lei, 2018) as well as the positive influence of employee trust in leaders on OCC (e.g. Soparnot, 2011; Yasir *et al.*, 2016; Lei *et al.*, 2019). Although employee trust always occupies a central role in the leader–employee relationship

for pursuing changes and innovation, there has been a scarcity of research on how TL connects with aspects of employee trust in leadership for improving organizational capability for change (Yasir *et al.*, 2016; Lei *et al.*, 2019). As a result, it requires further theoretical basis and practical evidence to clarify the relationship between TL and OCC via mediating mechanism of aspects of employee trust in leadership.

To bridge the above theoretical gaps, this study applied the conceptual framework drawn on the literature in TL (Bass, 1985), organizational trust, organizational behavior theory (Lee *et al.*, 2010) and change management theory (Gilley *et al.*, 2009; Heckmann *et al.*, 2016) to develop a proposal hypotheses and address following research questions (RQ).

RQ1. Does TL have significant influences on OCC?

RQ2. How different are TL's influences on aspects of trust in leadership?

RQ3. Do aspects of trust in leaders mediate the relationship between TL and OCC?

To answer the above questions, structural equation modeling (SEM) is applied to investigate the degree of influences of potential factors such as TL and employee trust on OCC based on a survey of 376 participants from 115 small and medium firms in China. This study expected to provide directors/managers the valuable understanding and guidance of how to practice leadership for improving the trust of employees and promoting organizational capacity for change.

2. Literature review and hypotheses

2.1 Transformational leadership and organizational change capability

OCC is defined as a combination of managerial and organizational capabilities that allows an organization to adapt more quickly and effectively than its competitors to changing situations (Judge and Douglas, 2009; Bojesson and Fundin, 2021). According to Soparnot (2011), OCC is the organization's ability to produce and implement successfully change solutions or methods aimed at responding effectively to environmental and organizational evolution. Heckmann *et al.* (2016) emphasized that OCC is a dynamic capability and a key factor for all forms of organizations at some point of time. Change capability not only enables firms to frequently reconfigure and adapt old capabilities to changing situations but also creates new ones to cope with new appearing threats and opportunities (Heckmann *et al.*, 2016; Lei *et al.*, 2019). Based on above arguments, this study considered organizational capability for change as a holistic competence of an organization to recognize internal aspects needed to be changed, to realize new opportunities to be seized and to respond effectively to changing situations for organizational development.

TL has been widely acknowledged as a popular concept in management literature that characterizes leaders who emphasize clarity in their communications about organizational goals, act as the organization's leading force, engage in active coaching, promote new skill development among their followers and continuously seek new opportunities for their organization development (Riggio and Bass, 2006; Son *et al.*, 2020). Transformational leaders consider employees as a valuable resource in the firm and emphasize the important role of emotions, values and leadership oriented to encouraging positive and creative behaviors (García Morales *et al.*, 2008). According to Bass (1985), transformational leaders could motivate and inspire employees to execute beyond expectations and help them reach their full potential for an organization. The theory of TL has attracted great attention from scholars and become one of the most dominant leadership theories (Mhatre and Riggio, 2014; Le and Lei, 2019; Singh *et al.*, 2020). So, exploring influences of TL on OCC plays a crucial role in finding an effective way to promote organizational capacity for change.

TL is evaluated as one of the most important components for the successful transformation of organizations and OCC (Judge, 2011; Lei *et al.*, 2019). By considering employees as a valuable resource, caring for developing emotional and ethical links with employees, and inspiring employees to higher values (Le and Lei, 2018; Lei *et al.*, 2021), transformational leaders can effectively address the human side of change and overcome human resistance to change for achieving organizational change success. Many previous studies indicated that transformational leaders play a central role in both process of change initialization and implementation (Lutz Allen *et al.*, 2013; Busari *et al.*, 2019; Lei *et al.*, 2019; Islam *et al.*, 2021; Peng *et al.*, 2021). Indeed, according to Lutz Allen *et al.* (2013), applying TL behaviors into practice is very necessary for managers and directors to successfully manage and implement organizational change. Yasir *et al.* (2016) asserted that TL can be the most pertinent leadership style for effectively managing the change process. Their empirical findings verified TL's positive and significant impacts on OCC. Busari *et al.* (2019) stressed that transformational leaders act as change agents by stimulating and transforming employees' motives, beliefs and attitudes from a lower to a high level of arousal. Their findings showed that organizations experiencing more frequent changes would be more successful when managed by transformational leaders. Lei *et al.* (2019) asserted that transformational leaders enable to provide a positive vision and actualize necessary changes for organization due to paying much attention to promoting a climate of collaboration among individuals, fostering emotions and trustworthy culture, and constantly seeking favorable time and chance for changes. Highlighting TL as a key agent for changes, Bayraktar and Jiménez (2020) indicated positive impacts of transformational leaders on commitment to and intention to support organizational change. Recently, a study by Islam *et al.* (2021) argued that TL is the most effective and influential leadership style for managing and bringing necessary changes in the organizations. Their finding revealed that TL significantly enhance employee engagement during organizational change. In the similar vein, Peng *et al.*'s (2021) study found that TL is positively associated with change capability of organization by fostering the commitment to change, openness to change and readiness for change of employees.

Above arguments provide supports for the significant effect of TL on OCC. Accordingly, we propose the following hypothesis.

H1. Transformational leadership is associated with organizational change capability.

2.2 Transformational leadership and employee trust in leadership

Trust manifests the degree of confidence that one individual has in another's competence and his/her willingness to act in a fair, ethical and predictable manner (Nyhan, 2000; Flavian *et al.*, 2019). The study by Joseph and Winston (2005) showed that there are many types of trust, such as interpersonal trust, inter-organizational trust, trust in leadership, political trust, societal trust, peer trust in the workplace and organizational trust. Our study is particularly interested in exploring aspects of trust in leaders because it is the result of successful leadership practices. Successful leaders build and maintain employees' trust based on employee' perceptions of the leader's character and behavior (Le and Lei, 2018).

Schoorman *et al.* (2007) stated that trust in leaders is the employees' willingness to accept vulnerability on the basis of positive expectations of the leader's intentions. Trust was separated into reliance-based trust and disclosure-based trust (Gillespie, 2003; Le and Lei, 2018). Reliance-based trust is defined as the individual's willingness to rely on work-related skills, abilities and knowledge of another; and disclosure-based trust is defined as the individual's willingness to disclose work-related sensitive aspects or personal opinions and information to another (Le and Lei, 2018). Our study uses two of these concepts to measure trust in leaders because they reduce the vulnerability and risk that is inherent to trust, and was specifically designed to measure the decision to trust in leadership (Dietz and Den Hartog, 2006; Le and Lei, 2018).

Many previous researches support for the relation between TL and trust in leadership. Harms and Credé (2010) supposed that transformational leaders are good mentors who foster emotions and trustworthy culture. Holtz and Harold (2008) showed that if employees have awareness of TL behavior in their leaders, they will have a higher degree of trust in their leadership. In particular notes, the work of Lee *et al.* (2010) revealed that leaders have very significant impacts on both aspects of employees' trust in them (disclosure-based trust and reliance-based trust). Dirks and Ferrin (2002) described a strong and positive relationship between TL and trust in the leaders. According to MacKenzie *et al.* (2001), TL practice, based on individualizing support and fostering acceptance of common goals, will have positive relation with trust in the leadership. Recently, Le and Lei (2018) supposed that transformational leaders are positively associated with employee trust in leadership by treating fairly, exhibiting support, concern and respect for their contributions. Their findings showed TL's positive influences on employee trust in leadership.

In general, the above arguments provide supports for significant influences of TL on trust in leaders. However, excluding the study of Lee *et al.* (2010) and Lei *et al.* (2019), there has been a shortage of research on how leadership links with aspects of trust in leaders, limiting our understanding of the different ways leaders may establish employee trust in them (Lee *et al.*, 2010). As this study aims to provide further understanding of how TL may influence two specific forms of employee trust in leaders, we propose the following hypothesis:

H2a.b. Transformational leadership has a positive impact on disclosure-based trust and reliance-based trust of employees in leadership.

2.3 Employee trust in leadership and organizational change capability

The relationship between trust and OCC has not had much attention from literature; however, some authors explained this relation. For example, Judge (2011) and Soparnot (2011) indicated that OCC requires employee trust in their organization and leadership. Dirks and Ferrin's (2002) meta-analysis proposed that trust in the leaders is positively related to information exchange. It is very beneficial for leaders to make the change efforts. Therefore, change efforts are restrained, if employees' trust in their leaders is insufficient. According to Lei *et al.* (2019), the effectiveness of an organization's capacity for change is closely related to the degree of employees' trust with their colleagues and leaders within an organizational workplace. Similarly, if employees have high level of trust in their leadership and organization, they will have greater commitment and efforts to follow and successfully implement the change for organizational development (Judge, 2011). Smollan (2013) suggested that leaders who are able to gain the employee trust by proving ability and integrity will also obtain employees' commitment to a change. Yasir *et al.* (2016) asserted that in case of having high trust in leadership, employees will actively to follow the changes originated by their leaders. Their empirical work showed a significant impact of employee trust in leadership on firm's change capability. Men *et al.* (2020) considered trust in leadership as one of the major antecedents of employees' change-related attitudes and behaviors. Their finding showed positively influences of employee trust on their behavior for change.

In summary, above arguments provide supports for positive effects of employee trust in leaders on OCC. Hence, following hypothesis is posed:

H3a.b. Disclosure-based trust and reliance-based trust in leaders have positive impacts on organizational change capability.

2.4 Mediating role of employee trust in leadership between TL and organizational change capability

The above arguments support the mediating role of employee trust in leadership by showing that TL induces significant impacts on employee trust in leadership which in turn creates

positive effects on change capability. Especially, according to Yasir *et al.* (2016), stemming from the transformational leaders' interest in establishing and building respect, pride and confidence from employees, they will nurture and have a high trust of employee. This is the key foundation made employees willing and dedicated to bring about successful change with greater commitment. Lei *et al.* (2019) justified that practicing TL style will help managers build up a collaborative climate that is appropriate and beneficial for enhancing the trust of employee in leadership, thereby making it easier for the organization to successfully pursue and implement changes. Recently, by investigating the TL's role in stimulating employee engagement during organizational change, the findings of Islam *et al.* (2021) revealed that TL directly and indirectly affects employee engagement during organizational change via the mediating roles of both valence and trust in leadership. Hence, it is rational to propose that TL positively influences employee trust in leadership, which in turn affects change capability of organization. More specifically, the degree of employee trust may differ during organizational change and TL can increase the level of employee trust to enhance organizational capability in the context of change. Accordingly, this study proposes the following hypothesis (see Figure 1):

H4a.b. Disclosure-based trust and reliance-based trust in leaders mediate between TL and organizational change capability.

3. Research methodology

3.1 Sample and data collection

In summer 2019, empirical data were collected through a survey of 115 small and medium firms in Hunan, Beijing and Guangdong in China. We communicated with representatives of these firms by phone and/or making personal visits to explain the purpose of the research and ask for their assistance in collecting the questionnaires. We also clearly show the purpose and significance of the research in the questionnaires, and commit to information security for respondents. To meet research needs, the respondents in this study are deputy directors, head of department, team leader and staffs mainly at departments of administration, operation, accounting, planning, and research and development to ensure the necessary understanding of the firm as well as taking part frequently in exchanging and processing the important information of the operating environment of the organization. The measurement items are adapted from exiting scales in the literature for developing an initial list of items. The paper

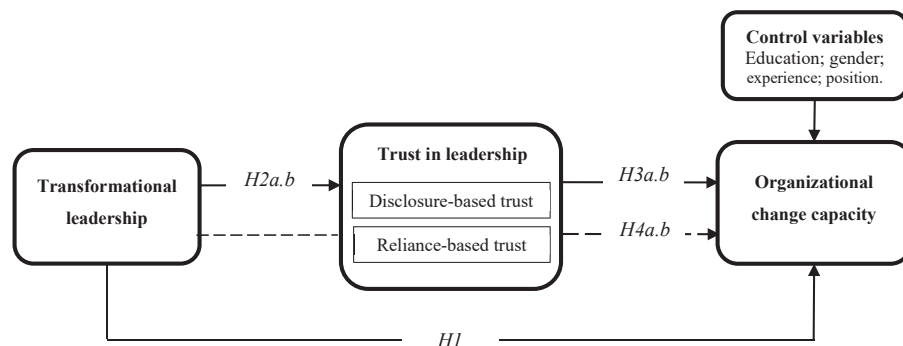


Figure 1.
Proposal
research model

Note(s): ---- Indirect effect

employed backward translation to confirm the consistency between the English questionnaire and Chinese questionnaire. We carry out pilot tested by means of in-depth interviews with five outstanding academic scholars who have deep knowledge in knowledge management at three universities and 45 participants from five firms to determine the efficiency of the questionnaire before the process of formal data collection. This study issues 700 questionnaires and receives 512 copies in the formal data collection, among which 376 ones were valid, with a 53.7% validity rate. The valid questionnaires are chosen after the process of survey data cleaning by identifying and removing responses from respondents who either do not match our target criteria or did not answer the survey form thoughtfully. Potential non-response bias was assessed by following the method proposed by Armstrong and Overton (1977). Chi-square and independent sample *t*-test were used to compare the earlier 80 respondents and the last 80 ones based on demographic variables, including gender, age and level of education. The results demonstrated that there were no significant differences between the two groups of responses ($p > 0.05$). Therefore, it showed that common method bias was not a concern. A total of 376 respondents 233 (62.0%) were male and 143 (38.0%) were female. They answered the questions relating to the variables in the proposal research model like TL, disclosure-based trust and reliance-based trust in leaders and OCC.

3.2 Variable measurement

All measures used in this study were tested and validated in previous research (see Table 1). We measured all items via five-point Likert-type scales ranging from “1” (strongly disagree) to “5” (strongly agree). In other words, the participants will indicate their degree of agreement or disagreement that fits the situation in their firms best.

3.3 Data analysis methods and multicollinearity

The SEM method has been widely use due to its ability to demonstrate versatile regression correlations on a single model and test (Kline, 2015). So this study used SEM to test proposal hypotheses in the research model. In addition, to ensure multicollinearity does not result in spurious findings during regression analysis, we have calculated the variance inflation factor (VIF). The VIF is found to be less than 3 for all the independent variables, so potential multicollinearity-related issues were not a concern.

4. Analysis results

4.1 Measurement model

We first tested the reliability of the measures for the constructs by examining the individual Cronbach’s alpha coefficients (α), with the result’s statistics ranging from 0.92 to 0.98, which were all higher than the recommended level of 0.7 (Nunnally and Bernstein, 1994). We then

Construct	Items	Source
TL	Eight items (reflecting the participants’ perceptions of their leader about TL style)	Dai <i>et al.</i> (2013) https://doi.org/10.1108/IJCHM-Dec-2011-0223
Disclosure-based trust in leadership	Five items (reflecting employees’ willingness in disclosing work-related sensitive aspects and personal opinions to their leaders)	Gillespie (2003) https://doi.org/10.1108/00483480610682299
Reliance-based trust in leadership	Five items (reflecting employees’ willingness to rely on work-related skills, abilities and knowledge of their leaders)	Gillespie (2003) https://doi.org/10.1108/00483480610682299
OCC	32 items (reflecting capability of an organization for change)	Judge and Douglas (2009) https://doi.org/10.1108/09534810910997041

Table 1.
Observed variables of
latent factors in the
research model

performed confirmatory factor analysis (CFA) evaluating the overall measurement model to assess the convergent and discriminant validity. Table 2 shows the means, standard deviation (SD), factor loading, AVE, CR and $C\alpha$ of every construct.

To evaluate the convergent validity following the recommendation of Hair *et al.* (2006), we adopted three primary measures. First, the factor loadings of the indicators must be statistically significant with values greater than 0.6. Second, the values of composite reliability (CR) need to be greater than 0.7. And third, values of average variance extracted (AVE) need to be greater than 0.5.

As shown in Table 2, all factor loadings range from 0.70 to 0.95 (all larger than 0.6) being statistically significant at the 0.001 level. CR values (ranging from 0.84 to 0.98) are higher than 0.7. And the AVE values range from 0.66 to 0.76 (all greater than 0.5). Overall, all the measures exhibited adequate convergent validity.

Discriminant validity is the degree to which, factors that are supposed to measure a specific construct do not predict conceptually unrelated criteria (Fornell and Larcker, 1981). This study used Fornell and Larcker's (1981) measure of AVE to assess the discriminant validity. In this approach, the discriminant validity of the research instrument was assessed by comparing the square root of the AVE with the correlations among the latent variables (see Table 3).

Table 3 shows that the square root of AVE for each construct (diagonal elements in bold) is greater than the correlations among constructs in the model. In general, the results provide strong support for the construct reliability, as well as for the convergent and discriminant validity of the scales.

Table 4 shows the measure model fit. As shown in Table 4, all fit indices met satisfactory levels. Hence we can conclude that, the model fits the data and can explain the proposal research hypotheses.

Construct	Mean	SD	Item	Loading	AVE	CR	$C\alpha$
TL	3.38	0.58	TL1	0.86***	0.76	0.96	0.96
			TL2	0.87***			
			TL3	0.88***			
			TL4	0.86***			
			TL5	0.87***			
			TL6	0.88***			
			TL7	0.86***			
			TL8	0.86***			
Disclosure-based trust in leadership (LD)	3.62	0.56	LD1	0.79***	0.73	0.93	0.93
			LD2	0.95***			
			LD3	0.94***			
			LD4	0.70***			
			LD5	0.85***			
Reliance-based trust in leadership (LR)	3.50	0.57	LR1	0.89***	0.70	0.92	0.93
			LR2	0.83***			
			LR3	0.72***			
			LR4	0.92***			
			LR5	0.81***			
OCC	3.75	0.50	OCC1	0.80***	0.66	0.98	0.99
			OCC2	0.77***			
			OCC3	0.77***			
					
			OCC32	0.86***			

Table 2.
Standardize loading
and reliabilities for
measurement model

Note(s): $C\alpha \geq 0.7$; composite reliability ≥ 0.7 ; average variances extracted ≥ 0.5 ; *** $p < 0.001$

Constructs	Mean	SD	TL	LD	LR	OCC	Education	Gender	Experience	Position
TL	3.38	0.58	<i>0.87</i>							
LD	3.62	0.56	0.43***	<i>0.85</i>						
LR	3.50	0.57	0.42***	0.53***	<i>0.83</i>					
OCC	3.75	0.50	0.53***	0.64***	0.53***	<i>0.81</i>				
Education	2.36	0.97	0.46***	0.45***	0.47***	0.51***	<i>1</i>			
Gender	1.38	0.48	0.00	0.00	-0.03	0.01	0.05	<i>1</i>		
Experience	2.13	0.58	0.43***	0.40***	0.35***	0.34***	0.40***	0.06	<i>1</i>	
Position	3.75	0.50	0.28***	0.24***	0.18***	0.45***	0.17***	0.07	0.26***	<i>1</i>

Note(s): *** $p < 0.001$; Diagonal elements (in italics) are the square root of the AVE

Table 3.
Correlations and
average variances
extracted from
constructs

4.2 Structural model

According to Kline (2015), the SEM method is widely used due to its ability to demonstrate versatile regression correlations on a single model and test. It is also appropriate and practical to investigate interaction and mediation effects (e.g. Le and Lei, 2019). So, this study used SEM with maximum likelihood estimation procedures to test the proposal hypotheses. This section presents the main result of the hypothesis testing of the structural relationship among the latent variables (Tables 5, 6 and Figure 2).

Table 4.
Overall fit index of the CFA model

Fit index	Scores	Recommended threshold value
Absolute fit measures		
CMIN/df	1.818	$\leq 2^a$; $\leq 5^b$
GFI	0.813	$\geq 0.90^a$; $\geq 0.80^b$
RMSEA	0.047	$\leq 0.08^a$; $\leq 0.10^b$
Incremental fit measures		
NFI	0.900	$\geq 0.90^a$
AGFI	0.801	$\geq 0.90^a$; $\geq 0.80^b$
CFI	0.952	$\geq 0.90^a$

Note(s): a, Acceptability: acceptable; b, Acceptability: marginal

Table 5.
Structural model results

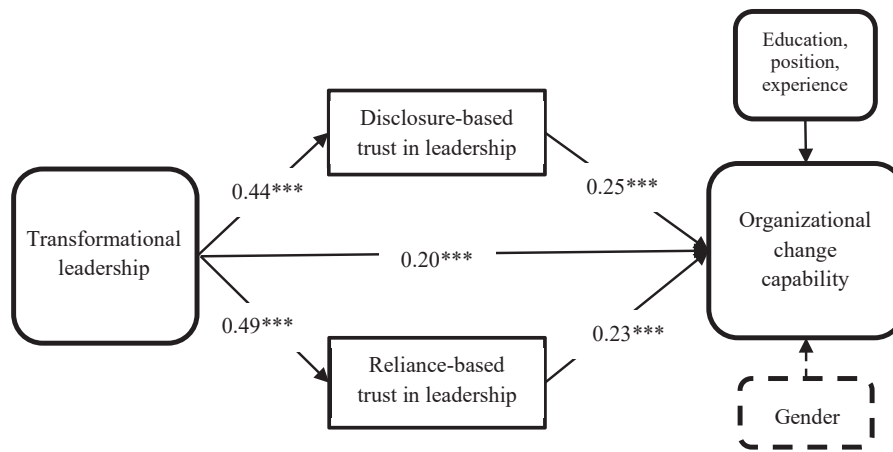
Hypotheses	Proposal effect	Estimate	<i>p</i>	Results
H1. TL → OCC	+	0.207***	<0.001	Supported
H2a. TL → LD	+	0.445***	<0.001	Supported
H2b. TL → LR	+	0.492***	<0.001	Supported
H3a. LD → OCC	+	0.253***	<0.001	Supported
H3b. LR → OCC	+	0.230***	<0.001	Supported
Control variables				
Education → OCC	+	0.114***	<0.001	Supported
Gender → OCC	-	-0.005	0.899	Not supported
Experience → OCC	+	0.059**	0.003	Supported
Position → OCC	+	0.065***	<0.001	Supported

Note(s): ***significant at the 0.001 level; **significant at the 0.05 level

Table 6.
Direct, indirect and total effects analysis

Predictor/dependent	LD	LR	OCC
Direct effects			
TL	0.445***	0.492***	0.207***
Disclosure-based trust in leadership (LD)			0.253***
Reliance-based trust in leadership (LR)			0.230***
Indirect effects			
TL			0.225***
Total effects			
TL			0.432***

Note(s): ***significant at the 0.001 level



Note(s): *** $p < 0.001$ ----- Non-significant paths

Figure 2. Path coefficients of the structural model

4.2.1 Direct effect analysis. The results in Table 5 show that all the direct relationship between the latent factors are quite large and statistically significant. Therefore, all the hypotheses are supported, specifically.

For hypothesis H1, the results support for positive and significant impacts of TL on OCC with $\beta = 0.207$ ($p < 0.001$).

For hypothesis H2a,b, the results demonstrated that TL's influences on reliance-based trust in leadership ($\beta = 0.492$; $p < 0.001$) is larger than its influence on disclosure-based trust in leadership ($\beta = 0.445$; $p < 0.001$).

For hypothesis H3a,b, the results show that disclosure-based trust in leaders has greater impacts on OCC ($\beta = 0.253$; $p < 0.001$) in comparison with influences of reliance-based trust in leaders on OCC ($\beta = 0.230$; $p < 0.001$).

The results of the hypotheses tests were obtained after assessing the control role of education, gender, working position and working experience of individuals. The results in Table 5 and Figure 2 confirm the control role of these variables, excluding gender because its effect on OCC is not statistically significant.

4.2.2 Indirect and total effect analysis. This study does not just give evidence about the influence of TL on OCC, it also shows how this mechanism is activated through disclosure-based trust and reliance-based trust in leaders; the direct and indirect effects, as well as total effects, are computed and listed in Table 6. As to the indirect effects, Table 6 first confirms the mediating role of disclosure-based trust and reliance-based trust in leaders in the relationships between TL and OCC.

Finally, Table 6 showed that, total effects of TL on OCC are very impressive with $\beta = 0.432$ ($p < 0.001$). It is due to TL's indirect effect on OCC is very significant with $\beta = 0.225$ ($p < 0.001$). The finding indicates that employees' trust in leaders mediate the relationship between TL and OCC.

5. Discussions and implications

Today, in the twenty-first century, change and the way to adapt quickly and effectively toward change situations have become a critical issue in the leaders' minds (Ramezan *et al.*,

2013; Le and Lei, 2019). Leaders and their organization are spending tens of millions dollars on change and innovation effort such as information technology installations and technological changes, but it seems ineffective (Ramezan *et al.*, 2013; Lei *et al.*, 2021). Primary reasons explain for these failures is that, leaders have not yet recognized the main motivation for improving change capability. The success of implementing organizational change initiatives mainly depends on extent of beliefs and attitudes of employees toward change as well as behaviors of change leaders themselves (Gill, 2002; Judge, 2011; Lei *et al.*, 2019). In this context, the hypotheses that were developed in this paper make important contributions to both practical and theoretical initiatives on change management as follows.

5.1 Theoretical contributions

First, the article highlighted the importance of enhancing organizational capability for change by showing that as a dynamic competence, change capability can help firms effectively exploit organizational knowledge resources, rapidly response to change situations and achieve better outcomes than key competitors (Gonzalez and Melo, 2019; Pereira *et al.*, 2019; Bojesson and Fundin, 2021; Gonzalez, 2021). In particular, by investigating the TL–OCC relationship, this study contributes to increasing the understanding of the relationship between TL and OCC and confirms the important role of TL in relations with OCC. The empirical findings verify that TL’s influences on OCC are very significant. The basic reason may be due to TL is one of the most effective leadership styles for leaders to improve organizational capability for change and innovation (Lei *et al.*, 2019; Le and Lei, 2019). The finding reveals that, positive characteristics of transformational leaders (such as paying much attention to communicate about organizational goals, acting as the organization’s leading force, caring and understanding employees’ situations, encouraging employees to think about problems from a new perspective and giving them timely encouragement and assistance) seem to have significant influences on OCC. These characteristics enable transformational leaders to (1) create employees’ positive affective responses to change by communicating and bringing a clear vision and optimism about change, (2) inspire employees to overcome human resistance to change by acting as the organization’s leading force for change and (3) increase employees’ trust, ability and willingness to perform changes by giving them timely encouragement, attention and assistance.

Second, by investigating the influences of TL on two aspects of employee trust in leadership and OCC, the article makes considerable contribution to increase the knowledge of employee trust and change literature. As disclosure-based trust and reliance-based trust in leadership reflect two different degrees of employee trust in leadership. Specifically, disclosure-based trust fosters the willingness of employees to disclose sensitive and important issues/information to the leaders. Reliance-based trust encourages employees to follow and rely upon ability/competence of the leaders for their actions. Two these aspects of trust are specifically suitable to measure the difference of individuals’ trust in leadership (Dietz and Den Hartog, 2006; Le and Lei, 2018). The full understanding of individual’s different aspects of trust toward leaders will create favourable and effective conditions to improve OCC as well as process of change implementation. The empirical results show that TL has strong impacts on two kinds of trust in leaders, which in turn have positive and significant influences on OCC. The finding implicates that, “willing to disclose sensitive and important issues to the leaders” enables transformational leaders to make right decisions which is useful and beneficial for OCC; while “willing to rely upon ability/competence of the leaders” enables transformational leaders execute change effectively because their followers will readily implement plans of change for belief of success. From these findings, the paper implies that directors/managers need to increase awareness and practice TL style to build employee trust in them for the goal of improving their OCC.

Third, several previous studies (e.g. Yasir *et al.*, 2016; Lei *et al.*, 2019) although examined the effect of TL on OCC through the mediating role of employee trust in leadership, the results of these studies still have certain limitations. Specifically, Yasir *et al.*'s (2016) study were only conducted on a research sample from non-profit organizations and did not reflect the different mediating influences of mediators originated from specific aspects of employee trust in leadership. Meanwhile, Lei *et al.* (2019) only studied the intermediary role of employee trust between TL and two components of OCC namely innovative culture and capable champions, so it does not accurately and fully reflect the influence of independent and intermediate factors on the overall change capability of organizations. By investigating the mediating roles of disclosure-based trust and reliance-based trust in leaders between TL and OCC, this study has clarified and provided deeper insight on mediating role of different shades of employee trust in leadership in TL–OCC relationship. The empirical findings have verified the mediating roles of two aspects of trust in leadership, and revealed that TL practices will yield significant effects to OCC directly or indirectly through improving both disclosure-based trust and reliance-based employee trust in leadership.

5.2 Practical contributions

This study has value to directors/managers of Chinese small and medium firms, and serves as a reference for practicing leadership, building employee trust and improving change capability in their firms. Some specific managerial implications are follows.

First, scholars considered TL practice as the best way to build trust among employees and leaders for reducing the vulnerability and risk inherent in interpersonal ties at the workplace (Bligh, 2017; Le and Lei, 2018). Trust in leadership would motivate employees to be proactive, committed and ready to deal effectively with change situations (Islam *et al.*, 2021; Peng *et al.*, 2021). Consequently, the paper has provided directors/managers a significant implication, practical guidance and clear pathway for enhancing organizational capability to change. In other words, to create a positive climate that significantly fosters firms' change capability, managers need to focus on practicing TL style and developing both disclosure-based trust and reliance-based trust from employees by developing leadership qualities and personal competencies emphasized integrity, honesty and fairness in behavior and decisions, and constantly improving the leadership–employee relationship on the basis of sharing and empathy (Bligh, 2017; Islam *et al.*, 2021).

Second, by examining the influences of control variables, the finding reveals that education level, working experience and working position have considerable impacts on OCC. Based on these findings, some practical implications are proposed as follows. First, leaders should make efforts to improve organizational capacity for change by paying attention to strengthen activities of training and retraining. Second, focus attention on point of views and ideas from individuals who have a lot of experience. And finally, plans and perceptions of change need to be rooted in high levels of management apparatus and key leaders.

Finally, China is considered an emerging market with the economic growth rate relatively high and stable in recent years. However, Chinese small and medium firms are still facing with many difficulties and quite sensitive to changes in technology and innovation (Mei *et al.*, 2019; Yao *et al.*, 2020). The majority of small and medium firms are lack of capital, resources and R&D capabilities to innovate and change (Lei *et al.*, 2019; Yao *et al.*, 2020). Thus, improving organizational capacity for change and innovation by huge investments in technological innovation is not feasible. The findings of this paper imply that focusing on TL practice to promote employees' trust and intrinsic motivation for change is an optimal choice for small and medium firms in China.

5.3 Limitations and directions for future research

This study has some limitations. First, using cross-sectional design to investigate the correlation among the constructs in the research model may appear ability that causal relationships may change in the long term because employee trust in leaders might change according to the context and time (Smollan, 2013). A longitudinal study would overcome this limitation and consolidate the results. Second, two specific aspects of trust in leaders are found to have significant impacts on OCC. So, it is necessary to conduct further research studies in future aimed to explore more deeply the relationship between two aspects of trust in leaders and specific aspects of OCC. Finally, TL is considered as the crucial determinant of many organizational outcomes such as organizational innovation, change management, knowledge management, employee satisfaction, commitment and organizational citizenship behaviors (Lei *et al.*, 2020), future research might advance the theory of organizational behavior as well as maximize the potential and benefits of TL by investigating the mediating roles of aspects of trust in leaders between TL and these key outcomes.

6. Conclusions

In general, the findings of this study differ from previous works by deepening the understanding of antecedents and conditions to improve OCC. This study significantly contributes to advancing theoretical initiatives of leadership and change management by examining the two-path mediating role of employee trust in leadership in the TL–OCC relationship. The findings highlight that TL practices will help CEOs/managers to nurture the disclosure-based trust and reliance-based trust of employees in leaders, thereby contributing to improving change capacity of small and medium firms.

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Organizational culture and innovation: exploring the “black box”

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Abstract

Purpose – This research aimed to conceptualize organizations as open and purposeful systems to study how organizational culture (OC) influences firms' Innovative Performance (IP). The authors proposed goal setting and internal integration/external adaptation paradox as central to explaining OC's mediating and suppressing effects on IP.

Design/methodology/approach – The authors collected data from 372 Costa Rican organizations and analyzed them with structural equations. This research used the Denison Model instead of the usual typology-based approaches.

Findings – The mission had a direct and high impact on IP. The mediated effect via adaptability was also elevated, as well as the suppressor effect through consistency. There was no effect on IP of involvement. According to these results, the Open and Rational Systems Framework emerge as the main theoretical explanatory concepts.

Originality/value – Disaggregating the OC through a performance-oriented dimensional model makes it possible to study the dynamics between the elements that compound it and facilitate integrating these findings with other research streams.

Keywords Organizational culture, Innovation, Denison organizational cultural model, DOCS

Paper type Research paper

1. Introduction

Competition and globalization make innovation essential for an organization's survival (Mendoza-Silva, 2021; Murswieck, 2021; Tian *et al.*, 2021). Furthermore, the market's insertion

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into global value chains depends on the firm's competitiveness and Innovation (Mendoza-Silva, 2020). It is also essential for countries' development (Zeb *et al.*, 2021).

Organizational culture (OC) is an vital antecedent of innovation (Dani and Gandhi, 2021; Garza and López, 2020; McCausland and McCausland, 2022; Mendoza-Silva, 2021, Xu *et al.*, 2021). Schein's most widely accepted definition characterizes it as a shared pattern of beliefs, values, assumptions and norms learned by groups, allowing them to solve internal integration and external adaptation (Chatman and Choi, 2022).

Innovation can be considered a dynamic capability (DC) as long as it enables firms to integrate, build and reconfigure internal and external competencies to address rapidly changing environments (Parashar and Singh, 2005; Wang and Ahmed, 2005). Following the above and along the lines of the organizational development process perspective (Montreuil *et al.*, 2021) and the Oslo manual (OCDE, 2005), we defined innovation as the firm capability to adopt new or substantially improved products and services, manufacturing processes, work organization and marketing methods. Consequently, we measured Innovation from its outputs; therefore, we call it Innovative Performance (IP).

Empirical research identifies various OC types that influence IP. Adhocratic (external orientation, flexibility, risk-taking) and Clan cultures (internal cohesion, people development, high morale, long-term orientation) boost IP (Büschgens *et al.*, 2013; Mendoza-Silva, 2020; Montreuil *et al.*, 2021; Neiva *et al.*, 2017; Tian *et al.*, 2021). Nevertheless, it is not well-established that Clan culture could harm IP because it promotes a homogeneous, comfortable and stable environment (Tian *et al.*, 2021). On the other hand, hierarchical culture (internal control) erodes IP (Büschgens *et al.*, 2013; Montreuil *et al.*, 2021).

Researchers describe a broad scope of innovative culture (IC) characteristics (Garza and López, 2020). To Dani and Gandhi (2021), IC stimulates creativity, autonomy, emotional intelligence, cognitive ability and risk-taking. Montreuil *et al.* (2021) indicated the following characteristics of an IC: creativity, collaboration, a challenging environment, risk-taking, teamwork, decision-making ability, learning, external orientation, and long-term vision. To Mendoza-Silva (2020), IC impulses openness, creativity and market orientation. Garza and López (2020) empirically identified the following highly relevant and prevalent IC characteristics in literature: market orientation, strategy, organizational learning, risk-taking, autonomy, resources and organizational structure.

Two methodological strategies prevail in studying the impact of OC on IP (Neiva *et al.*, 2017), contributing to these gaps. The first explores the impact of universal typologies (dominant archetypical culture (Janićijević, 2011)) on IP. It has the risk of stereotyping OCs and assigning them a moral valence (Jung *et al.*, 2009). These types are antagonistic in some ways (Morente *et al.*, 2018), making it difficult to research how specific archetypes influence others. The second category focuses on IC characteristics making it difficult to differentiate between IC and IP. Indeed, the same IC elements can characterize innovative orientation and innovation (i.e. Dobni, 2010). This approach has been criticized for lack of objectivity, making inputs and outputs too similar (Bladier, 2016), and studying only the fun part of IC (Pisano, 2019).

To overcome the abovementioned problems, we used a universalistic performance-oriented dimensional model in which organizations differ in the same dimensions (Janićijević, 2011). It allows us to assess and compare positive and negative impacts on IP and more complex relations. Furthermore, these models have a more distant content from Innovation than IC. Consequently, this research avoids the problem of the input becoming the output (Bladier, 2016) and studies only the funny part (Pisano, 2019). The use of universalistic dimensional models to study the OC-IP relationship is scarce, and the existing ones only evaluate the aggregate impact of all dimensions (e.g. Botelho, 2020) or

the direct effects on IP of each factor (i.e. Abdullah *et al.*, 2014). Therefore, we intend to respond to the following research questions (RQs).

- RQ1. What is the effect, whether positive or negative, that each dimension of the OC has on the IP?
- RQ2. What is the magnitude of these effects?
- RQ3. What are the most relevant relationships between OC's dimensions in explaining IP?
- RQ4. What is the direction and the magnitude of effect on IP of these relationships among OC's components?
- RQ5. What is the effect of IP on OP in a developing country?

By answering these questions, we hope to contribute to advance in the understanding of the black box of OC's effects on IP.

This study is novel in disaggregating the dimensions of a universalistic model. It allows us to study and compare each component's positive and negative impact on IP and facilitate the integration of results. Also, it permits testing fundamental mediation and suppression relationships between cultural dimensions (based on the open and rational system framework, goal setting theory (GST) and behavioral analysis (BA) [1]) to address the paradox of internal integration/external adaptation highlighted by other approaches (i.e. ambidexterity and hybrid strategies) and central in the OC's definition.

2. Theoretical framework

2.1 *Open systems with purpose*

Organizations are systems because they are more than the sum of their parts (Kast and Rosenzweig, 1972). They are also rational systems because they are collectivities pursuing a purpose and possessing structure (Scott and Davis, 2015). However, rationality does not refer to the purpose; instead, it relates to the attempt to achieve it (Blaschke, 2008). Also, it helps organizations deal with chaos (Hurth, 2017).

Open systems need more energy than they expend (negative entropy (Kast and Rosenzweig, 1972)). Social structures are not self-sufficient and self-contained because they need to interact with the environment; consequently, they are open systems (Katz and Kahn, 1966). They achieved negative entropy in two ways. The first is to increase the amount of incoming energy. The second is to improve internal efficiency, which requires some predictability to facilitate learning, simplification and repetition (Wenzel *et al.*, 2021). Therefore, predictability is essential to develop event routines to deliver products and services (Katz and Kahn, 1966). These cycles are the firm's processes that produce the desired results (Addison *et al.*, 2009). We named this coherence internal integration.

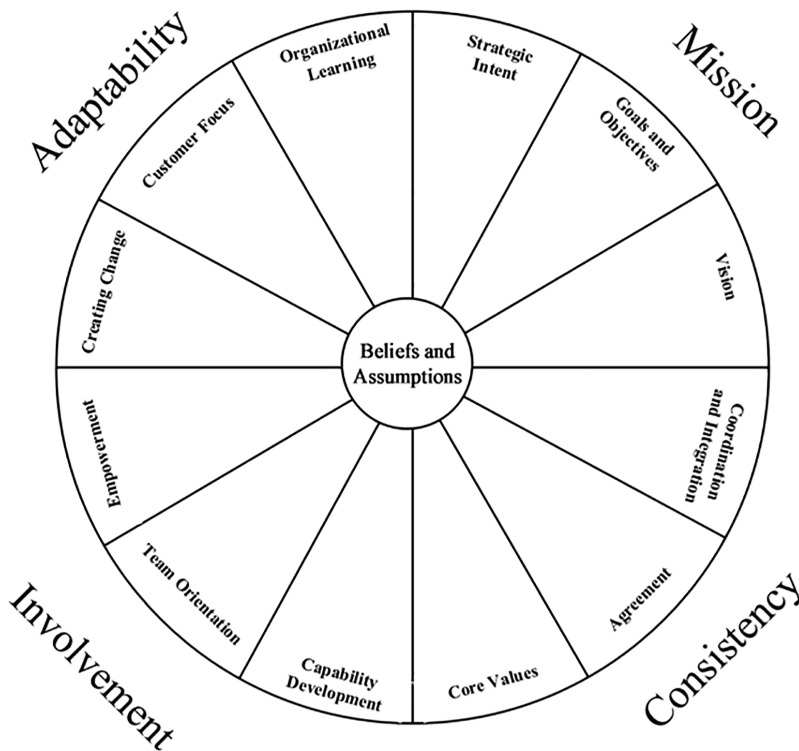
2.2 *The Denison Model*

There is a wide variety of OC models in the literature (Jung *et al.*, 2009), and there is no best approach (Calciolari and Prenestini, 2022). Therefore, an additional element can always be argued (Cameron and Quinn, 2011). Consequently, Calciolari and Prenestini (2022) suggest considering the results' intended use. It refers to our RQs from which four criteria emerge. First, we need a model that provides a profile susceptible to disaggregating without losing measurement quality. Second, organizations face a plurality of demands (i.e. stakeholders, competing strategies and goals); consequently, a performance-oriented model enables us to study OC dimensions promoting an organization's effectiveness, even if they harm innovation. Third, Schein's definition

suggests the necessity of incorporating the firm's internal integration/external adaptation paradox. Fourth, a model that simultaneously includes all dimensions requires solving tensions through synthesis and no thorough choices between poles (Löfstål and Jontoft, 2017).

Janićijević (2011) classifies OC models as idiosyncratic or universalistic. The first type considers each OC unique (Jung *et al.*, 2009). The second includes typological and dimensional approaches (Janićijević, 2011). The typological view defines prototypes (Jung *et al.*, 2009). A commonly used typological performance-oriented model is the OC assessment instrument (OCAI) based on the competing value framework (CVF) widely used to study OC's influence on IP (see Büschgens *et al.*, 2013; Tian *et al.*, 2021). Four OC types emerge from the interaction of two axes (flexibility/stability and internal/external): clan, adhocracy, hierarchy and market. The types are opposing (Cameron and Quinn, 2011), competing or conflicting (Williams, 2022).

There are several dimensional models in the literature, and one of the most well-supported is the Denison Model (Ehrhart *et al.*, 2014), also known as Denison Organizational Culture Survey (DOCS). It has the same axes as CVF and from its interplay emerge four traits: mission, consistency, involvement and adaptability (Denison *et al.*, 2012) (see Figure 1). Each trait contains three indexes with five items each. The DOCS provides a profile, not a type (Tan, 2019).



Source(s): Denison *et al.* (2004)

Figure 1. Denison model

The Mission is the external/stable pole expressing the organization's purpose. Strategic intent, goals and objectives and vision measure it. Consistency represents the internal/stable focus apprehending the organizational capacity to coordinate activities and facilitate consensus. Core Values, Agreement, Coordination, and Integration evaluate it. Involvement is the external/stable focus capturing the worker's collaboration to achieve organizational goals. Empowerment, team orientation and capability development assess it. Adaptability represents the external/flexible pole apprehending the company's capacity to translate the external demands into actions evaluated for creating change, customer focus and organizational learning (see Figure 1) (Denison *et al.*, 2013).

The DOCS is a process-oriented perspective and requires the development of all traits to achieve high performance rather than representing antagonistic types (Tan, 2019). Furthermore, adaptability and consistency allow us to assess the internal/integration and external/adaptation paradox. Similarly, the DOCS include a firm's purpose measure. Likewise, it has a second-level factor structure of three subfactors per trait with five indicators (Denison *et al.*, 2012) that allows disaggregating without losing measurement quality. The above makes DOCS the most appropriate OC measurement methodology for our RQs.

2.3 Paradoxes

Paradoxes refer to related factors that appear rational but generate contradictory and interrelated demands that persist over time (Smith and Lewis, 2011; Wójcik, 2020). Paradoxes are consistent with the DOCS' dynamic tensions as long as successful firms must develop the four traits (Denison *et al.*, 2012). Consequently, two paradoxes of our interest arise from DOCS: internal integration/external adaptation and stability/flexibility.

The literature indicates the relevance of the stability/flexibility paradox. On the one hand, firms do not operate in a vacuum (Hurth, 2017), needing the flexibility to adapt to an uncertain environment in pursuing their mission. On the other hand, systems require integration for their internal functioning (Katz and Kahn, 1966). In addition, according to Schein, OC permits firms to adapt continuously to the environment while facilitating their internal integration, being the integration/external adaptation paradox central in his view (Pfister, 2009). We consider these two paradoxes (stability/flexibility; internal integration/external adaptation) the expression of the same core paradox confronted by organizations as open and rational systems. As Poole and Van De Ven (1989) point out, organizations are a mixture of stability and change.

Consistency/adaptability represents the DOCS core and most challenging paradox since it represents the extreme poles. Indeed, firms that exploit market opportunities may need help with internal integration; on the contrary, highly integrated and controlled companies tend to be difficult to change (Denison *et al.*, 2012). Another paradox arises from mission/involvement. The mission represents top-down communication, while involvement expresses bottom-up communication. Nonetheless, the firm's purpose has cognitive and emotional consequences as long as a well-formulated and communicated mission guides and motivates behavior at all levels (Alegre *et al.*, 2018). A shared purpose forms an identity, guides individual actions, motivates, facilitates cooperation, creates a personal benefit and makes collective interest more salient (Atkins *et al.*, 2019). Therefore, we do not consider the mission/involvement a fundamental paradox.

Scholars stressed the relevance of managing paradoxes. Ambidexterity is the organization's capability to exploit the present resources and simultaneously manage the exploration to secure the future (Kumkale, 2022), and it is associated with superior performance (Kraner, 2018). Likewise, companies capable of deploying hybrid strategies are more successful (Sakavou, 2015). The relevance and difficulty of developing both facets are also represented in DOCS by the concept of dynamic tensions, making this model, in our view, more consistent with the approaches mentioned above than any typological framework. Indeed, the way we frame

competing demands prescribes the response that could lead to either vicious (choosing the one over the other) or virtuous (engaging both, synthesizing) cycles (Wójcik, 2020).

2.4 Innovative Performance

We can define capability as how an organization uses resources and develops activity patterns (Datta *et al.*, 2021). The DCs allow for reconfiguring others' ordinary capabilities (Vu, 2020). Consequently, IP is a DC as long as it promotes the creation, modification and extension of firm resources and capabilities (Breznik and Hisrich, 2014). In this regard, some studies have found that higher innovation capabilities let to better profitability and survivance (Hugel, 2018). Other research also reflects various effects (favorable, adverse and none) (Shouyu, 2017). Indeed, some authors claim that research on innovation has shown mixed results (Hugel, 2018; Rousseau *et al.*, 2016). However, these results may be context-dependent (Block *et al.*, 2017).

3. Hypotheses development [2]

For Schumpeter, OC allows organizations to manage the paradox of continuity and change (Tzeng, 2009), being IP, a kind of profound craftsmanship transmitted from generation to generation. OC is an enduring element with unconscious beliefs (Williams, 2022). These no-conscious elements connect to values to guide workers' appropriate behavior. Values and norms translate into observable behaviors and attitudes (Chatman and Choi, 2022). According to Latham (2003), goal setting manifests needs and values, consequently values are the foundations or antecedents of goals (Latham and Pinder, 2005). Superordinate goals are similar to values (Höchli *et al.*, 2018).

Concerning the first three hypotheses, it is necessary to consider that rational systems have a purpose represented in the DOCS by the mission trait. The goals and objectives index is a mission essential characteristic. According to GST [3], well-defined and challenging goals motivate and guide behavior. By achieving these goals, people strengthen their self-efficacy (Locke and Latham, 2019).

The Mission also includes Vision and Strategy indexes, which are superordinate goals representing the expected future to achieve. They provide meaning and guidance, define what is relevant and promote long-term goal pursuit in many contexts (Höchli *et al.*, 2018).

For BA, the Mission constitutes verbal expressions (called rules) that connect people with the firm's desired future without learning directly through consequences (Houmanfar *et al.*, 2015). They describe how the customers select aggregate products assembled by a broad collection of interlocked behaviors (McGee and Crowley-Koch, 2021), guiding and encouraging people's behavior (Houmanfar *et al.*, 2015). Rules favor adaptation to complex circumstances; indeed, when vagueness exists, people generate their own Rules that, in many cases, are counterproductive (Mattaini and Rose, 2021). Well-formulated rules are extremely useful in shaping human behavior in organizations, even in the long run (for example, the strategy item: This organization has a long-term project and orientation) (Malott, 1993).

Following the above, Schein (2010) indicates that people's assumptions about mission are an OC's fundamental element. Consequently, mission changes trigger transformations in other OC's dimensions (Denison, 2001); therefore, questioning the organization's mission starts a crisis as long as it determines the action course (Denison *et al.*, 2012). Accordingly, we state the followings hypothesis.

H1a. Mission effect on consistency is positive.

H1b. Mission effect on adaptability is positive.

H1c. Mission effect on involvement is positive.

For GST and BA, a well-formulated mission improves operations, customer satisfaction and innovation quality (Losane, 2013) by guiding and encouraging IP-related behavior. Indeed,

Zeraatkar *et al.* (2020) found a positive correlation between mission and creativity because it provides a roadmap for implementing inventive ideas (Denison *et al.*, 2013). Also, Sadegh Sharifirad and Ataei (2012) found evidence of the impact of the mission on IP implementation. Accordingly, this research proposes the following hypothesis.

H2. Mission effect on IP is positive.

Consistency is characteristic of exploitation profiles (Datta *et al.*, 2021) oriented to improving existing products, resources and competencies (Kumkale, 2022). High consistency organizations face difficulties maintaining consumer focus and change (Denison *et al.*, 2012); therefore, high control, centralization and formal decision-making diminish Innovation (Abdullah *et al.*, 2014). Consistency enables productivity by developing standards, managerial principles and compatible points of view among workers (Denison, 2001). Denison *et al.* (2012) state that consistency is the only trait that cannot lead to IP; consequently, we propose the following hypothesis.

H3. Consistency effect on IP in negative.

There is extensive evidence of the Adhocratic culture's (external orientation, flexibility, openness and risk-taking) positive impact on innovation (i.e. Büschgens *et al.*, 2013; Montreuil *et al.*, 2021; Tian *et al.*, 2021). Denison *et al.* (2013) recognize the positive effect of adaptability on innovation because it promotes flexibility, taking a risk, focusing on customers and organizational learning. Sadegh Sharifirad and Ataei (2012) found evidence of adaptability's positive effect on the propensity to innovate. According to the open systems view, adaptability constitutes a cultural mechanism allowing firms to monitor the environment, learn and generate changes to respond effectively. Therefore, we propose the following hypothesis.

H4. Adaptability effect on IP is positive.

For Denison *et al.* (2013), involvement cultivates IP because it promotes employee autonomy, responsibility, teamwork and empowerment. Büschgens *et al.* (2013) and Mendoza-Silva (2020) found a positive relationship between Clan Culture (high group morality, cohesion and personnel development) and innovation. Furthermore, innovation begins with persons' or groups' creative ideas and impels them beyond initial propositions (Amabile *et al.*, 1996). Also, environments with high participation reinforce knowledge exchange and promote IP (Jiménez and Sanz, 2005). Thus, we propose the following hypothesis.

H5. Involvement effect on IP is positive.

Firms are open systems with a purpose. Also, robust scientific theories (i.e. GST and BA) and empirical findings support the mission's influence on workers' behavior (H1 to H4). Based on the previous, we proposed mediation instead of moderation relationships. While the former refers to how an effect occurs (underlying effect mechanism), the latter establishes when/whom an impact occurs (Rasoolimanesh *et al.*, 2021). Concretely we are interested in how the perception of the strategic claims (goals and rules) emphasizes particular behavioral repertoires (consistency, adaptability, involvement). However, consistency and adaptability represent contradictory behavioral repertoires for IP. We mentioned earlier the central role of internal integration/external adaptation paradox in open systems and OC frameworks, something that ambidexterity and hybrid strategies have highlighted.

Consequently, we consider this paradox fundamental to understanding the OC's impact on IP. Therefore, we propose mediating effects of opposite signs that align with RQ1 and RQ2. Accordingly, we proposed that the organization's strategic actions encouraging the internal and stable focus harm IP.

H6. The specific indirect effect of the mission on IP through consistency is negative.

Complementary, the organization's strategic actions devoted to boosting the flexible and external pole drive innovation.

H7. The specific indirect effect of mission on IP through adaptability is positive.

Involvement is considered an innovation's driver. So, the firms' strategic actions directed at increasing the worker's involvement positively affect IP.

H8. The specific indirect effect of mission on IP through involvement is positive.

Organizations can improve competitiveness by stimulating Innovation in products, services, processes and marketing strategies (Al Naqbia *et al.*, 2020). Through innovation, enterprises improve their product and service offerings (VU, 2020). Firms that engage in more collaborative and innovative activities outperform others in new products and services (Hu *et al.*, 2017). Also, Innovation in processes and management practices fosters cost savings by increasing efficiency, productivity and profitability (VU, 2020). As long as different types of innovations have complementary effects on OP (Hugel, 2018), we proposed the following hypothesis.

H9. IP effect on OP is positive.

4. Methods

4.1 Participants

The informer's low ability, lack of experience, and poor motivation for the topic are potential sources of common method bias (CMB) (MacKenzie and Podsakoff, 2012). Therefore, we only included senior professionals and managers with more than one year of working for their firms.

The sample had 372 participants from a framework of 2000 organizations registered in the central business chambers of Costa Rica. 49.7% were women, and the age average was 38.3 years (standard deviations (SD) = 10.6). Most participants had postgraduate studies (57%) or university degrees (31%). Economy and Management (54%) were the primary education fields, followed by Engineering (18%). The majority worked for manufacturing companies (39%), with an equal proportion for commerce and service companies (31% each). 37% came from small firms, 27% for medium-sized (31–100 employees) and 36.5% from large companies. The mean of years working for the firm was 7.81 (SD = 7.85).

We contacted one key informant per organization to capture more interfirm variability. In line with James *et al.* (2008), we considered OC a system-level phenomenon. Therefore, it is advisable to approximate this characteristic from the report of key informants due to their macro perspective of the organization's activities and culture (Hogan and Coote, 2014). This approach is widely used to study the OC-IP link (i.e. Abdullah *et al.*, 2014; Naranjo- Valencia *et al.*, 2011).

4.2 Instruments

Seven interval response scales are optimal according empirical results (Krosnick, 2018); therefore, we used it for all the scales.

For OC, we adapted the 60 items DOCS developed for Spain by Bonavia *et al.* (2009). We modified the anchors to a 7-point Likert scale: 1 = disagree, 4 = neither agree nor disagree and 7 = agree. We wrote four items to evaluate each innovation type of the Oslo manual (OCDE, 2005) (a. Product, b. Service, c. Marketing, d. Work methods). We incorporated an additional item dedicated to measuring the use of the organizational resources devoted to innovation (see items in Table 3). We used a 7-point Likert scale with the following anchors: 1 = minimum company commitment, 4 = medium company commitment, 7 = high company commitment.

There is very little public economic information about Costa Rican firms; consequently, it was necessary to use subjective OP measures. We consider it a proper choice because there is

enough evidence of its validity (see Dess and Robinson, 1984; Singh *et al.*, 2016; Wall *et al.*, 2004). The most common OP measures in innovation research are profitability, sales and market share (Sethibe and Steyn, 2016). Therefore, we translated the items of Marcoulides and Heck (1993) (market share and profits) and Robinson and Pearce (1988) (sales growth) to Spanish, plus a fifth dedicated to evaluating the level of compliance of the company's financial projections in the previous year. We used a 7-point Likert scale with three anchors as follows, 1 = low; 4 = medium and 7 = high (see items in Table 3).

Satisfactory item quality is the primary strategy to mitigate the CMB (Podsakoff *et al.*, 2012). Accordingly, we followed the recommended guidelines of Krosnick (2018), including avoiding negative items except for the DOCS, which already had eight. We used different anchors to prevent CMB (MacKenzie and Podsakoff, 2012). Also, we conducted fifteen cognitive interviews to ensure appropriate writing.

4.3 Procedure

A trained assistant contacted each company of the sample frame four times at maximum. With a response, she explained the research purpose. The anonymity and confidentiality of the information were guaranteed. The applicator contacted the informer, emailed the instruments and made a maximum of four reminder calls, resulting in 18.2% of responses.

4.4 Analysis

We employed covariance-based Structural Equations Modeling (SEM) with EQS 6.4 and Mplus 8.6. A DOCS' negative wording factor (NWF) with the Harman test (sensitive with adequate reliabilities (Fuller *et al.*, 2016)) evaluated the CMB. We used two kinds of control variables. The first was the number of workers, a proxy of firm size, and the second corresponded to the informers, specifically education and years of service. For mediation analysis, we followed Nitzl *et al.*'s (2016) three-step recommendation.

5. Results

All models exhibited the absence of multivariate normality (Mardia Index > 5.99); consequently, we calculate robust indices (Kline, 2016) [4]. Model 1 evaluated the psychometric properties of DOCS items. It showed a poor global fit (Kline, 2016) (see Table 1). The positive wording items (52) had good loadings ($\lambda = 0.53$ to 0.90 , $p < 0.05$), while the negative ones (7) exhibited unsatisfactory saturations ($\lambda = -0.03$ to 0.90 , $p > 0.05$).

	SB χ^2	DF	p SB χ^2	CFI	RMSEA	IC 90% RMSEA
Model 1: All the 60 DOCS items	2533.19	1692	0.001	0.88	0.038	[0.035; 0.041]
Model 2: All the 60 DOCS items plus NWF ^a	2307.42	1685	0.001	0.91	0.033	[0.029; 0.036]
Model 3: DOCS (52 items)	1745.02	1256	0.001	0.92	0.03	[0.029; 0.037]
Model 4 ^b : Freely correlated model with the substantive factors (DOCS, IP, OP) and NWF ^c constrained	551.87	308	0.001	0.94	0.048	[0.042; 0.055]
Model 5 ^b : All constructs freely correlated	300.12	174	0.001	0.96	0.046	[0.037; 0.055]
Model 6: Structural model	559.14	238	0.001	0.93	0.060	[0.054; 0.067]

Note(s): ^aNegative wording factor

^bDOCS with parcels plus IP and OP

^cThe NWF allows the evaluation of the common method bias

Source(s): Elaborated by the authors

Table 1.
Models fit indexes

Model 2 included the new NWF in which we loaded the negative items. We also loaded them with their respective trait no longer being congeneric. The model fit improved substantially, the positive wordings item's saturations remained satisfactory ($\lambda = 0.54$ to 0.90 , $p < 0.05$), and the loadings of the negative items with the NWF were high (44–56, $p < 0.05$). In contrast, the saturations of these negative items with the traits were very low (-0.03 to -0.26 , $p < 0.05$), indicating that the poor fit of Model 1 was due to the unsatisfactory performance of the negative items (see Table 1). Kam (2018) suggests that the negative wording effect may be scale specific, but as far as we know, the literature about DOCS does not report something similar. So, it may be related to de Costa Rican context. Accordingly, we eliminated the negative wording items.

Model 3 was a DOCS measurement model without the NWF. It fits satisfactorily, despite the high number of items (52 positive statements) (see Table 1). The OC's high order factors (HOFs) (mission, consistency, involvement and adaptability) loadings on the subdimensions [5] were high ($\lambda = 0.73$ to 0.95 , $p < 0.05$). The average extracted variance (AVE), compound reliability (CR), and α were adequate (Hair *et al.*, 2019) (see Table 2). The HOFs' correlations were high ($r = 0.81$ to 0.93 , $p < 0.05$). The first-order factors loadings with its correspondence items were higher than the lowest acceptable (0.50) (Hair *et al.*, 2019) ($\lambda = 0.50$ to 0.93 , $p < 0.05$). The CR and α were adequate (see Table 2). The AVEs were good, with only capability development and agreement narrowly lower than required (0.50) (Hair *et al.*, 2019). The results above suggest an adequate 52-item DOCS performance enabling us to use parcels, which is more appropriate with our hypothesis' conceptual analysis of OC (traits level) (see Williams *et al.*, 2009).

To examine the CMB Model 4 included OC's subdimension as parcels of each trait to assemble a freely correlated of all substantive factors (DOCS, IP, OP) plus NWF as a market construct (Williams *et al.*, 2010). Therefore, NWF items had cross-loading to the substantive constructs. The model fits satisfactorily (see Table 1). The substantive construct's saturations were adequate ($\lambda = 0.51$ to 0.95 , $p < 0.05$). Correlations between the cultural

	Model 3 ^a			Model 5 ^b		SM		α^a
	CR	AVE	α	CR	AVE	CR	AVE	
<i>Involvement</i>				0.88	0.71	0.89	0.72	0.92
Empowerment	0.81	0.41	0.74					0.78
Team Orientation	0.85	0.53	0.83					0.85
Capability Development	0.79	0.48	0.81					0.80
<i>Consistency</i>				0.90	0.73	0.90	0.74	0.88
Core Values	0.80	0.51	0.75					0.80
Agreement	0.77	0.46	0.72					0.80
Coordination and Integration	0.82	0.53	0.80					0.82
<i>Adaptability</i>				0.88	0.71	0.89	0.72	0.93
Organizational Learning	0.79	0.50	0.82					0.93
Customer Focus	0.87	0.57	0.84					0.87
Creating Change	0.87	0.57	0.82					0.82
<i>Mission</i>				0.91	0.78	0.92	0.80	0.96
Vision	0.86	0.60	0.77					0.86
Goals and Objectives	0.92	0.70	0.91					0.92
Strategic Directions	0.90	0.67	0.88					0.89
<i>Innovative Performance</i>				0.91	0.59	0.91	0.58	0.87
<i>Organization Performance</i>				0.85	0.58	0.85	0.58	0.84

Note(s): ^a Based on 52 DOCS items

^b Based on DOCS parcels plus items of Innovative Performance (five statements) and Organizational Performance (four statements)

^cThis value is identical in both models (Model 5 and SM) because they are estimated based on the same items

Source(s): Elaborated by the authors

Table 2. Composite reliability (CR), extracted variance (AVE) and cronbach's alphas (α) of the main models

Construct	ME	SD	M5 λ	SM λ	R^{2a}
<i>Involvement</i>	5.57	1.07			-1%
Empowerment	5.62	1.1	0.85*	0.87*	
Team Orientation	5.67	1.20	0.83*	0.85*	
Capability Development	5.40	1.27	0.84*	0.83*	
<i>Consistency</i>	5.47	1.12			-12%
Core Values	5.55	1.29	0.84*	0.87*	
Agreement	5.38	1.24	0.86*	0.86*	
Coordination and Integration	5.44	1.22	0.86*	0.85	
<i>Adaptability</i>	5.53	1.01			39%
Organizational Learning	5.37	1.01	0.87*	0.88*	
Customer Focus	5.80	1.15	0.83*	0.85*	
Creating Change	5.39	1.27	0.83*	0.82*	
<i>Mission</i>	5.56	1.28			
Vision	5.51	1.30	0.83*	0.90*	35%
Goals and Objectives	5.57	1.36	0.95*	0.93*	
Strategic Directions	5.63	1.40	0.86*	0.85*	
<i>Innovative Performance^b</i>	5.60	1.26			61%
Item 1: Introduction of new products or services into the market			0.64*	0.66*	
Item 2: Use of new methods of manufacturing or service provision			0.76*	0.75*	
Item 3: Use of new methods of work organization			0.80*	0.80*	
Item 4: Incorporation of significant improvements in the forms and methods used to market products or services			0.76*	0.76*	
Item 5: Improvement in the use of resources devoted to the development of innovations			0.85*	0.83*	
<i>Organization Performance^b</i>	5.14	1.24			45%
Item 1: Growth in sales or income from service provision			0.73*	0.74*	
Item 2: Company utilities			0.85*	0.85*	
Item 3: Market share			0.67*	0.68*	
Item 4: Fulfillment of annual financial forecasts			0.79*	0.77*	

Table 3. Principal models' loadings (λ), constructs averages (ME) and standard deviations (SD) for both samples, as well as, structural model's variance decomposition

Note(s): ^aThe negative symbol indicates a suppressive effect
^bWritten in Spanish due to the was relocated in Costa Rica

Source(s): Elaborated by the authors

factors were high ($r = 0.85$ to 0.97 , $p < 0.05$). As expected, their correlations with IP and OP were lower ($r = 0.41$ to 0.78 , $p < 0.05$). Likewise, the OP/IP correlation were relevant but not very high ($r = 0.66$, $p < 0.05$). The NWF negative items saturation were good (44–56, $p < 0.05$), as well as, the α (0.64). However, the NWF constrained cross-loadings were small (0.04) and ns ($p < 0.05$) reflecting no CMB. Furthermore, we reinforce the previous results by applying the Harman test (the explained variance for the unique factor was 40%).

Model 5 was a freely correlated factor analysis with the substantive constructs. It fits very well (see Table 1), the loadings were satisfactory ($\lambda = 0.64$ to 0.95 , $p < 0.05$) (see Table 3) as well as the CR, AVE and α (see Table 2). The DOCS' correlations factors were high ($\lambda = 0.85$ to 0.97 , $p < 0.05$). As expected, the correlations between OC's traits and IP/OP were slightly more moderate ($\lambda = 0.42$ to 0.77 , $p < 0.05$). The correlation between IP/OP was 0.69 ($p < 0.05$). With an adequate measurement model, we proceeded to estimate the descriptive statistics (see Table 3).

Model 6 was the Structural Model (SM). Its fit was adequate (see Table 1) (Wang and Wang, 2020), the loadings were high (see Table 3), and the CR/AVE and α were good (see Table 2). The pattern was similar to Model 5.

The mission's effect on consistency was positive and high ($F = 0.91$, $z = 47.16$, $p < 0.05$, 95% CIs [0.87,0.94]), supporting the H1a. The mission also had a high and positive impact on adaptability ($F = 0.93$, $t = 49.94$, $p < 0.05$, 95% CIs [0.89,0.96]), supporting H1b. The mission also exerted a strong and positive influence on involvement ($F = 0.93$, $t = 44.5$, $p < 0.05$, 95% CIs

[0.89,0.97]), confirming H1c. These results confirm that changes in strategic components directly affect the remaining OC factors. The mission's effect on IP was positive and high ($r = 0.62$, $t = 11.68$, $p < 0.05$, 95% CIs [0.53,0.73]), sustaining H2. Consistency had a negative effect on the IP ($\beta = -0.47$, $t = -2.76$, $p < 0.05$, 95% CIs [-0.83,-0.16]), supporting H3 (see Figure 2).

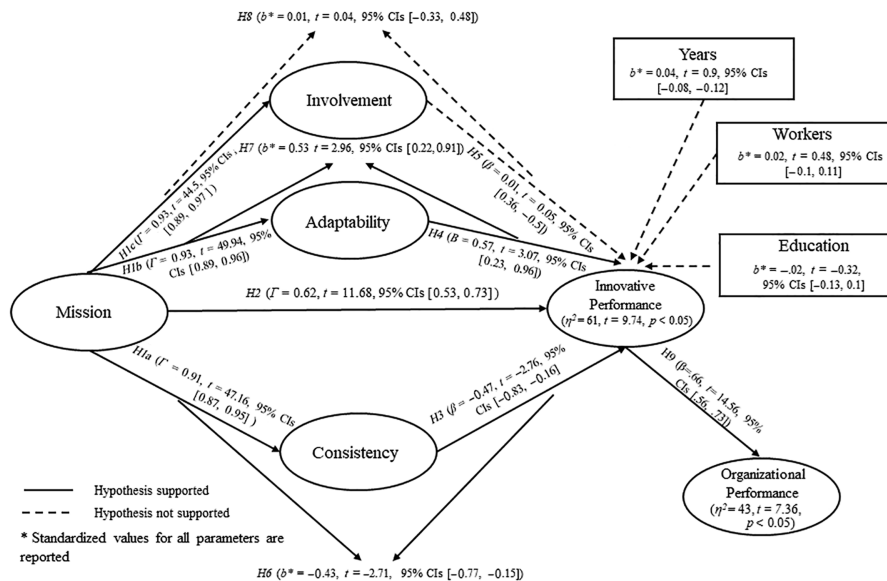
Adaptability had the most elevated positive effect on IP ($B = 0.57$, $t = 3.07$, $p < 0.05$, 95% CIs [0.23, 0.96]), supporting H4. Involvement impact on IP was *ns* ($\beta = 0.01$, $t = 0.05$, $p > 0.05$, 95% CIs [0.36,-0.5]) not supporting H5. It is a remarkable finding we will closer analyze later because the literature commonly claims the positive influence of Involvement on IP. All the control variables showed *ns* effects (see Figure 2).

Results support H1 to H5, achieving a relevant explanation of IP ($\eta^2 = 0.61$, $t = 10.63$, $p < 0.05$). However, as MacKinnon (2008) points out, the negative effect suppresses the total variance explained (R^2) by subtracting effects; consequently, it is essential to decompose it. Table 3 shows the highest impact of adaptability followed by mission. The consistency's explanatory level is lower than the previous traits; however, it is still substantial. The R^2 of involvement is very low, but given that the coefficient of H5 is *ns*, we do not consider it different from zero.

The specific indirect effect of mission through consistency is negative ($b^* = -0.43$, $t = -2.71$, $p < 0.05$, 95% CIs [-0.77,-0.15]), supporting H6. Data also sustain H7 ($b^* = 0.53$, $t = 2.96$, $p < 0.05$, 95% CIs [0.22, 0.91]). The direct effect of mission on Involvement was *ns*, and the specific indirect effect supported it ($b^* = 0.01$, $t = 0.04$, $p > 0.05$, 95% CIs [-0.33, 0.48]). The data do not sustain H8. IP positively influences OP ($b^* = 0.66$, $t = 14.43$, $p < 0.05$, 95% CIs [0.56,0.73]) and support H9. The magnitude of the explained variance is high ($\eta^2 = 0.43$, $t = 8$, $p < 0.05$), making IP a notable OP driver (see Figure 2).

Table 4 summarizes the results.

We did not point out a formal hypothesis about the specific indirect effect until OP; however, it's valuable to report them (see Table 5).



Source(s): Elaborated by authors

Figure 2. Structural model results

Table 4.
Synthesis of
hypothesis findings

Hypothesis	Statement	Result
H1a	Mission effect on Consistency is positive	Supported
H1b	Mission effect on Adaptability is positive	Supported
H1c	Mission effect on Involvement is positive	Supported
H2	Mission effect on IP is positive	Supported
H3	Consistency effect on IP in negative	Supported
H4	Adaptability effect on IP is positive	Supported
H5	Involvement effect on IP is positive	Not supported
H6	The specific indirect effect of the Mission on IP through Consistency is negative	Supported
H7	The specific indirect effect of Mission on IP through Adaptability is positive	Supported
H8	The specific indirect effect of Mission on IP through Involvement is positive	Not supported
H9	IP effect on OP is positive	Supported

Source(s): Elaborated by the authors

Table 5.
Standardized specific
indirect effects until OP

Effect	Parameter	95% CIs
Mission → Consistency → IP → OP	-0.28	[-0.51, 0.10]
Mission → Adaptability → IP → OP	0.006	[-0.22, 0.33]
Mission → Involvement → IP → OP	0.35	[0.15, 0.61]
Mission → IP → OP	0.41	[0.33, 0.50]

Source(s): Elaborated by the authors

6. Discussion and conclusions

The elevated Mission's effect on the other OC's dimensions (H2, H3 and H4) strengthens the importance of viewing organizations as open and rational systems. Likewise, it supports the statement that the change in the mission leads to variations in the remains OC elements. This substantial impact is consistent with GST and BA. Also, it had an elevated effect on IP (H4) (see Figure 2). Therefore, it is a mistake to consider mission a mere formal element; on the contrary, it is a powerful tool for culture change and innovation.

Moreover, mission is a vital mechanism for motivating general worker behavior. The findings also reveal the importance of effectively integrating innovation into the strategic management of organizations. In this sense, innovative projects should be aligned with and supported by the top management of organizations to improve their chances of success.

The internal integration/external adaptation paradox represented by consistency/adaptability exhibited substantial explanatory power (51% IP's variance). These results are consistent with the literature. In this line, this paradox is essential to Schein's definition of OC and represents a central challenge for open systems, something ambidextrous organizations and hybrid strategies literature also point out. More specifically, the adaptability's positive effect (H7) is the largest, explaining 39% of IP's variance. Consequently, innovation's primary driver is the firm's ability to recognize customer needs, learn from them and translate them into changes. Our findings encourage firms and top managers to promote adaptability to achieve higher levels of performance and success in their innovation-led projects.

On the other hand, it is essential to highlight the consistency (H2) effect due to its magnitude and sign (-12%). Rather than denying a relationship between consistency and IP stated by Denison *et al.* (2012), our results move beyond to confirm a negative impact. We also should remember that consistency is a relevant dimension of efficiency (Denison *et al.*, 2012).

Mission's effects through adaptability and consistency are consistent with the previous paragraph. Accordingly, strategic efforts to accentuate adaptability (H9) significantly affect

IP ($b^* = 0.43$). In contrast, the mission's effect through consistency (H8) was lower but negative ($b^* = -0.20$) (see Figure 2). In other words, strategic efforts to improve customer knowledge and translate it into change have a much more positive IP impact than the negative effect of favoring a set of rules that facilitate internal agreement and integration (see Figure 2). Changing an internal and stable trait may be more complex than an external and flexible one. In this sense, it also allows firms needing to improve their Consistency to compensate for their adverse impact on IP, enhancing adaptability.

An adequate analysis of how the market behaves and evolves is essential for adaptability and mission to become the backbone of an OC conducive to innovation. However, it does not necessarily imply a radical transformation of the organization's design since most organizations perform marketing and strategic functions that help formalize external and market analysis (Trott, 2021). We are not claiming this is a simple task; the point is that it requires the development of functions that most firms already perform. Nevertheless, it implies transforming these functions into a mindset of everyone at the firm.

These results, taken together, indicate that to improve innovative projects' outcomes, practitioners should overcome internal organizational and cultural barriers related to consistency while boosting the levels of mission and adaptability in their organizations. We have proved that the mission's positive impact on IP through adaptability more than counteracts the negative effect through consistency, and this finding represents a substantial theoretical contribution. However, consistency's adverse effects on innovation impose a challenge on firms because it may undermine the entrepreneurial spirit and the open-mindedness needed to carry out innovative projects. The results suggest that managers should be cautious about consistency levels to ensure that positive effects on efficiency (Denison *et al.*, 2012) are more convenient for firms than the negative ones on IP.

In line with Flynn and Chatman (2001) arguments concerning differentiating conformity to a norm from its content and considering the core values subdimension, a practical way to mitigate the negative effect of consistency (without losing its benefits) could be to promote values that encourage IP. Empirical results (see the review of Arieli *et al.*, 2020) indicate a positive association between the personal value of openness to change and creativity at work. Specifically, people who attach greater importance to self-direction, novelty and stimulation [6] values report higher levels of creativity at work. In contrast, values related to conservation (tradition, conformity and security) correlate negatively with creativity. Moreover, there is evidence that the values of managers influence OC; for that reason, people with personal values aligned with innovation (e.g. openness to change) must occupy these positions.

Since personal values are stable and desirable for people, they are difficult to change (Sagiv and Roccas, 2017); therefore, selection processes must consider these to make possible development of people in a direction that promotes IP. With a common framework of values related to the IP, developing an agreement, coordination and integration around innovation through training and performance management processes would be easier.

Except for the NWF, most of our findings are consistent with the academic literature. However, a remarkable exception is the involvement's absence of effect on IP (H8) (see Figure 2). This finding contradicts Sadegh Sharifirad and Ataei (2012), who found evidence of involvement's positive impact on the propensity to innovate. We proposed two possible explanations. First, involvement is more related to following behavior than disruption in the Costa Rican context. In this sense, employees' level of commitment would be more determined by complying with the status quo than by promoting change. It does not mean involvement is unnecessary, but its potential benefits do not transmit through the IP, and it could be through other mechanisms.

Second, there is a substantial difference between the DOCS conceptualization of involvement and the job involvement construct. DOCS assess three practices that foster worker involvement: a. empowerment, d. teamwork, c. capability development (Denison, 2001). Nevertheless, job Involvement alludes to the importance of work to a person's

self-concept, reflected in an attitude of being focused and concerned about one's job (Diefendorff *et al.*, 2021). While one outcome of involvement is innovative behavior (Huang *et al.*, 2019), the two constructs differ substantially. In comparison, DOCS focuses on the perception of organizational practices (system level), while job involvement in attitudes (individual level). Moreover, the antecedents of job involvement go beyond what the DOCS captures. It includes personality traits, job characteristics, leadership, organizational practices and stressors, among others (Diefendorff *et al.*, 2021).

Concerning IP's impact, results showed a substantial effect on the OP. In this sense, in the Costa Rican context, one way to improve the organization's competitiveness is to promote its IP, and the impact is considerable. The specific indirect effect on OP indicates that the best way to improve OP through IP is to boost mission ($b^* = 0.33$) and adaptability ($b^* = 0.29$). Interestingly, the strategic efforts to consolidate consistency affect IP; however, they do not impact OP significantly. Compared to the extant literature (VU, 2020; Hu *et al.*, 2017; Rousseau *et al.*, 2016), our study offers a much more refined analysis and provides critical clues on how to amplify the impact of IP over OP. However, in the future, it will be necessary to evaluate the IP impact on a broader range of performance measures to get a more comprehensive panorama.

The most reasonable way to evaluate what we know with this research we did not know before is to contrast the findings against our RQs. Regarding RQ1 (What is the effect, whether positive or negative, that each dimension of the OC has on the IP?) mission and adaptability positively affect IP. In contrast, consistency has a negative impact. Concerning to RQ2 (What is the magnitude of these effects?), adaptability has the greatest effect ($\beta = 0.59$, $t = 3.18$), followed closely by the mission ($r = 0.50$, $t = 4.14$). Consistency was the smallest and negative influence ($\beta = 0.24$, $t = -1.84$).

Contrary to expectations, the involvement did not influence the IP. These findings do not indicate that consistency is not necessary. On the contrary, we should remember that the four DOCS dimensions promote the OP. Specifically consistency is a relevant dimension for efficiency (Denison *et al.*, 2012). Its negative effect on innovation imposes a challenge to firms in order management OC.

Regarding the RQ3 (What are the most relevant relationships between OC's dimensions in explaining IP?) and RQ4 (What is the direction and the magnitude of effect on IP of these relationships among OC's components?), the impact of the goals (specific and superordinate) or rules, represented by the mission on adaptability ($r = 0.83$, $t = 29.54$) and consistency ($r = 0.83$, $t = 30.32$) is remarkably relevant. These traits mediated in opposite directions the effects [7] of the mission. The indirect impact of mission through adaptability is much higher than through consistency. Concerning RQ5 (What is the effect of IP on OP in a developing country?), the innovation effect on the economic performance of Costa Rican companies is considerable since it accounts for 47% of the OP.

On the other hand, it is necessary to point out some research limitations. Despite efforts to limit the CMB, it is crucial to promote longitudinal studies. It would be an extremely novel and pioneering approach in the field; it would definitively confirm the tentative casual links proposed in this study. Replicating the study in other geographical areas and focusing on specific sectors, such as manufacturing or services, might be fruitful. Also, it is advisable the use multidimensional reflective measures or composites (Henseler, 2021). Both strategies would increase the scope of elements included in the instruments, potentially leading to new insights.

Finally, using a universalistic dimensional approach allows us to overcome some limitations of previous literature in understanding the OC's impact on IP. Also, systems thinking with a view of paradoxes faced by organizations constitute fruitful terrain to comprehend how organizations can impulse or hinder their IP.

Notes

1. Behaviorism is a Philosophy of Science that argues that Psychology should be an experimental science focused on behavior. The application of its empirical principles is called Applied Behavior Analysis, which the authors called for clarity Behavior Analysis.
2. To explain the mediation relationships that account for the overall effect of OC on IP, we applied the segmentation approach (Rasoolimanesh *et al.*, 2021).
3. GST is a dominant motivation scientific approach (Van den Broeck *et al.*, 2019).
4. Due to the lack of multivariate normality for the measurement models, we provided z values with robust standard errors (REE). For the structural model (SM), the Mplus 8.6 software does not perform maximum likelihood estimation with REE and bootstrapping (Wang and Wang, 2020). Consequently, *p* values were estimated based on unadjusted standard errors. However, we evaluate the statistical significance of all SM parameters based on 5,000 Bootstrapping confidence intervals, which is also the advisable technique for mediation (Nitzl *et al.*, 2016).
5. They are second-level loads
6. Stimulation is a personal value related to excitement, novelty and challenge (Rounds and Armstrong, 2005)
7. The writing aims to facilitate the understanding of readers. However there is no term such as “negative mediation”. The correct term is “suppressor effect” since the specific negative indirect effects are subtracted from the total, thereby suppressing their final value.

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Precursors and outcomes of satisfaction of fair trade coffee consumers

Satisfaction of
fair trade coffee
consumers

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Abstract

Purpose – This paper aims to identify the antecedents and postcedents of customer satisfaction, including utilitarian, social and emotional factors, in a fair trade (FT) coffee consumption context.

Design/methodology/approach – This paper is based on a broad range of 177 consumers of FT coffee in Spain, the data analysis used structural equation modeling (SEM) with SPSS/AMOS 26.0 software.

Findings – This paper supports that both customer social value and quality affect perceived value (PV). PV in turn has effects on customer satisfaction and the latter influences loyalty. Conversely, both customer emotional value and customer expectations were not confirmed as antecedents of PV.

Research limitations/implications – The consumer satisfaction analysis conducted differs substantially from those of conventionally traded coffee, as social and emotional factors were considered along with utilitarian factors.

Practical implications – Practitioners, retailers and relevant institutions should design strategies to manage efficiently channel efforts to improve the consumer satisfaction and its loyalty.

Originality/value – This paper contributes to a substantial improvement in the understanding of consumer satisfaction and its consequences, in FT coffee consumption contexts. A new integrated theoretical model on customer satisfaction has been provided, which includes social and emotional perception factors, along with cognitive perception (quality and expectations) factors.

Keywords Fair trade coffee consumption, Consumption utilitarian approach, Consumption affective factors, Perceived value, Consumer satisfaction, Consumer loyalty

Paper type Research paper

Introduction

Research on the satisfaction of consumers of products with ethical attributes, such as fair trade (FT) coffee, usually is underpinned by models based only on reasoned action or planned behavior (De Pelsmacker *et al.*, 2005). This trend restricts the analysis of customer satisfaction to a utilitarian approach, by omitting social and emotional aspects which are also relevant to the responsible consumers' satisfaction. Accordingly, this investigation improves our understanding of the satisfaction of FT coffee consumers, including variables both of utilitarian and social and emotional nature as explanatory factors of perceived value (PV), which is considered as a key antecedent of consumer satisfaction. Moreover, this investigation reinforces the bonding between satisfaction and loyalty.

FT certification products are sold according to cooperative rather than competitive principles. FT aims to improve the living conditions of producers in developing countries,



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who usually perform their activity under underprivileged production conditions, making them extremely vulnerable to conventional market mechanisms (Hainmueller *et al.*, 2015; Langen and Adenaueuer, 2013). FT has experienced significant growth worldwide (Hainmueller *et al.*, 2015) due to its social and environmental dimensions, along with increasing consumer concern about ethical considerations (Gillani *et al.*, 2021; Robichaud and Yu, 2022). Coffee is the most emblematic product and the first to be sold throughout this FT model. Furthermore, the coffee value chain encompasses many intermediaries, which makes the producers' situation even more precarious.

The competitive advantage of FT products precisely lies in these ethical attributes; however, these products are also subject to competition from conventionally traded products because most consumers are unwilling to give up all the product's functional attributes. Therefore, both the extrinsic value (utilitarian aspects) and the intrinsic value (emotional and social aspects) determine customer satisfaction with FT products. Due to the importance of the ethical concerns of consumers of FT products, the PV becomes a crucial determinant of consumer satisfaction. Satisfaction in turn contributes to maintaining long-term relationships with customers (Zhang *et al.*, 2020), and, therefore, it is considered the most relevant direct antecedent of brand loyalty (Oliver, 1980; Oliver and Swan, 1989). Several studies also confirm the existence of these close links between PV, customer satisfaction and loyalty (Fornell *et al.*, 1996; Konuk, 2019; Servera-Francés and Piqueras-Tomás, 2019; Slack *et al.*, 2020).

The American Customer Satisfaction Index (ACSI) model by Fornell *et al.* (1996) restricts the analysis of customer satisfaction to the utilitarian approach. However, we consider that social, and emotional aspects are also relevant to the satisfaction of FT coffee consumers. Accordingly, Sweeney and Soutar (2001) include functional, social and emotional value in their PV multidimensional scale (PERVAL). These dimensions are independent and "additively linked and contribute gradually to the formation of consumer choices" (Sheth *et al.*, 1991, pp. 12).

Only a small number of studies on consumer satisfaction (De Pelsmacker *et al.*, 2005; Yadav and Pathak, 2017) include all the factors affecting the consumption of products with ethical attributes. Consequently, our research proposes an integrated model of consumer satisfaction including both variables of cognitive perception and social and emotional perceptions. Based on the ACSI model, our model includes perceived quality (PQ) and customer expectations (CE) as utilitarian nature variables antecedents of the PV. Furthermore, based on PERVAL, the model includes emotional value, and social value as variables of perceptions.

Therefore, this research aims to identify the antecedents and postcedents factors of satisfaction of FT coffee consumers. Thus, the theoretical model proposes that customer emotional value, customer social value, CE and PQ directly and positively influence PV. PV is directly and positively related to customer satisfaction which, in turn, exerts a direct and positive effect on loyalty.

The sample comprises consumers of FT coffee in Spain. Data analysis was performed by means of confirmatory factor analysis (CFA) and structural equation modeling (SEM), using SPSS/AMOS 26.0 software.

The major contribution of the investigation is of considering that affective factors are also involved in FT coffee consumption, filling the gap caused by a lack of research that jointly includes cognitive, social, and emotional perception factors. Indeed, most research on consumer satisfaction analysis considers that PV is only formulated from cognitive perceptions, such as quality, utility and price, following a utilitarian perspective, based on a rational consumer, ignoring the relevance of affective factors.

The second major contribution is the investigation focus, which extends our understanding of FT coffee consumption. There is very little research analyzing the consumption of products with ethical attributes, let alone FT products. Among the latter, studies focused on the coffee context have been scarce. Moreover, no research has tested a

complete model of consumer satisfaction for FT coffee consumption, such as the one proposed in this research.

Finally, both managerial and social implications are a third major contribution. Findings offer useful information for optimizing the management of promoter entities of FT coffee consumption and help to improve consumer satisfaction. Moreover, any sales growth of FT coffee will help unprivileged producers in developing countries, to improve both their living and production conditions.

Theoretical framework

Fair trade coffee consumption

The FT label aims to guarantee fair commercial transactions for underprivileged producers in developing countries, who usually live in poverty and marginal situations, and lack the means to organize performance their activity (Hainmueller *et al.*, 2015; Langen and Adenaueuer, 2013). The key mechanism focuses on a higher fair price than products traded on the free market, to guarantee fair working conditions for these farmers (Bosbach and Maietta, 2019; Langen and Adenaueuer, 2013; Shaw and Shiu, 2003).

The growing interest of consumers in ethical, environmental and social criteria has been mirrored in the literature focused on the consumption of products with ethical attributes (Gillani *et al.*, 2021; De Pelsmacker *et al.*, 2005). FT coffee consumers' motivations differ substantially from those of consumers of conventionally traded coffee (Stratton and Werner, 2013). While conventional coffee consumers are motivated exclusively by utilitarian reasons and are guided by reasoned actions or planned behavior, moreover FT coffee consumption involves social and emotional aspects (Kushwah *et al.*, 2019).

The theory of planned behavior (TPB) has been recurrently used in research on FT consumption motivations (Beldad and Hegner, 2018). In line with TPB, the consumers' motivations are conditioned by their beliefs; the subjective norms derived from social pressure and perceived control. The FT coffee consumers' beliefs are bonded to the public consequences from their consumption whereby they attempt to encourage social change (Tallontire *et al.*, 2001). The altruistic behavior reflects responsible consumers' concern for social justice and the well-being of others (Huang and Rust, 2011). Moreover, they show special interest in the sustainable development in production and the social and environmental implications (Tallontire *et al.*, 2001) that are inherent in FT coffee. Subjective norms related to FT coffee consumption are linked to ethical obligations resulting from the normative expectations of the social environment (Rivis and Sheeran, 2003). Finally, perceived behavioral control is tied to the challenges involved in FT coffee consumption, such as the high price, availability, product quality or lack of trust in ethical labels (De Pelsmacker and Janssens, 2007).

Therefore, responsible consumption is driven by a wide variety of motivations (Kushwah *et al.*, 2019; Samoggia and Riedel, 2018; Shaw and Shiu, 2003) (see Table 1), which may be associated both with a set of personal values (Tallontire *et al.*, 2001) and mere self-centeredness relating to their concern for their own health (Mohsen and Dacko, 2013). Personal values imply a psychosocial commitment related to the individual consumers' image of themselves and their feeling of ethical obligation (Shaw and Shiu, 2003). The feeling of ethical obligation in turn is related to a commitment to social (Gillani *et al.*, 2021; Mohsen and Dacko, 2013) and environmental concerns (Bosbach and Maietta, 2019; Gillani *et al.*, 2021; Huang and Rust, 2011).

FT coffee is also subject to competition from conventionally traded coffee, which forces it to overcome many obstacles. The appearance of FT coffee stores makes the customers perceive it as an unfashionable and charity product (Langen and Adenaueuer, 2013), damaging its

Table 1.
Responsible
consumption
motivations

Citation	Motivations
Webster (1975)	Social causes, promoting a change towards responsible consumption
Shaw <i>et al.</i> (2000)	Attitude towards the product and the image and opinion it conveys to others
De Ferran (2003)	Social value, equality and justice. Product quality and traceability. Respect for the environment. Hedonism, linked to the experience with the product
Ozcaglar (2003)	Moral and ethical obligation, and belief of system affectation by responsible consumption
de Ferran (2006)	Ecological considerations
Doran (2009)	Social imbalances
Ghali (2021)	Hedonic value influences willingness to buy and utilitarian value influences willingness to pay
Wang and Chou (2020)	Subjective norms related to social pressure from reference groups
Robichaud and Yu (2022)	Knowledge of FT processes, general attitudes towards FT, product usefulness and subjective norms
Source(s): By authors	

persuasive power. Furthermore, the higher price entails a competitive disadvantage compared to conventional coffee of the same quality (Langen and Adenaeuer, 2013). Moreover, most potential consumers unknown of the existence, functioning and goals of FT coffee (Poret, 2007).

Customer satisfaction

The confirmation-disconfirmation paradigm of CE (Oliver, 1980) posits that the degree of satisfaction arises from the comparison between CE and perceived performance (Westbrook and Reilly, 1983). The confirmation and disconfirmation result from the equality or inequality, respectively, between expectations and perceived performance (Oliver, 1980). Satisfied customers receive at least what they expected (positive confirmation or disconfirmation) and dissatisfied when the opposite occurs (negative disconfirmation).

The standards of the cognitive process of comparison are diverse in the literature. The value-percept disparity model (Westbrook and Reilly, 1983) considers consumers' needs, wants or desires. According to equity theory (Oliver and Swan, 1989), consumers make a social comparison with other participants in the transaction. Social exchange theory (Kelley and Thibaut, 1978) refers to the customer's experience with similar products, the experience of other customers with the products, and CE created by the information that sellers provide.

However, individuals do not always act in a rational, utilitarian way but may also be swayed by emotions or affections in their purchase decisions (Oliver and Swan, 1989). Oliver (1980) posits that satisfaction is a psychological state that stems from an emotional dimension arising from the disconfirmed expectations and the previous feelings experienced before the experience of consumption.

Framing perceived value and customer satisfaction

The first studies based on a utilitarian approach measured the PV in terms of exchange value. Accordingly, a rational customer could separate all product attributes and identify all the benefits and sacrifices associated with the purchase (Oliver, 1980), and objectively assess a product in terms of its functional value, based on an algebraic calculation of the price/quality ratio (Aurier *et al.*, 2004). Hence, customer value is a cognitive perception based on quality, utility or price.

The analytical perspective conceives PV in terms of consumer value or use value. This subjectivist approach considers consumer value as the result of an interactive, relative and preferential experience of consuming (Holbrook, 1999). Consumer value is interactive because it forms part of the consumption experience, relative because it results from a comparison with other goods, and preferential because it includes an assessment of individual preference allowing for behaviors such as affection, attitude, rating, predisposition, opinion, response tendency and valence. Moreover, PV is both personal, because each individual perception is different and situational because it depends on the context.

Aurier *et al.* (2004) advocate a conciliatory approach to PV, by combining the static and dynamic approaches. The static approach identifies five acceptations of PV: (1) marketing value, determined by the product characteristics and attributes; (2) sale value, determined by price; (3) derived value by the use or experience; (4) net value, related to the comparison between benefits and sacrifices; and (5) rational value, determined by a comparison between prices and the product's attributes. The dynamic approach distinguishes between (1) *ex ante* PV, before purchasing; (2) transaction value, during the purchase or the consumption experience; (3) ex-post PV, after the purchase and consumption; and (4) disposition value, after use or experience.

According to mixed approaches, PV is the result of a cognitive process, associated with thinking, as well as an emotional process, linked to feelings (Ikramuddin *et al.*, 2017; Sweeney and Soutar, 2001). These PV models distinguish among the functional, social, emotional, epistemic and conditional values (Sheth *et al.*, 1991). The comprehensive model of customer value (Lai, 1995) is based on the trade-off between benefits and sacrifices. The generic product benefits are functional, social, affective, epistemic, esthetic, hedonic, situational and holistic, whereas the sacrifices include both monetary and non-monetary costs (time, energy, risk) (Lai, 1995). According to the functional attitude theory, the benefits linked to the consumer experience are instrumental, symbolic, emotional or social (Aurier *et al.*, 2004). The multidimensional PV model comprises both factors that are either economic or utilitarian (value/quality and value/price) and hedonic or symbolic (emotional and social values). This model uses the PERVAL measurement scale, which only considers functional, social and emotional value. The PV in our research is based on Fornell *et al.*'s (1996) perspective, which considers that PV results from an assessment in terms of the price, and the PQ and attributes of the product. This PV is generated from a comparison between sacrifices and benefits, assessed after consumption.

The PV has a significant impact on customer satisfaction in an FT coffee consumption context (Konuk, 2019; Othman *et al.*, 2017; Servera-Francés and Piqueras-Tomás, 2019; Slack *et al.*, 2020) since it can influence the way that consumers evaluate the benefits and costs of the FT coffee and the degree to which they feel that the FT coffee meets their needs and aligns with their values. This satisfaction with FT coffee is determined by the extrinsic value related to its utility (utilitarian value) and intrinsic value associated with emotional states (emotional value) (De Ruyter *et al.*, 1997). Thus, consumers who are aware of the FT certification and its principles and values may be more likely to perceive a higher value in FT coffee, as they may believe that the coffee they are purchasing is of higher quality and has been produced more ethically and sustainably, leading to higher levels of customer satisfaction. Therefore, the following hypothesis is proposed:

H1. PV positively affects customer satisfaction in FT coffee consumption contexts.

Framing antecedents of perceived value

Our integrated theoretical model for the consumption of FT coffee encompasses both functional and affective variables as antecedents of PV. Based on ACSI model, our model incorporates CE and quality as functional antecedents of PV. Likewise, according to Sweeney

and Soutar (2001), the model also includes customer social value and customer emotional value as affective nature antecedents of PV.

PQ and PV are different but related constructs. PQ stems from the evaluation of the product's performance or excellence, while PV stems from the comparison between benefits and sacrifices (Fornell *et al.*, 1996). Therefore, PV is more subjective because it depends on the person evaluating it.

Most of the literature finds a positive, direct association between PQ and PV in an FT coffee consumption context (De Toni *et al.*, 2018; Konuk, 2019; Sweeney and Soutar, 2001). This is because FT coffee is often associated with higher quality due to the attention that devotes to its production and the fact that it is sourced from specialty coffee producers. These consumers are willing to pay a premium for FT coffee because they believe it is a higher-quality product worth paying an extra cost for. Therefore, the following hypothesis is proposed:

H2. PQ positively affects PV in FT coffee consumption contexts.

CE are an anticipated objective measure of the expected PV of a product before consumption (Anderson and Fornell, 2000; Oliver, 1980). Expectations are derived from the anticipation of expected benefits and sacrifices before the purchase and the use of a product (Fornell *et al.*, 1996). While benefits are related to all the attributes of the product, sacrifices are bonded to the purchase price, the costs of obtaining the product, the uncertainty about making the right choice, the costs of making the wrong decision and the nonmonetary sacrifices (time, energy, mental and physical effort) (Fornell *et al.*, 1996).

When customers have high expectations for the FT coffee, and they are met or exceeded, customers are likely to perceive the value of the FT coffee as being higher. These customers expect the FT coffee to be of higher quality due to its ethical and sustainable production practices. Therefore, consumers who are aware of and interested in the principles of FT may have certain expectations about the quality and ethical standards of FT coffee. For these reasons, all consumer satisfaction models, such as the Swedish consumer satisfaction barometer (Fornell, 1992), the ACSI (Fornell *et al.*, 1996) and the European Consumer Satisfaction Model (ECSI Technical Committee, 1998), consider that consumer expectations exert a positive, direct effect on PV. Hence, we propose the following hypothesis:

H3. CE positively affect PV in FT coffee consumption contexts.

Consumers evaluate products also in terms of the social consequences (customer social value) and the enjoyment or pleasure gained from the product (customer emotional value) (Sweeney and Soutar, 2001). Customer social value relates to the social image generated by the social connections formed through FT coffee consumption (Sheth *et al.*, 1991). Using a high-end brand of coffee like FT may generate a positive social image and bring the consumer closer to desired social groups, due to how the coffee is marketed and advertised, and the social context in which it is consumed. Therefore, since FT coffee seeks to benefit small-scale farmers and their communities and is associated with several positive social and environmental impacts, they may be more likely to perceive it as having a high social value. Consumers concerned about the social and ethical implications of their consumption may be more likely to view FT coffee as having a higher PV.

Likewise, customer emotional value is a sociopsychological dimension associated with the emotional states and feelings generated by the FT coffee (Sheth *et al.*, 1991), which may be raised by the satisfaction of knowing that the coffee was produced in a social and environmentally responsible manner, the sense of connection to the producer or the community where the coffee was grown, and the sense of pride in supporting a product that aligns with the values and beliefs of the consumer. The customer emotional value associated with these perceived benefits can enhance the PV of FT coffee. Hence, according to Slack *et al.* (2020) and

Wang *et al.* (2019), both customer social and emotional values are direct antecedents of PV in an FT coffee consumption context. Thus, we propose the following hypotheses:

- H4. Customer social value positively affects PV in FT coffee consumption contexts.
- H5. Customer emotional value positively affects PV in FT coffee consumption contexts.

Framing loyalty and consumer satisfaction

Based on the behavioral loyalty approach, loyalty can be measured by the probability that a product or brand will be chosen in the long term and repetitively (Colombo and Morrison, 1989). Based on the attitudinal approach, brand loyalty is associated with a psychological commitment referred to consumers' favorable attitude regarding the brand which encourages them to buy and/or recommend it (Colombo and Morrison, 1989).

Customer satisfaction contributes to maintaining long-term relationships with customers (Zhang *et al.*, 2020), and therefore is considered the most relevant direct antecedent of brand loyalty (Oliver, 1980; Oliver and Swan, 1989). Therefore, it can be assumed that the higher the levels of consumer satisfaction with their experience with FT coffee, the lower the purchase uncertainty, sensitivity of information associated with a purchase decision, the sensitivity to price changes, or the higher the consumer tolerance of variations in quality, and customer resistance to advertising promotions of other conventionally marketed coffees (Lewi *et al.*, 2007). When customers are satisfied with the products, they are more likely to continue purchasing them and recommend them to others. This is especially important in the context of FT coffee, as these consumers are interested in supporting ethical and sustainable business practices, and because of their high-quality level. This contributes to building a loyal customer base and to promote to the overall success of the FT movement (Othman *et al.*, 2017; Servera-Francés and Piqueras-Tomás, 2019). Thus, consumers will generate a more durable long-term bond with the brand, enhancing their loyalty toward FT coffee. Therefore, the following hypothesis is proposed:

- H6. Customer satisfaction positively affects loyalty in FT coffee consumption contexts.

Methodology

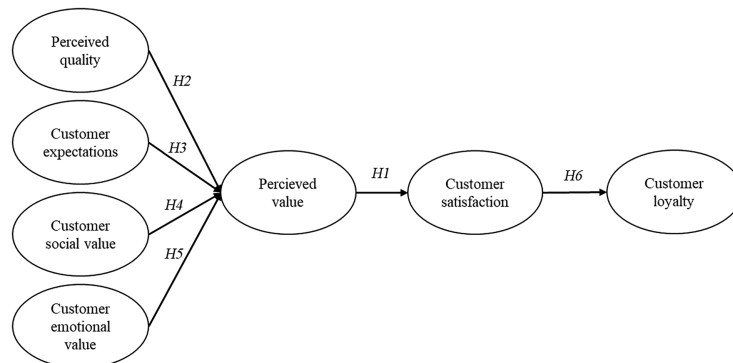
Conceptual model

This investigation tests an integrated customer satisfaction model (Figure 1) which includes both affective and utilitarian variables. This model proposes that PV antecedes customer satisfaction and the latter in turn antecedes loyalty. Moreover, PV is anteceded by customer emotional value and customer social value, which got from Sweeney and Soutar (2001), and CE and PQ, which got from the ACSI model.

Sample and data collection

The sample consists of FT coffee consumers in Spain. The data collection was made by electronic means to clients of FT organizations, associated with the state coordination of FT in Spain. These organizations have collaborated by emailing a letter to their clients, asking them to complete the questionnaire online using a Qualtrics link.

The 184 questionnaires received were filtered to increase the quality of the data. Seven questionnaires were excluded because most of the items were unanswered. Finally, the model was estimated based on 177 valid cases, of which 64.4% were women and 35.6% were men. The average age of the women was 48.86 (standard deviation (SD) = 8.981), and for the men 46.14 (SD = 9.353). The most frequent values correspond to individuals with a university education (70.6%) and with a high school education (27.7%). Most respondents declared incomes between 1,000 and 1,500 euros (33.9%), and below 1,000 euros (32.13%). The sample is representative



Source(s): By authors

Figure 1.
Conceptual model

because the population size is relatively small. Despite its growing penetration, only 35.9% of the Spanish adult population knows the FT purchasing alternative. Moreover, of this percentage, only 16.1% have ever bought an FT product (Kossmann *et al.*, 2021).

The questionnaire was validated in terms of content and face validity. The questionnaire items are appropriate because they have been got from tested and validated scales used in prior relevant research in this field. Furthermore, the common method bias (CMB) and the measurement model have been analyzed, which confirmed that the questions are understood as intended and the constructs being measured adequately represent the range of such constructs.

Both CFA and SEM were performed to test using SPSS/AMOS 26.0 software. This statistical method is applicable for analyzing causal processes with observations generated from multiple variables (Satorra and Bentler, 1988).

Concept items and measurement

Table 2 shows information about the concept, source, items and Likert scale for all scales in the theoretical model, which are adaptations from scales used in prior research.

Common method bias

Data collection was controlled according to the recommendations of Jarvis *et al.* (2003), to minimize potential CMB (Fuller *et al.*, 2016). Therefore, pretesting of the questionnaire was conducted to check the layout. Also, respondents were informed on the anonymity and requested to give honest answers. Furthermore, questions related to nondependent variables were placed before the dependent ones.

Moreover, Harman's single factor test (1967) revealed the existence of seven factors with eigenvalues above one, which explained 81.88% of the total variance, with the first factor explaining 43.97% of the total variance. These results show that CMB is unlikely to affect the results (Fuller *et al.*, 2016).

Finally, the CFA of a single-factor model showed that the goodness-of-fit indices presented no acceptable values ($\chi^2(df) = 1,474.188 (209)$, $p < 0.001$, $\chi^2/df = 7.054$, normed fit index (NFI) = 0.551, Tucker-Lewis index (TLI) = 0.541, comparative fit index (CFI) = 0.585; root mean square error of approximation (RMSEA) = 0.185, goodness of fit index (GFI) = 0.521; adjusted goodness of fit index (AGFI) = 0.420), with the fit significantly worse than the measurement model. Consequently, it is possible to confirm that CMB problem was not significant in this research (Jarvis *et al.*, 2003).

Construct	Description	Source	Items	Likert scale
Customer social value	Utility derived from the product's ability to enhance social self-concept	Sweeney and Soutar (2001)	Purchasing FT coffee would help me to feel acceptable Purchasing FT coffee would improve the way I am perceived Purchasing FT coffee would make a good impression on other people Purchasing FT coffee would give Its owner social approval	7
Customer emotional value	Utility derived from the feelings or emotional states that a product generates	Sweeney and Shouter (2001)	FT coffee is one that I would enjoy FT coffee would make me want to use it FT coffee is one that I would feel relaxed about using FT coffee would make me feel good FT coffee would give me pleasure	7
Customer expectations	Expectations derived from the anticipation of expected benefits and sacrifices that result from the purchase and the use of a product based on prior consumption experience or nonexperiential information available from sources such as advertising and word-of-mouth, and a forecast of the supplier's ability to deliver quality in the future	Fornell <i>et al.</i> (1996)	How would you rate your expectations of the overall quality of the FT coffee? How well did you expect your FT coffee to meet your personal requirements? How often did you expect that things could go wrong with your FT coffee?	10
Perceived quality	Utility derived from the expected performance or excellence of the product	Fornell <i>et al.</i> (1996) and Sweeney and Soutar (2001)	How would you rate the overall quality of your FT coffee? How well has your FT coffee actually met your personal requirements? How often have things actually gone wrong with your FT coffee?	10
Perceived value	Utility derived from a comparison of benefits and sacrifices associated with the purchase or consumption of the product	Fornell <i>et al.</i> (1996)	Given the quality of your FT coffee, how would you rate the price that you paid (or prices that you pay) for FT coffee? Given the price that you paid (or prices that you pay at) for your FT coffee, how would you rate the quality of your FT coffee?	10

(continued)

Table 2.
Conceptual model
scales

Construct	Description	Source	Items	Likert scale
Customer satisfaction	Overall evaluation after purchase assessed from comparison of the perceived result after purchase with expectations prior to purchase	Fornell <i>et al.</i> (1996)	How satisfied are you with your FT coffee? To what extent has your FT coffee fallen short of or exceeded your expectations? How well do you think your FT coffee compares with that ideal coffee?	10
Customer loyalty	Likelihood to purchase a company's products or services in response to price changes	Fornell <i>et al.</i> (1996)	The next time you are going to purchase coffee, how likely is it that you will purchase a FT coffee again? What would be the maximum price increase for your FT coffee that you would be willing to tolerate before you would definitely not choose FT coffee the next time you buy coffee? How much should the price of your FT coffee drop before you definitely choose an alternative coffee the next time you buy coffee?	10 3

Table 2.

Source(s): By authors

Data analysis and results

Measurement model analysis

The metric pre-testing of the measurement model suggested that one item of the loyalty construct (Loy_Q23) should be eliminated. Furthermore, the resulting measurement model analysis showed acceptable values (Table 3). Convergent validity revealed that all indicators loaded onto their respective latent factor significantly ($p < 0.001$) (Anderson and Gerbing, 1988) and substantially ($\lambda > 0.5$) (Steenkamp and van Trijp, 1991). The variance explained also displayed acceptable values ($R^2 \geq 0.5$). Likewise, Cronbach's α values of each latent variable confirmed the reliability of measurement model. Additionally, the composite reliability index (CRI) and average variance extracted (AVE) exceeded the recommended minimum values by Hair *et al.* (2010). Thus, the reliability of the scale was confirmed.

Table 4 shows that the AVE was greater than the squared correlation estimates (Hair *et al.*, 2010), except for CE, PQ and PV-satisfaction (Sat). However, since the difference is so slight, it is possible to confirm the discriminant validity (Hair *et al.*, 2010).

Finally, goodness-of-fit of the measurement model showed acceptable values: χ^2 (df) = 323.461 (183), $p < 0.001$, $\chi^2/df = 1.768$, NFI = 0.901, TLI = 0.942, CFI = 0.954; RMSEA = 0.066, GFI = 0.856; AGFI = 0.801.

Structural model analysis

The goodness-of-fit indices indicate that the structural model reached a satisfactory level of fit (Table 5). The structural paths between PV and customer satisfaction (H1: $\beta = 0.952$, $p < 0.001$), PQ and PV (H2: $\beta = 0.546$, $p < 0.005$), customer social value and customer PV (H4: $\beta = 0.224$, $p < 0.005$), and customer satisfaction and customer loyalty (H6: $\beta = 0.328$, $p < 0.001$), were significant, confirming H1, H2, H4 and H6. Contrariwise, the structural path

Variables	Indicator	Standardized loads	R ²	Cronbach's alpha	CRI	AVE	Satisfaction of fair trade coffee consumers
SV	SV_Q1	0.726***	0.064	0.927	0.922	0.751	
	SV_Q2	0.929***	0.020				
	SV_Q3	0.935***	0.020				
	SV_Q4	0.864***	0.045				
EV	EV_Q5	0.802***	0.054	0.909	0.910	0.670	
	EV_Q6	0.793***	0.051				
	EV_Q7	0.867***	0.032				
	EV_Q8	0.812***	0.049				
	EV_Q9	0.807***	0.038				
CE	CE_Q10	0.744***	0.075	0.722	0.749	0.500	
	CE_Q11	0.741***	0.066				
	CE_Q12	0.632***	0.075				
PQ	PQ_Q13	0.910***	0.024	0.842	0.873	0.704	
	PQ_Q14	0.955***	0.013				
	PQ_Q15	0.607***	0.069				
PV	PV_Q16	0.752***	0.057	0.794	0.818	0.694	
	PV_Q17	0.905***	0.036				
CS	CS_Q18	0.866***	0.052	0.906	0.920	0.794	
	CS_Q19	0.938***	0.018				
	CS_Q20	0.868***	0.024				
CL	CL_Q21	0.905***	0.149	0.852	0.854	0.747	
	CL_Q22	0.838***	0.122				

Note(s): ****p* < 0.001
Source(s): By authors

Table 3. Convergent validity and reliability of the measurement model

	SV	EV	CE	PQ	PV	CS	CL
SV	0.866	0.428***	0.139	0.317***	0.455***	0.495***	0.199*
EV	(0.294; 0.562)	0.818	0.563***	0.662***	0.627***	0.716***	0.267***
CE	(0.037; 0.315)	(0.427; 0.699)	0.707	0.816***	0.636***	0.670***	0.195*
PQ	(0.171; 0.463)	(0.564; 0.760)	(0.732; 0.900)	0.839	0.813***	0.756***	0.350***
PV	(0.317; 0.593)	(0.515; 0.739)	(0.506; 0.766)	(0.739; 0.887)	0.833	0.912***	0.369***
CS	(0.371; 0.619)	(0.630; 0.802)	(0.556; 0.784)	(0.680; 0.832)	(0.858; 0.966)	0.891	0.301***
CL	(0.037; 0.361)	(0.107; 0.427)	(0.015; 0.375)	(0.200; 0.500)	(0.213; 0.525)	(0.145; 0.457)	0.864

Note(s): **p* < 0.05, ****p* < 0.001
 Above diagonal: estimated correlation between factors/diagonal: squared root of variance extracted/below diagonal: confidence interval for correlation between factors
Source(s): By authors

Table 4. Discriminant validity of the measurement model¹

between CE and PV (H3: $\beta = 0.088$, n.s.) and customer emotional value and PV (H5: $\beta = 0.199$, n.s.) were not significant, suggesting that both customer emotional value and CE have no direct effect on PV. Hence, H3 and H5 not were supported.

Discussion and implications

Theoretical implications

The research results provide relevant theoretical implications for better understanding consumer satisfaction with FT coffee. The findings corroborated that PV explains FT coffee consumers' satisfaction and this latter, in turn, influences their loyalty. However, the most novel theoretical contribution has been to apply the Fornell *et al.* (1996) model to an FT coffee

Hypothesis	Structural relationship	Standardized coefficients	Robust <i>t</i> -value	Conclusion
H1	PV-CS	0.952***	39.667	Accepted
H2	PQ-PV	0.546**	2.471	Accepted
H3	CE-PV	0.088	0.349	Not accepted
H4	SV-PV	0.224*	2.286	Accepted
H5	EV-PV	0.199	1.318	Not accepted
H6	CS-CL	0.328***	5.467	Accepted

Table 5.
Fit results and path
coefficients for
structural
equation model

Fit results	χ^2/df	CFI	TLI	NFI	RMSEA	GFI
$\chi^2(df); p$ -value						
347.866(192); 0.000	1.812	0.949	0.939	0.894	0.068	0.845
Note(s): * $p < 0.5$; ** $p < 0.01$; *** $p < 0.001$						
Source(s): By authors						

consumption context, despite it having traditionally been used for conventional products. This means assuming that the PV of FT coffee consumers is simultaneously explained by factors of socioemotional (customer social value, customer emotional value) and utilitarian (PQ, CE) nature. However, the estimation only confirmed that PQ and customer social value are antecedents of PV.

Findings confirm the PV, which results from cognitive and emotional processes (Ikramuddin *et al.*, 2017), affects satisfaction with FT coffee (e.g. Konuk, 2019; Slack *et al.*, 2020). This means that the PV, generated from the trade-off between perceived benefits and sacrifices ex-post consumption, determines the satisfaction raised from the evaluation that FT coffee consumers make based on the discrepancy between expectations and the result perceived after consumption.

Likewise, our findings corroborate the broad consensus about identifying perceived satisfaction as an antecedent of loyalty (e.g. Othman *et al.*, 2017; Servera-Francés and Piqueras-Tomás, 2019). Thus, the higher level of satisfaction, the lower the price sensitivity or the higher their resistance to competitive offers from other products (Lewi *et al.*, 2007), thus the more likely their retention (Oliver, 1980; Oliver and Swan, 1989), and consequently, the higher the loyalty will be.

The results also confirm that PQ is a determinant of PV (e.g. De Toni *et al.*, 2018; Konuk, 2019). So, we can affirm that the FT coffee assessment made by consumers based on its performance or excellence influences their PV.

In turn, our findings highlight the relevance of social factors as determinants of FT coffee consumer PV (e.g. Slack *et al.*, 2020; Wang *et al.*, 2019). Since the FT coffee consumers' altruistic behavior reflects their concern for social justice and the well-being of others (Huang and Rust, 2011), thus, we can affirm that the customer social value raised by the social image of themselves generated by FT coffee consumption and their ethical obligations (Shaw and Shiu, 2003) affects the consumers' PV.

Conversely, unlike other investigations (Fornell *et al.*, 1996; Oliver, 1980), the estimated model has failed to confirm the association between consumer expectations and PV. This result may be due to the that PV takes as standards of comparison perceived benefits and sacrifices, assessed after consumption (Aurier *et al.*, 2004) while consumer expectations are a prediction of future results (Oliver, 1980). Also, maybe the relationship between the two variables was indirect, mediated by some other variable, such as experiential quality (Saut and Bie, 2022).

The results did not confirm either the influence of customer emotional value on PV in an FT coffee consumption context, as demonstrated recent studies (e.g. Slack *et al.*, 2020; Wang *et al.*, 2019). FT coffee consumers are not motivated by the emotional experience of the act of purchase because FT establishments have an excessively modest appearance and salespersons are not trained in promoting and raising awareness of the ethical and social virtues inherent in

FT coffee, thus they cannot develop a product-specific buyer-seller interaction, so the purchase of FT coffee occurs as if one were buying any conventional product.

Managerial implications

The findings provide relevant managerial implications for improving the satisfaction of FT coffee consumers and building enduring loyalty relationships. Results showed that consumer satisfaction with FT coffee is determined by the PV, which in turn is affected by both the quality and customer social value. In this regard, managers should implement strategies to prompt the consumers' willingness to purchase and to build stronger loyalty bonds toward FT coffee (Beldad and Hegner, 2018; Kushwah *et al.*, 2019), working on its intrinsic quality characteristics and the social implications derived from the purchase.

However, one of the most significant obstacles to achieving these goals is the high price of FT coffee (De Pelsmacker and Janssens, 2007; Lappeman *et al.*, 2019). This barrier can be overcome through the expansion of the range of FT coffee (Cailleba and Casteran, 2010), the utilization of price as an indicator of its quality (Rombach *et al.*, 2021), or the better dissemination of its ethical implications (Robichaud and Yu, 2022). Thus, on the one hand, FT coffee managers should offer higher ranges of products, from premium FT coffee brands to competitively priced FT coffee (Cailleba and Casteran, 2010). On the other hand, for the premium price to be a quality indicator, FT coffee producers should direct efforts on consumers' knowledge enhancement about the identification of this higher price with the intrinsic quality characteristics such as flavor, aroma or healthy attributes (Mohsen and Dako, 2013). Finally, practitioners should contribute to improving the understanding of FT coffee's social values, bonded with the fair treatment of coffee farmers in developing countries (Beldad and Hegner, 2018; Kushwah *et al.*, 2019; Ortberg *et al.*, 2001; Rombach *et al.*, 2021).

For these purposes, certification (Rombach *et al.*, 2021) and reliable labeling programs (Robichaud and Yu, 2022), accompanied by awareness campaigns (Kushwah *et al.*, 2019), would strongly contribute to proving the authenticity, the high quality of the product and the social attributes of the FT movement. Further, these advertisement campaigns should be promoted by marketing practitioners, FT coffee retailers and relevant institutions. Marketing practitioners should boost positive belief that FT coffee consumption is a right, fair behavior (Ortberg *et al.*, 2001), 'by enhancing the content of advertisements, product labeling, and other information material accompanying FT coffee, with details about the producer, to identify the origins of the product.' (Gillani *et al.*, 2021, pp. 568). On the other hand, retail stores need more trained staff for communicating the social and environmental work inherent to the FT coffee initiative, improving the consumer emotional value. Retailers also can implement marketing actions at an in-store level, by means of brochures, advertisements, offering FT coffee sampling or tasting sessions, or organizing social events (Gillani *et al.*, 2021). Finally, relevant institutions, such as the government or consumers' associations, should promote widespread campaigns aimed to inform, educate and persuade on the environmental and societal advantages of FT coffee consumption (Beldad and Hegner, 2018).

Conclusions, limitations and proposals for further studies

Research and managerial findings reached contribute to enhancing the literature on FT coffee consumers' satisfaction. This research analyzes the antecedents and consequents of consumer satisfaction for ethical consumption context in general, and FT coffee in particular. The integrated theoretical model for consumer satisfaction analyses considers both utilitarian factors, such as PQ and CE, and sociopsychological factors, such as customer social and emotional values, as antecedents of PV. The findings confirm that PQ and customer social value influence PV, while the latter affects customer satisfaction, which in turn affects the loyalty of FT coffee consumers.

This research has several limitations, which should be considered when interpreting its implications. The research focuses FT coffee consumers only in Spain, so the country's cultural idiosyncrasy has not considered as explanatory factors. Moreover, the measurement scales were taken from no-specific models for FT products and the scale used to PQ does not include items related to the flavor, aroma, and other nutritional properties of the FT coffee. Thus, future research should encompass different geographical areas to generalize the results in space and time, and test specific measurement scales for FT products.

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Board of directors and business transformation: a bibliometric analysis

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Abstract

Purpose – This paper aims to analyze the thematic content of research addressing the relation between board of directors (BoD) and business transformation (BT) to obtain better understanding of status and to derive future areas of study.

Design/methodology/approach – This paper reviews literature through a bibliometric analysis based on co-occurrence of articles published in Web of Science Core Collection™ (WoS) between 1990 and 2022, identifying key concepts, setting network of relations and identifying the strategic importance of clusters of concepts. Findings and implications are discussed, future lines of research are presented and limitations are noted.

Findings – Thematic research on boards addressing transformation shifted from the analysis of individuals' traits to an organizational approach with majority of research centered on the role of boards under different theories and the consequences of strategic changes on firm's performance. Further research is around gender diversity, sustainability and the moderating role of ownership structure and business culture.

Research limitations/implications – Some limitations are also noted. This analysis considered articles indexed by WoS for Q1+Q2 publications as source of literature, while including others such as Scopus would increase knowledge base. Also, to identify main streams of research, the authors considered keywords with cumulative occurrence spanning from 30% to 40% while increasing this percentage would add terms that might improve precision to the connections among keywords. Other techniques could have been used such as co-citation or bibliographic coupling, although the authors find these as better suited to investigate the basic structure behind the foundational knowledge of the topic while the authors' intention was to understand the positioning of study fields regarding the degree of research progress.

Practical implications – This paper presents some practical implications for future researchers. Those who wish to leverage previous evidence to address new research questions might look into principal themes covering BoD dynamics and composition to exert CG, and the relation between strategic decisions and performance measured by different variables. Those who wish to position their research as new findings to shed light on dilemmas, might find opportunities in the fields of climate change-sustainability, R&D for growth and innovation under the perspective of intangible assets.

Originality/value – This paper, is the first to the best of the authors' knowledge, to identify research clusters for the intersection of boards and transformation and to determine their stage of development.

Keywords Board-of-directors, Corporate-governance, Transformation, Bibliometric-analysis

Paper type Research paper

1. Introduction

Business transformation (BT), although traditionally present in corporate debates and academic research, gained exponential attention since 2015, when the UN published the Sustainable Development Goals (SDGs) 2030, a framework for sustainable development of economies and societies. In this environment, the role of business is key (Mio *et al.*, 2020) with

JEL Classification — G3, G34

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board of directors (BoD) facing great complexity as strategic decision makers leading BT toward sustainable development models.

The economic consequences of Covid-19 pandemic led organizations to rethink their business models, and different authors share that companies need to go through some sort of transformation either to return to previous situation or to adapt to new scenarios (Carracedo *et al.*, 2021; Seetharaman, 2020; Yeganeh, 2021) as a consequence of an accelerated digitalization (Amankwah-Amoah *et al.*, 2021), alternative management systems (Dwivedi *et al.*, 2020) or opportunities derived from new ways of consuming products, the need to learn new skills and the agility of some organizations to adapt to uncertainty (Belitski *et al.*, 2022).

Since organizations will adopt transformation strategies, it is relevant to understand how BoDs relate to BT, given accountability of boards in strategy formulation. This accountability can be approached both from an institutional perspective and from the different theories that explain the role BoDs play in corporate life.

Different institutions turned their attention to BoD as the main body to exercise corporate governance (CG) starting in 1992 with the Cadbury Report. The UK CG Code 2018 [1], Section 1, principle B states that *“the board should establish the company’s purpose, values and strategy, and satisfy itself that these and its culture are aligned”*, and the EU Commission Green Paper dated April 5th 2011, concluded that *“high performing, effective boards are needed to challenge executive management. This means that boards need non-executive members with diverse views, skills and appropriate professional experience. Such members must also be willing to invest sufficient time in the work of the board”* [2]. In 2012, The Institute Risk Management (www.theirm.org) stated that BoDs are to determine what risks and to what extent they should be assumed, and specifically mentions “changes” within the responsibilities to monitor by directors. Also, OECD Principles of CG state that boards are responsible for strategic guidance, proving that it is up to BoD to undertake an active role regarding BT. Furthermore, in some countries such as in Spain, this has become a legal requirement when the Spanish Capital Company Law (2010), rules in article 249-bis that *“board of directors will not delegate under any circumstances . . . The formulation of general rules and strategies of the company”*. Therefore, it is up to directors to decide and lead BT.

Traditional CG theories help to understand the engagement of BoD in BT strategic decisions, namely agency, resource dependency (RDT), and stewardship theories. The agency theory explains the relation between firm’s ownership (the principal) and management (the agent) in terms of the first engaging the latter to perform a service in their name (Fama and Jensen, 1983; Jensen *et al.*, 1976). Since there is a risk that management might pursue different goals from those of ownership by behaving in self-interest at the owners’ cost (Ferkins *et al.*, 2005), BoD would play a control role with management focusing on strategy execution while BoD focuses on strategy formulation, and both working in close collaboration when significant changes to strategy are favored by BoD (Hendry *et al.*, 2010).

On the contrary, the stewardship theory sees managers (“stewards”) acting in full defense of owners’ interests because there is no collision of interests between the two groups and, therefore, resources entrusted to managers are well managed (Donaldson, 1990; Donaldson and Davis, 1991). These authors argue that inside directors are in a better position to make optimal decisions than outside directors given their superior knowledge of internal practices and therefore, BoDs play a service role by encouraging managers to do their best, including strategy formulation and execution (Pugliese *et al.*, 2009). Under this perspective, BoD role in BT would be to facilitate strategic achievements pursued by management.

RDT sees BoD providing access to resources needed by firms and the ability of directors to generate connections between the firm and its environment (Pfeffer and Salancik, 1978). These authors state that board members also minimize the dependencies between firms and environment leveraging four types of resources brought by directors to companies: (1) advice and counseling; (2) access to channels of information; (3) preferential access to physical

resources; and (4) legitimacy. These contributions are essential to define and to lead BT leveraging external experiences offered by outside directors (Pfeffer and Salancik, 1978), whose social ties to other diverse business contexts would enhance BoD role in relatively unstable environments frequently seen in BT (Carpenter and Westphal, 2001). One of these resources would be recognition, and in this line, Díez-Martín *et al.* (2021) suggest that an organization achieves legitimacy when (among others) it is driven by a particular mission, led by prestigious leaders or it is linked to high prestigious entities with all this disseminated by media (Díez-Martín *et al.*, 2021). Therefore, when BoDs preserve owners' mission (agency theory), nominate and support adequate firm's officials (stewardship theory) and cooperate in generating ties with other organizations (RDT), they not only build legitimacy but lay grounds to change and transformation.

Other perspectives challenge traditional theories and offer complementary views on BoD's role. The managerial hegemony theory supports the idea of BoD as *de jure* corporate government with legal but not real power which resides on management, a *de facto* corporate government. This would imply that BoD are in the hands of management and therefore, BT would entirely be the consequence of managerial decisions (Stiles, 2001). Other authors move away from formal theories to present BoD as a group of individuals that gather, process and share information under a jungle of barriers that compromise either an effective monitoring role or a service role (Boivie *et al.*, 2016).

On the other hand, different authors believe that BoD's full potential is achieved when they play different roles (Macus, 2008), that there is little theoretical consensus regarding the contribution of BoD to strategizing (Pugliese *et al.*, 2009), that the effectiveness of a BoD depends as much on the individual traits of its members as on the dynamics generated within BoD (Barroso *et al.*, 2011), and that BoD added value is originated when board plays a combined role consistent with both the stewardship theory and RDT (Arzubiaga *et al.*, 2018).

Regarding how BoDs address BT gets complicated due to other factors. Transformation is a risky endeavor with high levels of failure due to misalignments among organizational values, individual values and change initiatives (Burnes and Jackson, 2011), the lack of a holistic approach that integrates all factors at play (Errida and Lotfi, 2021), the risk aversion by owners and managers (Asensio-López *et al.*, 2019) or the absence of a change process that leverages change drivers (Whelan-Berry and Somerville, 2010). For the latter, the first vital step to initiate change is the acceptance of a vision at individual level by both employees and stakeholders, and some authors emphasize the need of collaboration between BoD and CEO to foster a share vision (Miles and Watkins, 2007). Additionally, Goldstrom (2019) highlights ten reasons explaining transformations failures including poor tracking of initiatives, which resembles the monitoring role of BoD.

For some authors, successful transformations depend on well positioned leaders within organizations, that go beyond the norm, requiring a proactive move by companies to install the right managers in leading positions and empower them (Walls *et al.*, 2021). Whether empowerment is a resource to be leveraged under RDT or a means to support adequate managers under the stewardship theory, BoD would have much to say in successful BT. Also de Waal (2018) reviews literature on factors for successful transformations, concluding that the low matching between theoretical and practical factors might explain the reason for high failure in transformation interventions (de Waal, 2018). This author highlights eight theoretical and practical factors that are present in successful transformations with six of them clearly associated to managerial domains, and two factors (connected company; high performance partnerships) potentially leveraged by BoD under RDT in the form of adequate networking.

Generally, this framework provides the basis to understand the balance of power among individuals, the relevance of personal characteristics in BoD effectiveness and the contribution of BoD to organizational legitimacy. However, some authors ask for a holistic model that helps boards and managers to prepare organizations for the future in view of megatrends-

disruptors that imply changes (de Waal and Linthorst, 2020), for further research on how BoD leadership relates to diversity, CSR and innovation (Zheng and Kouwenberg, 2019) and on how the sequence CG-strategy decisions-performance better explains the true relationship between CG mechanisms and sustainable results (Medina-Salgado *et al.*, 2020). Our intention is to address these calls by analyzing the intersection between BoD and BT.

Given that literature surrounding this topic is vast, we decided to use bibliometric techniques to understand the themes that shape the content, as suggested by previous authors that leverage this approach to obtain large amounts of keywords as data from incumbent papers (Kumar *et al.*, 2022) to analyze the output obtained from broad and large data sets and summarize the intellectual framework behind a topic (Donthu *et al.*, 2021; Garfield *et al.*, 2006; Vošner *et al.*, 2017). Therefore, the aim of our work is to: (1) obtain an overview of this field of study, (2) identify and understand the themes that give content to the relation between BoD and BT and (3) derive future lines of analysis. To do so, we will focus on three research questions:

RQ1. who are top authors covering BoD and BT?

RQ2. which areas were previously analyzed?

RQ3. which of those areas constitute developed areas of study and which offer opportunities for further research?

The content of this work can be used in different ways. Prospective researchers on the topic will quickly identify key authors when searching for references (RQ1), will understand the pillar themes that constitute the intellectual basis for this topic (RQ2) and will be able to position their research contributions either as validation of a well-covered area or as a breakthrough to an undeveloped area. Also, practitioners and professionals can gain access to experts in the field for further consultation (RQ1), understand the theory behind the practical issues they face in corporate life (RQ2), and identify where to look for validated solutions in areas already analyzed (RQ3). We believe that in fulfilling the above, a starting point is initiated to be complemented with further studies that would yield theoretical contributions (Mukherjee *et al.*, 2022).

The structure of this work is as follows: Section 2 summarizes methodology, Section 3 presents the output of our analysis, Section 4 discusses findings and Section 5 contains our conclusions, future lines of research and limitations.

2. Methodology

Our methodology is based on two categories of techniques: performance analysis, to highlight most influential authors, and science mapping, to uncover areas of knowledge. To answer RQ1, authors' performance is evaluated according to productivity and impact (Donthu *et al.*, 2021). Additionally, we have analyzed most influential articles measured as citations per year to understand most relevant contributions around BoD and BT.

The content of science mapping will be a co-word analysis, a technique that enables to uncover relations among keywords that converge into compact clusters sharing a common theme of analysis, facilitating answers to RQ2 and RQ3 (Escamilla-Fajardo *et al.*, 2020; Martín-Peña *et al.*, 2017; Mukherjee *et al.*, 2022). We have discarded other techniques, namely bibliographic coupling, co-citation, and co-authorships, because we believe these are more suited to understand the institutional background of the topic or to uncover social relations among incumbents, while our interest rests upon unveiling themes built up by keywords as components (Paule-Vianez *et al.*, 2020).

2.1 Search protocol

The data used in this analysis was retrieved from WoS indexed in the database of Social Science Citation Index. We preferred WoS over SCOPUS since WoS started to collect

scientific papers in 1900 while Scopus started in 1966 (Paule-Vianez *et al.*, 2020) although supremacy of one database over the other is difficult to assert (Aghaei Chadegani *et al.*, 2013).

In order to capture all relevant papers dealing with the topic, we built a search string that included the different meanings to address transformation found in the fields of business and management, with the final string being (“board” OR “boards”) AND (“transformation” OR “restructuring” OR “change” OR “innovation” OR “business development” OR “renewal”).

The search was completed on December 23rd, 2022 covering the period between January 1st, 1990, and December 23rd, 2022, a 32-year interval that is considered adequate, since it constitutes an important segment of time that has witnessed the stages of growth and maturity of an academic discipline. Other filters that we applied include area of study (business, management, finance, economics and marketing), type of documents (articles, review articles) and source (220 publications rated Q1 or Q2 by Journal Citation Report). As a result, we obtained 1,023 articles upon which we conducted the process of analysis.

2.2 Analysis process

Given the techniques behind our methodology, we draw our analysis on authors and keywords from the 1,023 articles obtained in our filtered search.

Authors were ranked and assessed according to publications as a measure for productivity, and citations as a measure of impact. Although citations do not tell us all, it is an objective indicator of relevance (Bornmann and Leydesdorff, 2013). Citations per publications and h-index were also considered as combined measures of productivity and impact (Donthu *et al.*, 2021).

For keywords analysis, we considered both author’s and KeyWords plus® (those generated automatically by WoS based on article’s title) retrieving 10,553 keywords. Further deduplication left 4,634 unique items (Cobo *et al.*, 2011), focusing our study on those terms achieving a significant rate of occurrence, being 42 in 1990–2007 with more than four times (39.2% of cumulative occurrence) and 65 in 2008–2022 with more than nineteen times (31.9% of cumulative occurrence).

In order to identify relations among top keywords, we formed a co-word matrix using Bibexcel™, a piece of software designed to assist bibliographic data analysis. Then, groups of related keywords and networks were identified using Ucinet™ software. We favored this last tool over others (namely VOSviewer) because it facilitates co-occurrence matrix formation and enables data processing for further analysis through strategic graphs (Cobo *et al.*, 2011). Ucinet™ enables analysis of social networks, with degree of closeness as a key indicator of a node’s contribution to the network, so the greater this degree, the greater the keyword’s importance in the network. This helps categorize keywords as central (those shaping the network due to their strength and position), semi-peripheric and peripheric (those poorly linked within the network), depending on their location in the network of relations (Callon *et al.*, 1991; Díaz-Garrido *et al.*, 2018).

Given our aim to understand the composition and relevance of themes around the intersection of BoD and BT, most cited keywords were clustered, and their importance classified in strategic graphs according to the technique introduced by Callon *et al.* (1991). Each cluster represents a theme characterized by a pair of data (centrality; density) with centrality measuring the intensity of its links to other clusters in the network (the higher the centrality, the more connected to other fields of study) and density measuring the inner strength of the links that tie the words within the cluster (the higher the density, the more developed is the research). The sum of centrality and density generates an Equivalence-Index (E-I) with the higher this E-I, the greater the strategic importance of a cluster in a network (Callon *et al.*, 1991; Cobo *et al.*, 2011). Plotting the pair of data centrality-density in a XY graph, we obtain four categories of themes with distinctive meaning for each one (Table 1).

Isolated themes

Unconnected and developed themes. Here, we usually find themes with strong internal connections (high density) but poorly connected to other themes (low centrality), which would be the case of once principal themes and now of marginal relevance

Principal themes

Interconnected and developed themes show high density (robust and internally coherent) and high centrality (highly related to others). These themes have concentrated the core of the research efforts and are essential to the topic at study

Dilemma themes

Peripheral and undeveloped themes. Here, we find declining themes with low interest to researchers mixed up with emerging themes still to develop and showing little connection to other areas of study

Secondary themes

Interconnected but undeveloped themes, show low density but high centrality. Themes in this quadrant are mentioned in numerous papers but research is in a basic stage given weak inner connections

Source(s): Table by authors

Table 1.
Categories of Themes
in Strategic Graph

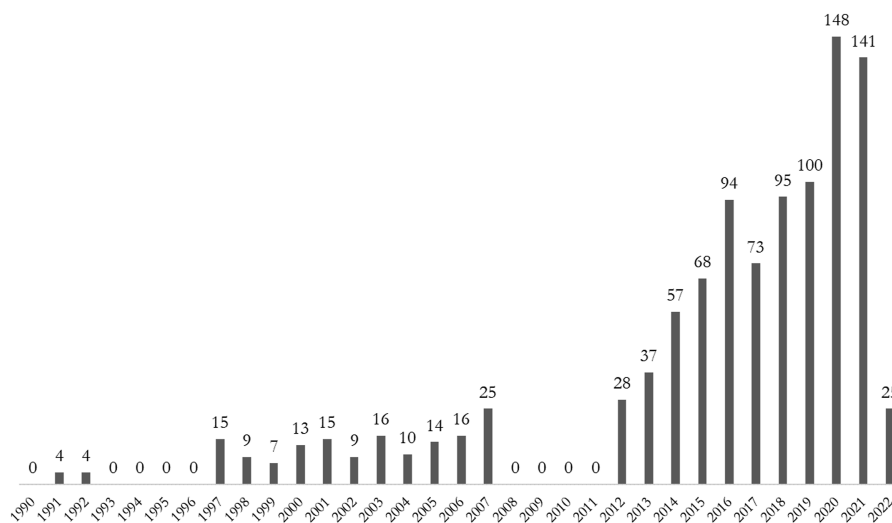
3. Results

Although our initial intention was to analyze the entire period 1990–2022, results suggested that there might be two patterns of research (Figure 1). We decided to approach the study in two subperiods (1990–2007; 2008–2022) in order to detect changes in research patterns if they had occurred.

3.1 Performance analysis

Production around the topic has increased in recent years with 85.7% of articles concentrated in 2008–2022, revealing a growing interest by researchers on the topic.

A total of 323 authors published during 1990–2007 with only seven producing more than two articles. Most productive author is James D Westphal with five articles on the interrelations between directors and CEO and how these two influence each other at boards for large US corporations. However, most influential authors are Robert E. Hoskisson (largest h-index) and Richard A. Johnson (largest citations) (Table 2), who co-authored two papers on



Source(s): Figure by authors

Figure 1.
Publications per year,
1990–2022

the roles of institutional investors and BoD in relation to international diversification, and the preference for either internal or external innovation of different types of institutional investors and directors' profiles.

The subperiod 2008–2022 sees 2,256 authors with 26 of them publishing more than two papers and two authors to highlight: Isabel M. Garcia Sánchez as the most productive with eight papers on board independency issues, and Alfredo de Massis as the most influential with highest citations and h-index (Table 3), who researches on BoD involvement in innovation at small and medium sized enterprises (SMSE).

Most of cited articles during 1990–2007 (Table 4) focus on government intervention in Chinese privatized companies (Fan *et al.*, 2007), the impact of different institutional ownership on corporate social performance (Johnson and Greening, 1999), the distinctive preferences for different types of innovation by inside and outside directors (Hillman *et al.*, 2000), the bias for different type of R&D funding by directors (Hoskisson *et al.*, 2002) and the impact of tensions among management and boards on not fulfilling stock repurchasing programs widely announced during the 90s (Westphal and Zajac, 2001).

The subperiod 2008–2022 sees a growing attention to societal issues (Table 5), and although they do not address BT directly, they delve into corporate changes related to sustainability (Eccles *et al.*, 2012; Lozano, 2015) environmental aspects (Liao *et al.*, 2015) and diversity at boards (Dezsó and Gaddis Ross, 2012).

3.2 Analysis of science mapping

Network of relations among top keywords were created according to their role to the network, using closeness degree (Figures 2, 3).

Core terms (largest red icons) are highly connected to other terms, setting the personality of the network and the research. In 1990–2007, we found concepts relating to different layers of power across the enterprise (ownership; directors; management), the framework of rules to

Table 2.
Authors with highest number of publications (>2), 1990–2007

Author	# Articles	Citations	Citations per article	H index	Total publications
Westphal, James D	5	1.133	226,6	41	60
Filaltotchev, Igor	4	466	116,5	45	138
Hoskisson, Robert E	3	862	287,3	53	93
Barker, Vincent L	3	450	150,0	20	42
Johnson, Richard A	3	1.617	539,0	12	62
Hitt, Michael A	3	1.010	336,7	49	121
Zajac, Edward J	3	912	304,0	17	32

Source(s): Table by authors

Table 3.
Authors with highest number of publications (>4), 2008–2022

Author	# Articles	Citations	Citations per article	H index	Total publications
Garcia Sanchez, IM	8	310	38,7	44	186
Krause, R	6	263	43,8	19	30
De Massis, A	5	405	81,0	48	139
Martinez-Ferrero, J	5	185	37,0	22	52
<i>Co-authored 4 of 5 with Garcia Sánchez, IM</i>					
Withers, MC	5	119	23,8	19	37

Source(s): Table by authors

Ref	Aim	Key words	Contribution	# Citations per year
Fan <i>et al.</i> (2007)	To examine the role of government intervention in China's newly partially privatized firms	political connections; corporate governance; IPO; performance; partial privatization; China; operating performance; share; market; state	The presence of politically connected CEO's in newly partially privatized in China in the period 1993–2001 reaches 27%. These companies vs. similar companies with non-politically connected CEO's: (a) underperform long-term post-IPO stock returns by –18% with poorer accounting performance; (b) IPO initial (first day) returns are negatively related to the CEO's political connections; (c) boards show fewer professionals than others with more presence of other bureaucrats, less gender and age diversity. In summary, government intervention through politically connected CEO's isn't a driver of shareholder value maximization Certain types of institutional ownership and government mechanisms are positively related to a pair of isolated aspects of corporate social performance such as product quality and people. Pension fund equity relates positively to both dimensions, while mutual and investment banks equity show no relation to those aspects. Outside directors show positive relation while cases where Top Management holds equity has a positive impact on product quality but no effect on people dimension A taxonomy of four types of directors (Insiders, Business Experts, Support Specialists and Community Influentials) that reflects the distinctive role that directors play under resource dependence theory as opposite to their role under agency theory perspective. Given an environmental change such as moving from regulation to a deregulation in US air lines sector, boards replacements were more likely to come from the business expert and community influential types, while during regulation board replacements were more likely from the insider and support specialist categories	72,9
Johnson and Greening (1999)	To examine relationship among types of institutional investors, board composition, top management team equity, and specific Corporate Social Performance dimensions	organizational attractiveness; shareholder activism, firm innovation; investors; directors; incentives; boards; environment; intensity; strategy		36,2
Hillman <i>et al.</i> (2000)	To present a taxonomy for classifying directors that reflects the resource dependence role as distinct from the agency role, and to explore the role of resource dependence by examining the changing nature of board composition in the US air line travel industry	performance; governance; top; firm; perspective; management; ownership; turnover; impact; model		28,9

(continued)

Table 4.
Top most cited articles
published, 1990–2007

Ref	Aim	Key words	Contribution	# Citations per year
Hoskisson <i>et al.</i> (2002)	To explain how different types of owners often have distinct and potentially conflicting preferences for corporate innovation strategies	R&D; agency costs; diversification strategy; firm; investors; board; management; directors; impact; incentives	Agency theory should be amended to consider that not all owners have the same preferences toward corporate governance and innovation strategies - Institutional pension (public) fund ownership has a stronger positive relationship with internal innovation as well as stronger inside director incentives and ownership, than does professional investment fund manager ownership - Professional investment fund manager ownership has a stronger positive relationship with external innovation through acquisition than does institutional pension (public) fund ownership - Inside board member ownership and incentives are more strongly positively related to internal innovation than is the degree of representation (director ratio and ownership) of independent outside board members - The degree of representation (director ratio and ownership) of independent outside board members is more strongly positively related to external innovation than are inside board member ownership and incentives	24,3
Westphal and Zajac (2001)	To explain the response of firms to answer external pressures to demonstrate corporate control over managerial behavior regarding the implementation of Stock repurchase programs in USA during 80s and 90s	corporate governance; CEO compensation; inter-organizational imitation; golden parachutes; management; adoption; performance; director; firm; embeddedness	The greater the CEO's power over the board, the greater the extent to which firms decouple financial investments from formally adopted repurchase programs, so that the programs remain more symbolic than substantive. Board network ties to firms that have decoupled their buyback programs can increase managers' awareness of the potential to engage in symbolic action (i.e. actual decoupling) vs substantive action (i.e. actual fulfilling formally adopted programs)	18,6

Source(s): Table by authors

Ref	Aim	Keywords	Contribution	# Citations per year
Eccles <i>et al.</i> (2012)	To understand whether organizations that voluntarily adopt environmental and social policies show distinctive corporate profiles regarding governance structure, financial performance and stakeholder management process	organizational studies, strategy; effectiveness performance; behavior; sustainability; social-responsibility; stakeholder theory; charitable contributions; management; associations; capabilities; issues	Through a sample of 180 US companies, authors prove that companies that pay high attention to social policies and environmental issues in comparison to those who don't, show a distinctive organization profile with ad-hoc governance mechanisms where boards undertake direct responsibility over social and environmental issues, link executive compensation to sustainable objectives, show a longer term time horizon in communications, robust reporting and pay greater attention to non-financial metrics regarding interests for stakeholders (both shareholders and non-shareholders such as employees or suppliers)	68,3
Liao <i>et al.</i> (2015)	To answer whether board composition characteristics is related to voluntary disclosure of greenhouse gas emissions	female director; independent director; environmental committee; GHG disclosure; corporate social-responsibility; voluntary disclosure; institutional ownership; executive-compensation; stakeholder theory; women directors; governance; performance; attitudes; companies	The existence of environmental committees within boards together with a high level of diversity measured as gender diversity and a large number of independent directors favors the disclosing of greenhouse gas emissions which suggests that this board composition might balance different types of goals within organizations and reduce the risk of conflicts among different groups of stakeholders posing different interests	51,0

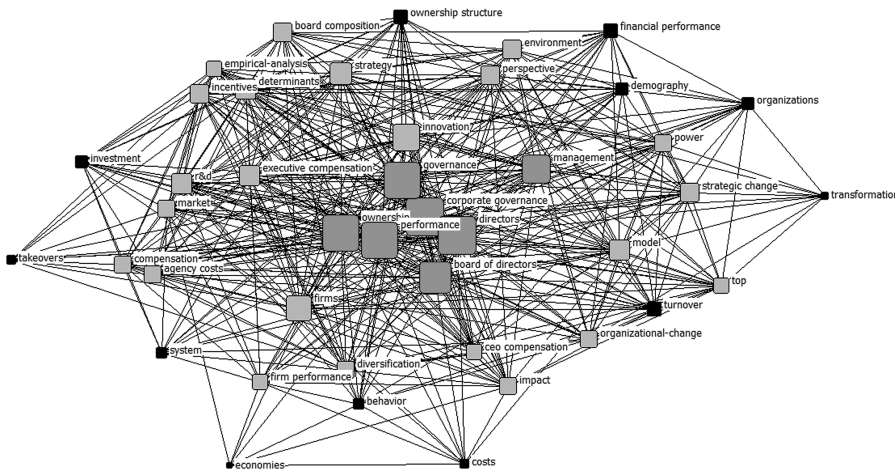
Table 5. Top most cited articles published, 2008–2022
(continued)

Ref	Aim	Keywords	Contribution	# Citations per year
Dezső and Gaddis Ross (2012)	To answer whether female representation in top management has a positive effect on firm performance, and, if so, to understand whether the effect is general or confined to particular contexts	Gender; diversity; top management teams; firm performance; innovation; corporate boards; research agenda; competitive advantage; intrinsic motivation; employee creativity; leadership-style; upper echelons; tobin-q; women	Female representation in top management has positive impact on management (information and social diversity; enhanced behavior through management and increased motivation for women at middle management) that would lead to a better firm performance, only to the extent that a firm's strategy is focused on innovation and a high innovation intensity is deployed, measured as the ratio of R&D expenses to assets	43,8
Lozano (2015)	To provide a holistic perspective on the different corporate sustainability drivers in order to drive change toward a more sustainable-oriented state	corporate sustainability; change management; drivers; leadership; leverage; organizational culture	A model for better Corporate Sustainability (CS) adoption based on a larger awareness of the three types of drivers for CS: internal (ethical leadership; business case; company's culture), external (customer demands and expectations; regulation and legislation; society's raising awareness) and connecting drivers (reputation, sustainability reports, access to resources, environmental/social crises, market opportunities; market positioning). Despite deep attention to internal and external, connecting drivers can go unnoticed and limit the change required to adopt CS initiatives	37,1

Table 5. Source(s): Table by authors

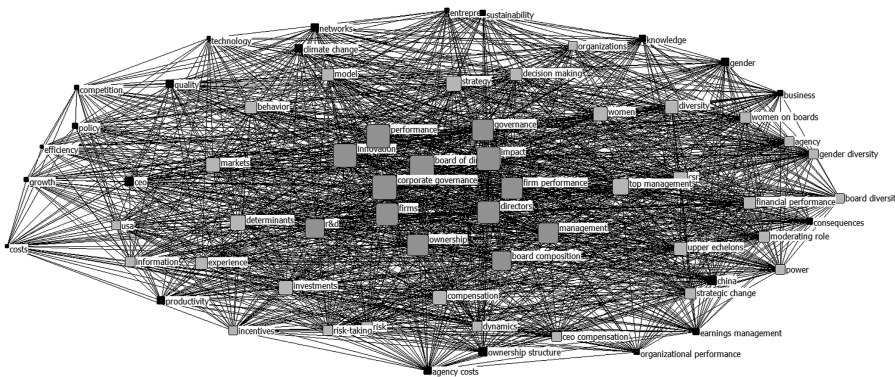
follow (CG) and the impact on business (performance). During 2008–2022, those terms remain central with researchers seeking the connection between those and innovation, R&D, firm performance and board composition.

The rest of most occurring keywords are located either in a semi-peripheral position (medium size blue icons) surrounding the core of the network with a average importance, or in a peripheral position (smallest black icons), achieving less occurrence frequency due to either a lower importance for researchers or because they are emerging concepts with analysis still to grow. Table 6 shows for each subperiod, the complete list of top keywords with closeness degree.



Note(s): Red = Core; Blue = Semi-peripheral; Black = Peripheral
 Size of nodes = Centrality Degree
Source(s): Figure by authors

Figure 2.
 Network of Relations
 for Keywords,
 1990–2007



Note(s): Red = Core; Blue = Semi-peripheral; Black = Peripheral
 Size of nodes = Centrality Degree
Source(s): Figure by authors

Figure 3.
 Network of Relations
 for Keywords,
 2008–2022

These keywords form clusters that enclose thematic areas of research and plotted in a strategic graph where size of the bubble represents relevance as measured by E-I (Figures 4 and 5). Also, keywords characterizing the content of clusters are shown in Tables 7 and 8.

As **principal themes** in 1990–2007: *CG* (set of rules driving changes, investments, takeovers), *BoD* (its relation toward innovation and R&D strategies) and *Directors* (as members in the organization and its relations to top management). In 2008–2022, two principal themes with increased complexity: *CG-BoD* (composition as determinant of board's dynamics and engagement with ownership) and *Firm's Performance* (consequences of decisions by upper echelons on organizations and financial performance).

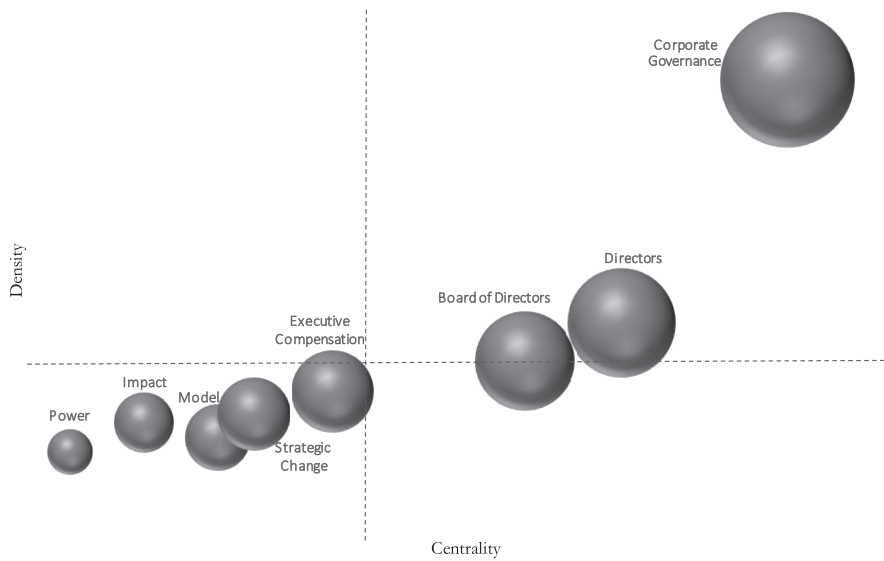
	First period: 1990 to 2007		Second period: 2008 to 2022	
Central to the Network	corporate governance 93,182 directors 93,182 governance 91,111 ownership 91,111 performance 91,111 board of directors 85,417 management 82,000		board of directors 100,000 corporate governance 100,000 performance 98,462 innovation 98,462 impact 98,462 directors 96,970 firms, 96,970	ownership 95,522 firm performance 95,522 governance 95,522 management 92,754 board composition 91,429 R&D 91,429
Semi-peripheral	innovation 78,846 firms 77,358 strategy 73,214 determinants 71,93 executive compensation 71,93 model 71,93 randd 71,93 incentives 70,69 board composition 69,492 environment 69,492 perspective 69,492	agency costs 68,333 compensation 68,333 diversification 68,333 impact 68,333 market 68,333 organizational-change 67,213 power 67,213 CEO compensation 66,129 empirical analysis 66,129 firm performance 66,129 top 66,129	top management 86,486 determinants 85,333 strategy 85,333 compensation 84,211 investments 84,211 CSR 84,211 women 84,211 markets 83,117 upper echelons 82,051 diversity 82,051 decision making 81,013 financial performance 81,013 behavior 80,000 experience 80,000 model 80,000	moderating role 79,012 risk 78,049 strategic change 78,049 women on boards 78,049 ceo compensation 77,108 information 77,108 agency 77,108 power 77,108 risk-taking 77,108 board diversity 77,108 gender diversity 77,108 dynamics 77,108 incentives 76,190 USA 76,190 organizations 76,190 knowledge 72,727 sustainability 71,111 organizational performance 70,330 policy 70,330 business 70,330 competition 69,565 entrepreneurship 69,565 growth 69,565 costs 67,368 technology 67,368 efficiency 67,368
Peripheral	ownership structure 65,079 turnover 65,079 financial performance 64,063 demography 63,077 investment 62,121 organizations 62,121 behavior 61,194 system 61,194 takeovers 58,571 costs 57,746 transformation 56,944 economics 54,667		China 75,294 ownership structure 75,294 CEO 75,294 climate change 74,419 productivity 74,419 agency costs 73,563 quality 73,563 gender 73,563 networks 73,563 earnings management 72,727 consequences 72,727	

Table 6. Keywords by period and degree of closeness

Source(s): Table by authors

No **secondary themes** were identified in 1900–2007, with one cluster in 2008–2022: *Impact*, dealing with gender diversity at boards and corporate life.

As **dilemma themes**, five clusters in 1990–2007: *Impact* (how individuals' behavior are reflected on economics), *Executive Compensation* (on management reward schemes), *Model* (business model), *Strategic Change* (changes on organizations and financial performance) and *Power and Transformation*. In 2008–2022 another five clusters with different thematic content: *CSR* (climate change; sustainability); *Performance* (risks affecting business results), *Investments* (coupled with incentives and costs affecting efficiency), *R&D* (technology driving productivity gains), *Innovation* (intangible assets such as knowledge, networks and organizations as source of newness).

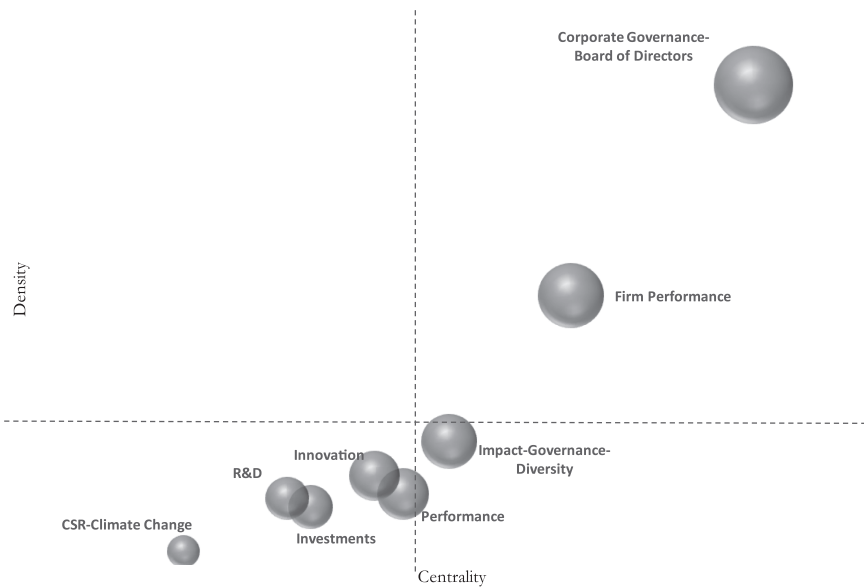


Source(s): Figure by authors

Board of directors and business

225

Figure 4. Strategic Graph for Thematic Clusters in 1990–2007



Source(s): Figure by authors

Figure 5. Strategic Graph for Thematic Clusters in 2008–2022

4. Discussion

This analysis shows that principal research themes have grown from more internal-individual aspects to more societal-collective matters. In 1990–2007 the core of the analysis was positioned on internal perspectives of BoD namely the approach of directors as

Table 7.
Thematic Clusters per
Quadrant in 1990–2007

Quadrant: Dilemma Themes
Impact: behavior; costs; economies; impact (68.33)
Executive Compensation: compensation;
executive compensation (71.93); firm performance;
market; system
Model: model (71.93); perspective; turnover
Strategic Change: environment; financial
performance; organizations; strategic change (70.69)
Power: power (67.21); transformation
Source(s): Table by authors

Quadrant: Principal themes
Corporate Governance: Agency costs; board
composition; corporate governance (93.18);
determinants; diversification; firms; governance;
incentives; investments; ownership; takeovers
Board of Directors: Board of directors (85.41);
empirical analysis; innovation; ownership structure;
R&D; strategy
Directors: CEO compensation; demography;
directors (93.18); management; organizational change;
performance; top

Table 8.
Thematic Clusters per
Quadrant in 2008–2022

Quadrant: Dilemma Themes
CSR: climate change; CSR (84.21); sustainability
Performance: behavior; business; firms;
performance (98.46); quality; risk; USA
Investments: costs; efficiency; incentives;
information; investments (84.21); markets
R&D: competition; growth; policy; productivity;
R&D (91.42); technology
Innovation: entrepreneurship; innovation (98.46);
knowledge; model; networks; organizations; strategy
Source(s): Table by authors

Quadrant: Principal Themes
Board of Directors-Corporate Governance:
agency; agency costs; board composition; board of
directors (100); CEO; CEO compensation; China;
compensation; corporate governance (100);
determinants; directors; dynamics; earnings
management; management; ownership; ownership
structure
Firm Performance: consequences; decision
making; experience; financial performance; firm
performance (95.52); moderating role; organizational
performance, power; risk-taking; strategic change; top
management; upper echelons
Quadrant: Secondary Themes
Impact: board diversity; diversity; gender; gender
diversity, governance; impact (98.46); women; women
on boards

individuals toward change (Brunninge *et al.*, 2007; Chatterjee *et al.*, 2003; Le *et al.*, 2006; Luan and Tang, 2007; Westphal and Fredrickson, 2001; Yawson, 2006), while in 2008–2022, the principal themes take a more public perspective focusing research on corporate responses from BoD, as an organizational body, to sustainability risks (Ben-Amar *et al.*, 2017;

Bernile *et al.*, 2018; Buyl *et al.*, 2019; Haque, 2017; Husted and Sousa-Filho, 2019; McGuinness *et al.*, 2017) or to significant alterations on competitive landscape (Karaevli and Zajac, 2013; Oehmichen *et al.*, 2017; Yang and Zhao, 2014). This orientation can also be seen in most cited papers in 2008–2022 with research focusing on group behavior rather than individual traits of directors (Table 5).

All the above implies that principal themes have rather changed than evolved since we cannot consider both thematic clusters being originated under similar cultural frameworks. To identify this, we have conducted consensus analysis (CA), a methodology previously applied to different fields such as cultural diversity within social movements (Borgatti and Halgin, 2011) or climate change (Crona *et al.*, 2013) which helps to identify similarities (consensus) between definitions. Borgatti and Halgin (2011) highlight that this methodology assesses consensus in responses to multiple types of answers, and state that a low consensus would indicate that definitions (i.e. the terms forming clusters) are drawn from different cultures with systematically different beliefs. This methodology evaluates the “agreement” between clusters through a correlation index, with this index above 0,7 when they share a conceptual background. Table 9 shows most strategic theme in 2008–2022 (BoD-CG) sharing low correlation versus any other from previous period, indicating it constitutes a standalone stream of reasoning, and therefore, we can not say that principal themes for both subperiods are the same.

We argue that this change of perspectives goes beyond the theoretical background discussion. Most influential papers when the topic focuses on individual characteristics, show connections to both agency theory (Fan *et al.*, 2007; Hoskisson *et al.*, 2002; Westphal and Zajac, 2001) as well as RDT (Hillman *et al.*, 2000; Johnson and Greening, 1999). This also happens when the perspective turns more organizational, with research connected to both agency theory (Eccles *et al.*, 2014; Liao *et al.*, 2015) and RDT (Dezsö and Ross, 2012; Lozano, 2015).

Regarding the secondary theme (diversity), the analysis of gender diversity at BoD is connected to a broad variety of topics including firm’s innovation performance, response to ESG-CSR challenges, stock volatility, corporate results, consequences of gender quotas, or the quality of accounting. However, as in the case of principal themes, the variable under scrutiny is the “who” (the association between an individual attribute and a performance variable) with deeper research needed regarding the “how” (processes and organizational aspects), namely the deployment of innovation initiatives across organizational structures (Dezsö and Ross, 2012), how gender diversity is moderated by cultural, institutional and legal settings (Husted and Sousa-Filho, 2019; McGuinness *et al.*, 2017) or competitive environment (Bernile *et al.*, 2018), the impact of diversity on processes (Conyon and He, 2017; Haque, 2017) and how gender quotas at BoD is actually translated into a more diverse management (Bertrand *et al.*, 2014) and more accurate financial reporting (García Lara *et al.*, 2017).

A potpourri of theories underlay the roles played by BoD in the above literature including the agency theory (García Lara *et al.*, 2017; Husted and Sousa-Filho, 2019), RDT (Bernile *et al.*, 2018; Bertrand *et al.*, 2014; Dezsö and Ross, 2012), both agency theory and RDT (Haque, 2017) or the integration of theories from other domains such as social psychology and labor economics (Conyon and He, 2017).

Above shows that the themes surrounding BoD and BT enclose a complexity that goes beyond the theoretical roles played by directors at BoD and that the topic should consider both composition features and functioning mechanisms with unclear relations between BoD composition and innovation (Asensio-López *et al.*, 2019).

5. Conclusions, implications and future lines of research

To the best of our knowledge, this paper is the first to identify clusters for research on BoD and BT, to clarify their thematic content and to determine the stage of development for those

Table 9.
Agreement (correlation
index) between
Clusters by period

	2008-2022									
	Board of directors-corporate governance	Firm performance	Impact	CSR	Performance	Investments	R&D	Innovation		
1990-2007	<0,7	<0,7	<0,7	<0,7	0,718	<0,7	<0,7	<0,7	<0,7	<0,7
Corporate Governance	<0,7	<0,7	<0,7	0,769	<0,7	0,718	0,769	0,744	0,744	0,744
Board of Directors	<0,7	<0,7	<0,7	0,821	0,795	0,821	0,718	0,744	0,718	0,718
Directors	<0,7	<0,7	<0,7	0,795	0,718	0,744	<0,7	<0,7	<0,7	<0,7
Impact	<0,7	<0,7	<0,7	0,744	0,718	<0,7	<0,7	<0,7	<0,7	<0,7
Executive Compensation	<0,7	<0,7	<0,7	0,846	0,769	0,846	0,744	0,769	0,744	0,769
Model	<0,7	<0,7	<0,7	0,821	0,744	0,769	0,769	0,744	0,769	0,744
Strategic Change	<0,7	0,718	<0,7	0,872	0,795	0,821	0,769	0,744	0,769	0,744
Power	<0,7	0,718	0,718	0,872	0,795	0,821	0,769	0,744	0,769	0,795

Source(s): Table by authors

clusters. Research shows that BoDs are connected to BT, and this is key to achieve high performance organizations. This will help future researchers to position further analysis either as validation of findings or as new contributions to enhance undeveloped themes.

For this purpose, we took stock of 1,023 articles dealing with the topic that have been published between 1990 and 2022 in prestigious publications and unveiled that previous literature is not a uniform body of knowledge. Production splits in two separated subperiods (1990–2007; 2008–2022) with researchers focusing on distinctive themes. Using Bibexcel™, keywords were extracted and using Ucinet™, we plotted graphs to identify themes that have concentrated most of the research efforts (principal themes), those with connections to a broad variety of corporate aspects but with deeper research needed (secondary themes) and those themes with little connections to other fields and undeveloped (dilemma themes).

Regarding the first research question (top authors covering BoD and BT), we focused on the number of articles, citations and h-index to identify most influential authors. In 1990–2007, we found that the most productive author is James D. Westphal for questions about the engagement of CEO and boards, Richard A. Johnson, with highest number of citations per article who would be the author to read for the role of institutional ownership on corporate evolution, and Robert E. Hoskisson, with highest h-index, who focuses on the impact of different types of ownership on CG. In 2012–2021, we found five authors with more than four articles, being authors of reference, Isabel M. Garcia Sánchez (most productive and second highest h-index) for board independency issues, and Alfredo De Massis (highest h-index) for BoD involvement in innovation at SMSE.

To answer the second question (which areas are being analyzed for the link between BoD and BT?), we found that during 1990–2007, the topic caught low interest from researchers, and most of their work concentrated on the balance of inner power within corporations (owners, directors, top management), the body of rules that marked their behavior (CG) and how directors might exercise control over management (compensation, incentives, agency costs and board composition). During 2008–2022, we found that interest on the matter grows exponentially with researchers expanding lines of work beyond core traditional aspects (CG, ownership, BoD and management) and elevating to a central position the consequence of decisions made by stakeholders (performance, impact). Also, new lines of research appear in these years mostly related to diversity (gender diversity) and sustainability (CSR, climate change).

To answer the third research question (which areas constitute well-covered fields of study; which ones are undeveloped), we identified the relevance of themes through their location in strategic graphs, showing two highly structured and well-developed areas that concentrate most of the research efforts in 2008–2022: (1) CG and BoD from the perspective of organizational behavior rather than the sum of individual features; (2) consequences of strategic decisions on firm's performance. We also noted the existence of a secondary theme covering the impact on firms of gender diversity although most of the research concentrates on diversity as an individual trait rather than organizational aspects. The importance of seeing BoD's involvement in BT as a complex structure instead of a mere sum of individuals playing a theoretical role is corroborated by the contributions of most cited articles (Tables 4 and 5) and the fact that we have seen a myriad of different theories simultaneously used to support contributions.

This paper presents some practical implications for future researchers. Those who wish to leverage previous evidence to address new research questions might investigate principal themes covering BoD dynamics and composition to exert CG, and the relation between strategic decisions and performance measured by different variables. Those who wish to position their research as new findings to shed light on dilemmas, might find opportunities in the fields of climate change-sustainability, R&D for growth, and innovation under the perspective of intangible assets (networks, knowledge and entrepreneurship). Also, to highlight gender diversity as an interconnected subject with research to develop around organizational perspectives.

The strategic graph for 2008–2022 (Figure 5) offers uses to derive future lines of research each one building on specific quadrants with distinctive aims (Table 10). The first line would be whether the impact of BoDs on BT depends on corporate culture and ownership structure. Are family-controlled companies with a low number of directors (aligned with ownership) more successful because board composition facilitates agile execution with less discrepancies? Or are highly diversified shareholding companies more successful because diversity in boards facilitate broader answers to transformational challenges? Answering

Strategic aim	Enabler quadrant in strategic graph 2008–2022	Suggested line of research	Research questions	Supporting sources
Validate findings sourced from developed themes, in alternative business context less developed	Principal Theme	Family ownership and BoD culture for BT success	Which ownership structure most facilitates BT government? Family-controlled business with a family aligned BoD or fragmented shareholding companies with diversified directors' profiles?	Chrisman <i>et al.</i> (2004), King <i>et al.</i> (2022), Maseda <i>et al.</i> (2019), Vlastic (2022)
Deepen the content of an interconnected cluster of ideas still with areas to examine	Secondary Theme	Leveraging the beneficial impact of gender diversity in upper echelons by a synchronized increase in female representation both at BoDs and Top Management Team (TMT) rather than separated organizational layers	Do firms achieving high performance results require an organization where diversity shows parallel standards at BoD and at TMT?	Bertrand <i>et al.</i> (2014), de Waal (2018), Dezső and Ross (2012), Maida and Weber (2022), Tampakoudis <i>et al.</i> (2022), Vracheva and Stoyneva (2020)
Expand an undeveloped theme in relation to other areas already researched and to strength inner content	Dilemma Theme	Organizational legitimacy of BoDs as a driver of BT due to sustainability and climate change risks	When BODs lead BT for climate change reasons, does organizational legitimacy act as an enabler or as a must-have? What are the CG attributes profiling companies succeeding at BT? Which of those attributes relate to effectiveness and which ones to legitimacy?	Cachón-Rodríguez <i>et al.</i> (2021), Díez-Martín <i>et al.</i> (2021), Galbreath (2018), Haque (2017), Liao <i>et al.</i> (2015), Orazalin and Mahmood (2021)

Table 10.
Future Lines of
Research

Source(s): Table by authors

this might yield recommendations to family companies on how to integrate strategic approaches, and to multi-owned companies on how to increase agility at governing BT.

A second line will deepen the content of secondary theme (gender diversity) focusing on how to leverage the beneficial impact of an increased female representation both in BoDs and top management teams (TMT). Traditional analyses have covered the impact of gender diversity in isolated domains (either BoDs or TMT) and we could ask whether organizations aiming high performance results require that gender diversity is equally standardized at BoD and TMT.

A third line of research would concentrate on the specific organizational characteristics that profile sustainable corporations and how this is led from BoDs. Analyzing how climate change and sustainability enter board's agenda will explain what triggers BT, and the attributes activated to gain either effectiveness or legitimacy from stakeholders.

Some limitations are also noted. This analysis considered articles indexed by WoS for Q1+Q2 publications as source of literature, while including others such as Scopus would increase knowledge base. Also, to identify main streams of research, we considered keywords with cumulative occurrence spanning from 30% to 40% while increasing this percentage would add terms that might improve precision to the connections among keywords. Other techniques could have been used such as co-citation or bibliographic coupling, although we find these as better suited to investigate the basic structure behind the foundational knowledge of the topic (Mukherjee *et al.*, 2022) while our intention was to understand the positioning of study fields regarding the degree of research progress.

Despite the above, this review is the first to address transformation as the focal point of BoD, to identify most relevant authors on the topics, and the themes that concentrate interest for authors, pointing out new lines where future research might head to.

Notes

1. <https://www.frc.org.uk/getattachment/88bd8c45-50ea-4841-95b0-d2f4f48069a2/2018-UK-Corporate-Governance-Code-FINAL.pdf>
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The “industrial halo” and its impact on the assessment of corporate reputation

“Industrial halo” and corporate reputation

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Abstract

Purpose – The gap that this research attempts to fill is to analyse the explanatory factor “industry” when assessing the reputation of a corporate group. In other words, this research attempts to demonstrate the impact of the “industrial halo” on the assessment of corporate reputation, given that, to date, the academic literature has not considered industry as an explanatory variable in the assessment of the reputation of private companies.

Design/methodology/approach – A sample of 43 Spanish companies was used to analyse the relationship between the reputation of firms as measured by the Merco Empresas index, and the industries to which they belong, after controlling for company performance, size, turnover, public recognition of their leadership, and corporate responsibility. This involved conducting a cross-sectional analysis of the relationship between the variables for each year in the time period from 2005 to 2016. The available data were taken from the firms’ annual financial reports and websites, as well as from the Merco.

Findings – The paper shows the existence of industrial halos that account for the corporate reputation of businesses in Spain. It is also shown that industrial halos are not permanent over time, and that they tend to occur in years of crisis.

Research limitations/implications – It would have been desirable for this study to have had sufficient data to include other industries, but this was not possible. As for possible extensions, in addition to expanding the period considered, other analytical techniques, such as panel data models, could be applied to allow comparison with the results obtained here.

Practical and social implications – The results of this study have some practical implications. Firstly, firms that publish corporate reputation rankings should be aware of the distortion that the industrial halo can produce, especially in times of uncertainty, and seek to correct for it in their measurements. And secondly, corporate groups themselves should assume that the reputation of the industry affects their individual reputation, and consequently, they should see the other companies in the industry not only as competitors but also as “reputational allies”. They should therefore make collective efforts to improve in this respect, especially in the face of reputational crises.

Originality/value – This paper provides a better understanding of the relationship between the reputation of a company and the industry to which it belongs, and of its permanence over time. This relationship has been little studied in the Spanish market to date.

Keywords Reputation, Reputational risk, Stakeholders, Reputation measurement, Industry, Industrial halo

Paper type Research paper



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1. Introduction

The advent of globalisation in recent decades has made corporate risks increasingly evident. The need to make investments profitable, reduce production costs and capture new markets has led to a continuous growth in the size of business organisations, a logical reaction to the new perception of the planet as a vast open market. However, deregulation and increased demand volatility mean that companies are exposed to greater risks in the course of their business.

Indeed, globalisation has generated a “complex”, increasingly interrelated world that (probably because of this) is also more uncertain and unpredictable (Rodríguez-Castellanos and San-Martín-Albizuri, 2020). This has clear repercussions for the business world. In addition, there have been rising, changing and more sophisticated demands by consumers/users, which have resulted in a substantial reduction of their traditional habits of brand loyalty, while also demanding responsible behaviour from the business world.

However, the vast majority of the risks to which business is currently exposed have existed for many decades; the only difference is that new circumstances have now awakened some that were dormant, that had a small impact or a limited impact on certain business units. This is the case of “reputational risk”, i.e. the possibility that a company may lose its “reputation” or corporate prestige, or may see it significantly reduced, which can negatively affect the business. Reputation management has therefore become a decisive component of business strategy, and measuring it is essential in managing reputational risk.

Nevertheless, this measurement may be distorted by cognitive biases that misrepresent the perception of stakeholders. These include belonging to certain industries, that is, the “industrial halo”, which we consider important for an accurate analysis of reputational perception. This type of halo has been little analysed in the academic literature to date. The aim of this study is to demonstrate the impact of the “industrial halo” on the valuation of corporate reputation. Therefore, the research focuses on whether this phenomenon occurred in Spanish companies during a broad period around the economic crisis that began in 2008–2009, considering three sub-periods: pre-crisis (2005–2008), full crisis (2009–2012) and post-crisis (2013–2016).

In line with this objective, the structure of this paper is as follows: after this introductory section, the conceptual framework is presented. The concepts of “reputation” and “industrial halo” are delimited, and the hypotheses to be tested are established. The methodology used is then described, including sampling and data used. This is followed by the presentation and discussion of the results, and the conclusions and limitations. The paper ends with the references section.

2. Conceptual framework

The numerous definitions of *corporate reputation* (Dowling, 2016; Fombrun, 2012) indicate the difficulty involved in comprehensively capturing this concept. A well-known definition is that by Fombrun, “a corporate reputation is a collective assessment of a company’s attractiveness to a specific group of stakeholders relative to a reference group of companies with which the Company competes for resources” (2012, p. 100).

As can be deduced from this definition, it is a latent, multidimensional, slow-burning concept, which is not directly observable and reflects the collective view of the company by certain actors, specifically, the stakeholders (Freeman, 1984). These peculiarities will be discussed in detail below.

Firstly, it is a *collective assessment* carried out by certain stakeholders who have different types of links with the company or organisation being assessed: consumers or users,

employees, managers, financial analysts, competitors, financial journalists, opinion leaders, public regulators, etc. Secondly, the *attractiveness* that the company offers to these evaluators needs accounted for. This requires identifying the elements that determine what makes it attractive, something that refers to a range of economic/financial, social, employment-related, environmental, ethical and good governance attributes. These even include emotional factors, which therefore reflect the *multidimensional* nature of reputation. Moreover, the formation and strengthening of corporate reputation require a long *period of time* to establish the perceptions that shape it; it does not depend on one-off promotional activities. Finally, this assessment has a clear comparative purpose, as it takes as a benchmark the *group of companies* competing with the one being evaluated within a given industry or number of industries.

Academic research has shown the effect of corporate reputation on the value creation of companies, both internationally (Vig *et al.*, 2017; Roberts and Dowling, 2002; Dunbar and Schwalbach, 2000), and in Spain (Fernández-Sánchez *et al.*, 2015; De Quevedo-Puente, 2003). This makes it necessary to control the procedures for measuring it, to try to ensure an assessment that is bias-free and allows for correct strategic decisions to be made. Biases may include a cognitive distortion in the perceptions of stakeholders: the industrial halo.

The term *halo effect* was first coined by Thorndike (1920). It can be described as a cognitive distortion or bias that causes the unconscious generalisation to the whole of a particular (positive or negative) trait of the subject being analysed. In short, it is an illogical generalisation that is usually accompanied by insufficient information on the subject matter.

Thorndike’s conclusion has been confirmed in subsequent decades by a large body of research, both in the field of psychology (Keeley *et al.*, 2013; Kahneman, 2011) and in the area of corporate behaviour and performance.

In the field of business, different types of halos have been identified, both in relation to individual decisions and to the company as a whole (Thaler, 2015; Rosenzweig, 2007), as well as to various specific aspects, such as commercial (especially brand image) (Leuthesser *et al.*, 1995), corporate social responsibility (Moliner *et al.*, 2019), the company’s country of origin (Šapić *et al.*, 2018) and the company’s corporate reputation (De Quevedo-Puente, 2003).

These references point to the existence of various typologies of business ‘halos’, such as financial, managerial, marketing and product’s country of origin.

It has also been argued that there may be an “industrial halo” in the perception of corporate reputation by stakeholders, in the sense that corporate reputation may be strongly influenced by the industry to which the assessed firm belongs. This would therefore involve a distortion of corporate reputational assessments in the form of a negative or positive bias about a company’s reputation based on its membership of certain industries. Ultimately, there seems to be a transfer of the reputation of the industry to the firms that make up the industry. This “halo” could be expected to be stronger in circumstances where there is less information or greater uncertainty (economic crises, for example), or in groups with restricted access to information (such as the general public). It could also have a stronger impact when “industrial” reputation is particularly favourable or unfavourable.

The effect that belonging to a certain industry has on corporate reputation assessment and strategies has attracted the interest of a number of researchers (Melo and Garrido-Morgado, 2012; Rouviere and Soubeyran, 2011; Susaeta *et al.*, 2008; Csiszar and Heidrich, 2006). Moreover, reputation assessment bodies such as the *Reputation Institute* and the *Edelman Group* take business industries into consideration in their analyses.

The interest of considering the “industrial halo” in the evaluation of corporate reputation lies in the views discussed above and in two additional aspects. Although previous academic research has shown some interest in the effect that belonging to a certain industry may have

on the evaluation of corporate reputation, this interest has so far been rather limited. Additionally, it should be borne in mind that part of the sample in reputational assessment procedures based on surveys usually includes non-specialists [1]. They are particularly exposed to a possible “industrial halo” that may distort their perceptions, as a result of prejudices due to ignorance or to limited or even biased external information received.

Based on the above considerations, the following hypothesis is proposed:

H1. The reputation of Spanish firms had an “industrial halo”, i.e. their reputation was influenced by the industry to which the firm belongs.

Moreover, it seems reasonable to expect that this “industrial halo” will be maintained over time. This assumption is corroborated by the fact that public satisfaction with the different industries seems to change only slightly over time, as shown by data on consumer satisfaction indices across various industries over time in the USA, for example [2]. It can therefore be inferred that reputational perception with respect to the different industries will not vary excessively over time. This second hypothesis is also therefore proposed:

H2. The “industrial halo” effect on the reputation of Spanish firms remains over time.

3. Methodology

3.1 Model

To test these hypotheses, we relied on the specification and estimation of a model for the evaluation of corporate reputation. We used cross-section regression and industries as explanatory variables to test whether (or not) industry membership is significant for the reputation of companies. The “halo” is measured by analysing the statistical significance of the explanatory variable “industry”. A series of control variables were also used, including profitability, size, turnover growth, leadership and corporate responsibility.

The following specification for corporate reputation is proposed:

$$RP_{it} = \alpha_1 + \alpha_2 RoA_{it-1} + \alpha_3 FS_{it} + \alpha_4 SG_{it} + \alpha_5 LEA_{it} + \alpha_6 CR_{it} + \sum_j \beta_j IND_{ji} + u_{it} \quad (i = 1, \dots, N; t = 1, \dots, T; j = 1, \dots, J) \quad (1)$$

where RP_{it} is the reputation of firm i in period t ; RoA_{it-1} is the ratio between the income of firm i and its Total Assets in $t-1$; FS_{it} is the size of i in t ; SG_{it} is the annual sales growth rate of i in t ; LEA_{it} is the leadership of i in t ; CR_{it} is the corporate responsibility for i in t ; and IND_{ji} , a binary independent variable (dummy variable) is industry j to which company i belongs.

The choice of variables (both of the variable to be explained and of the control and explanatory variables) to be included in the specification of the model requires some clarification.

For the variable *corporate reputation*, the Naperian logarithm of the *Merco España* index for the years 2005–2016, developed by Análisis & Investigación (2010, 2013, 2014, 2016) was used as a measurement tool.

Regarding the control variables, considering firstly the *Profitability* of the company, one-period lagged RoA was used. This ratio, measured as Return on Total Assets, seems to be the most suitable profitability indicator compared to other profitability measures. Although earnings before interest and taxes are ordinarily used as the numerator for the calculation, in this case we have decided to use the “Annual Profit” reported in firms’ financial statements, as we believe that it provides greater visibility of the “Return” magnitude for an uninformed audience. Several papers have explored the relationship between profitability and reputation,

either as an explanatory variable or as a control variable, usually with a time lag. A positive relationship with reputation has been generally found (Musteen *et al.*, 2010; Brammer *et al.*, 2009; Brammer and Pavelin, 2006; Dunbar and Schwalbach, 2000), as financial return is presumed to be a reliable reference for the reputational perception of stakeholders. A similar relationship is therefore expected to be found here.

The *Size (FS)* of the corporate groups obtained from their number of employees, i.e. their headcount at the end of each year, taking Naperian logarithms. We believe that this measure is more objective than the volume of assets, which is subject to accounting criteria, and is more stable than other measures such as turnover or stock market value. In studies on the determinants of corporate reputation, this variable is usually a control variable. In principle, firm size may have an ambiguous relationship to reputation, as at first sight there does not necessarily seem to be a clear relationship, either positive or negative, to reputation. However, if a significant relationship is found, it is often positive (Musteen *et al.*, 2010; Dunbar and Schwalbach, 2000), which is also expected here.

Sales growth (SG) was calculated as a rate of change, i.e. $f_{i,t}$ being the sale of i in t , $F_{i,t} = (f_{i,t} - f_{i,t-1})/f_{i,t-1}$. This choice was influenced by the difficulties in obtaining reliable data on aspects of reputational assessment such as the quality and effectiveness of the business offering, referring, among others, to innovation (in products, processes, marketing and organisation), an important aspect that has made it necessary to take this variable as a proxy for business quality and effectiveness. It has also been used by other authors (Musteen *et al.*, 2010; Urrea-Urbieto *et al.*, 2009). A positive relationship with corporate reputation is expected.

Considering the *Leadership (LEA)*, the role and public image of an organisation’s leader are important elements in establishing corporate reputation. Their prominence as the visible head of business activities, their initiative in social responsibility actions, their prominent role in the media, their integrity and their capacity to respond to crises and anticipate change are taken into account by stakeholders in assessing the credibility and appreciation of an organisation. Several studies have found a positive and significant relationship of this variable to corporate reputation (Love *et al.*, 2017; Urrea-Urbieto *et al.*, 2009), so a similar relationship is expected here. This study has taken the Naperian logarithm of the *Merco Líderes* score as a measure.

It also seems clear that the last variable, *Corporate Responsibility (CR)*, contributes to companies’ reputation. Social agents have demanded that the business world behaves in a way that, apart from economic sustainability, also seeks social, labour, environmental and ethical sustainability. A positive and significant relationship has been found between various measures of this variable and corporate reputation (Quintana-García *et al.*, 2021; Melo and Garrido-Morgado, 2012; Brammer and Pavelin, 2006). We also expect a similar kind of relationship. The Naperian logarithm of the *Merco Líderes* score has been taken as a measure.

Regarding the independent variables, the different *Industries (IND)* have been reflected in the model by including binary *dummy variables* with a value of 0 or 1, depending on whether the corporate group considered belongs to the specific industry or not. Eleven industries were considered, the members of which are indicated below, although only ten appear in the regression, as one of them (Media), which is established as a benchmark, is represented by the independent term of the regression. Therefore, in equation (1) $J = 10$.

3.2 Geographical area, period and sample

The geographical area was Spain.

The analysis spans the period from 2005 until 2016 and it was divided into three sub-periods of four years each, based on the Spanish economic situation as measured by the rate of change of the GDP: (1) 2005–2008, pre-crisis (2005: 3.7%; 2006: 4.1%; 2007: 3.6%; 2008:

0.9%); (2) 2009–2012, crisis (2009: –3.8%; 2010: 0.2%; 2011: –0.8%; 2012: –3%); and (3) 2013–2016, end of crisis (2013: –1.4%; 2014: 1.4%; 2015: 3.8%; 2016: 3.0%). This study therefore covers a time span of interest, as it has allowed us to examine the behaviour of industrial halos before, during and after the economic crisis that began in 2008–2009.

The reference group was made up of corporate groups operating in Spain that feature often enough in the *Merco Empresas* monitor ranking, classified into eleven industries. There were initially 43 corporations, but there were some changes over time. The corporate groups included in each industry are listed below. Any variations over time are indicated in brackets.

IND₁- Insurance: DKV Seguros - MAPFRE - Mutua Madrileña - Sanitas Seguros (featured in 2013–2016).

IND₂- Banking: BBVA-Bankia - Bankinter-CaixaBank - Popular-Sabadell - Santander-BANESTO (featured in 2013–2016).

IND₃- Construction: ACCIONA - ACS - FCC-Ferrovial - SACYR (not featured in 2009–2012 or 2013–2016).

IND₄- Department Stores: El Corte Inglés - EROSKI - Inditex-Mango - Mercadona.

IND₅- Utilities: ENDESA - Gas Natural - Iberdrola - REE - Agbar (featured in 2013–2016) - Enagás (first featured in 2013–2016).

IND₆- Consumer Electronics: BSH Electrodomésticos - Prosegur.

IND₇- Hotels: NH Hoteles - Meliá Hoteles.

IND₈- Energy: CEPSA - Corporación Logística de Hidrocarburos (CLH) - Repsol.

IND₉- Passenger Transport: Abertis - IAG Iberia - RENFE-Operadora.

IND₁₀- Engineering: Abengoa - GAMESA - Indra - Corporación Mondragón (featured in 2013–2016) - Técnicas Reunidas (first featured in 2013–2016).

IND₁₁- Media: Vocento - Grupo Prisa.

Therefore, the sample size was 43 corporate groups in the 2005–2008 sub-period, 42 in 2009–2012 (as Sacyr no longer featured in the ranking) and 40 for 2013–2016 (as Sanitas Seguros, Banesto, Aguas de Barcelona (Agbar) and Corporación Mondragón no longer featured, and Enagás and Técnicas Reunidas featured for the first time in that period). In terms of representativeness, as of 31 December 1986, the 26 listed groups in the sample represented 76% of the total Spanish stock market capitalisation. However, given the available source of reputational data, a bias towards high-volume firms is inevitable.

3.3 Data collection

The three main sources of information were the *Monitor Empresarial de Reputación Corporativa (Merco)* (Corporate Reputation Business Monitor) (www.merco.info), the companies' annual financial statements (National Securities Market Commission, *CNMV*) and their corporate websites.

4. Results

The model estimation results in equation (1) for each year are shown below. Tables 1, 2 and 3 show the results for each year in the three sub-periods considered: pre-crisis (2005–2008), crisis (2009–2012) and post-crisis (2013–2016). Least squares estimation was used, with robust inference under heteroscedasticity where necessary [3] (see Table 3) (see Table 4).

Year	2005 ^a	2006	2007	2008
Constant	0.2186	0.8641	0.5690	1.0309***
RoA t_{-1}	0.0137	-0.0107	-0.0065	-0.0099*
Firm Size	0.0635	0.0211	0.0032	-0.0125
Sales Growth	-0.0674	-0.1315	-0.0391	-0.0155
Leadership	0.3648***	0.5909***	0.8035***	0.7743***
Corporate Response	0.5170***	0.3139***	0.1492**	0.1120***
Insurance	-	-	-	0.4282***
Banking	-	-	-	0.2308**
Construction	-	-	-	0.1606*
Department Stores	0.2517*	-	-	0.3689***
Utilities	-	-	-	0.3727***
Consumer Electronics	-	0.4419*	-	0.2999***
Hotels	-	-0.5410**	-	0.3009***
Energy	-	-	-	0.3893***
Passenger Transport	0.2946**	-	-	0.3212***
Engineering	-	-	0.2349*	0.3232***
Adjusted R^2	0.6944	0.8147	0.8917	0.9480
F -value all industries	p: 0.124	p: 0.0983*	p: 0.4411	p: 0.0036***
F -value all regressors	p: 3.96e-15***	p: 8.81e-09***	p: 8.65e-12***	p: 5.45e-16***

Note(s): ^a indicates that the variance and covariance have been robustly corrected for heteroscedasticity in the regression using the White estimator

F -value all industries shows the p -value for $H_0: \beta_1 = \beta_2 = \dots = \beta_{10} = 0$ y F -value all regressors shows the p -value for the contrast for $H_0: \alpha_2 = \alpha_3 = \dots = \alpha_6 = \beta_1 = \beta_2 = \dots = \beta_{10} = 0$

*, **, *** indicate significance at 10%, 5% y 1%, respectively

Source(s): Table by authors

Table 1.
Pre-crisis sub-period
(2005–2008) N = 43

Year	2009	2010	2011 ^a	2012
Constant	2.0804***	0.4987	3.5216***	1.1557*
RoA t_{-1}	-0.0104	0.0061	-0.0036	-0.0032
Firm Size	-0.0344	0.0232	0.0559***	0.0351
Sales Growth	-0.0590	-0.1550	0.0119	-0.0290
Leadership	0.6424***	0.4186***	0.4888***	0.1757
Corporate Response	0.1751***	0.4741***	0.0134	0.6452***
Insurance	-	0.3702***	0.6321***	0.2685*
Banking	-	0.3072***	0.2837***	-
Construction	-	0.2592***	0.2735***	-
Department Stores	-	0.1622*	0.4293***	-
Utilities	-	0.3458***	0.5383***	0.2345*
Consumer Electronics	-	0.3181***	-	-
Hotels	-	0.5056***	0.5409***	-
Energy	-	0.3599***	0.4556***	0.3029**
Passenger Transport	-	0.3953***	0.3961***	-
Engineering	-	0.3155***	0.4191***	-
Adjusted R^2	0.8675	0.9163	0.7741	0.8712
F -value all industries	p: 0.7149	p: 0.0039***	p: 5.74 e-10***	p: 0.2275
F -value all regressors	p: 2.83 e-10***	p: 8.83 e-13***	p: 1.06 e-16***	p: 1.99 e-10***

Note(s): ^a indicates that the variance and covariance have been robustly corrected for heteroscedasticity in the regression using the White estimator

F -value all industries shows the p -value for $H_0: \beta_1 = \beta_2 = \dots = \beta_{10} = 0$ y F -value all regressors shows the p -value for the contrast for $H_0: \alpha_2 = \alpha_3 = \dots = \alpha_6 = \beta_1 = \beta_2 = \dots = \beta_{10} = 0$

*, **, *** indicate significance at 10%, 5% y 1%, respectively

Source(s): Table by authors

Table 2.
Crisis sub-period
(2009–2012) N = 42

Year	2013	2014	2015	2016
Constant	1.9554**	0.9934	0.3656	2.0654***
RoA t_{-1}	-0.0008	-0.0030	-0.0001	-0.0009
Firm Size	0.0336	0.0442**	0.0347	0.0332*
Sales Growth	-0.0331	0.0014	0.3002*	0.0410
Leadership	0.1725	0.0586	0.1604	0.1311
Corporate Response	0.5600***	0.7744***	0.7642***	0.5733***
Insurance	0.2287*	-	-	0.2436**
Banking	-	-	-	0.2349***
Construction	-	-	-	-
Department Stores	-	-	-	0.1977**
Utilities	-	-	-	0.1763**
Consumer Electronics	-	-	-	-
Hotels	0.2781**	-	-	0.2396**
Energy	0.2670**	-	-	0.2927***
Passengers Transport	-	-	-	0.1865*
Engineering	-	-	-	-
Adjusted R^2	0.8192	0.8752	0.8794	0.9113
F -value all industries	p: 0.2122	p: 0.8626	p: 0.6930	p: 0.0528*
F -value all regressors	p: 5.49e-08***	p: 8.05e-10***	p: 5.41e-10***	p: 1.55 e-11***

Note(s): F -value all industries shows the p -value for $H_0: \beta_1 = \beta_2 = \dots = \beta_{10} = 0$ y F -value all regressors shows the p -value for the contrast for $H_0: \alpha_2 = \alpha_3 = \dots = \alpha_6 = \beta_2 = \beta_3 = \dots = \beta_{10} = 0$

*, **, *** indicate significance at 10%, 5% y 1%, respectively

Source(s): Table by authors

Table 3.
Crisis exit sub-period
(2013–2016) N = 40

Industry	Years	Total
Insurance	2008–2010–2011–2012–2013–2016	6
Hotels	2006–2008–2010–2011–2013–2016	6
Energy	2008–2010–2011–2012–2013–2016	6
Utilities	2008–2010–2011–2012–2016	5
Passenger Transport	2005–2008–2010–2011–2016	5
Department Stores	2005–2008–2010–2011–2016	5
Banking	2008–2010–2011–2016	4
Engineering	2007–2008–2010–2011	4
Consumer Electronics	2006–2008–2010	3
Construction	2008–2010–2011	3

Note(s): The table shows the years for which the corresponding industry has been statistically significant

Source(s): Table by authors

Table 4.
Industries-Frequency
of significance
(2005–2016)

In each table, the rows of the first column show the variables for which results are displayed, and the other columns display these results. The corrected coefficient of determination and the p -values associated with joint significance tests are shown for the industries and for all the model's regressors. Only the estimated coefficients of the individually significant industries are shown, in order to avoid overloading of the tables.

As can be seen in Table 1, the variables are jointly significant for all the years in the sub-period, as shown by the p -value associated with the corresponding F -test. However, the joint test for industry significance only rejects the null hypothesis for 2006 (at 10%) and 2008 (at 1%). It is remarkable that 2008, when the crisis began to manifest itself clearly, was also the year in which all industries showed a significant explanatory capacity of the corporate

reputation index. In addition, their sign indicates that they all improved their reputation in that year with respect to the Media industry, which was taken as a benchmark. In previous years, it was specific industries that reflected this significance: in 2005, Department Stores and Passenger Transport (significant positive differences in both cases with respect to the Media industry); in 2006, Consumer Electronics (positive) and Hotels (negative); and in 2007, Engineering (positive).

The Leadership and Corporate Responsibility control variables were always shown to be significant (at 1% or 5%) over the four-year period. This is logical, considering that these variables contribute to shape the variable to be explained. For the rest (Profitability, Size and Sales Growth), only Profitability was significant, specifically in 2008, but accompanied by a negative sign, which contradicted expectations.

Turning to Table 2, again the variables were jointly significant for all years. Nevertheless, the joint industry significance test only rejected the null hypothesis for 2010 and 2011 (at 1%). Except for 2009, all industries showed a high individual frequency of significance for 2010; nine did for 2011; whereas for 2012 the number dropped to three, namely, Insurance, Utilities and Energy. This seems to reflect the context of the deep economic crisis experienced in that four-year period. It is surprising that there was no industry significance in 2009, the year when economic deterioration was at its greatest. By contrast, in 2010 and 2011, all industries (except Consumer Electronics in 2011) showed significance and, moreover, positive differential effects with respect to Media.

In relation to the control variables, Leadership was significant except in 2012, and corporate responsibility was also significant except in 2011, both with positive coefficients, as expected. For the rest of the variables, only Size was significant (positively, in line with expectations) in 2011.

As shown in Table 3, the variables continued to be jointly significant in all years, but the industries were only jointly significant in 2016 at 10%. There was no individual significance of the industries in 2014 and 2015, and only three in 2013 (Insurance, Hotels and Energy); in all cases a positive differential effect was shown. However, 2016 again saw the emergence of seven significant industries, namely, all except Construction, Consumer Electronics and Engineering. Moreover, the coefficients were positive, indicating that the reputation of the other industries outperformed that of the Media.

Turning to the control variables, over the four-year period, Corporate Responsibility showed the best records of significance of the three sub-periods, with positive values, as expected. However, Leadership, which had showed a very high significance in the previous sub-periods, did not do so in this one (for any year). For the other variables, only Size in 2014 and 2016 and Sales Growth in 2015 were significant, with positive coefficients in all cases, also in line with expectations.

5. Discussion and conclusions

As a preliminary step to examining whether the hypotheses were supported or not, the significance results for the different industries will be analysed, taking into account two aspects: (1) the annual frequency of significance; (2) the frequency of significance by industry.

Tables 1, 2 and 3 show that there were nine years when industries were significant, which may reflect a halo effect; while in three years (2009, 2014 and 2015) there was no such phenomenon. The emergence of industry significance in the sub-period of the crisis is remarkable, except for 2009, as noted above.

Regarding this sub-period of the crisis, the results show an increase in industry significance compared with the first three years of the pre-crisis sub-period (2005, 2006 and 2007) and those corresponding to the post-crisis sub-period. It should be considered that there may have been an impact of the economic crisis that began in 2009, which had already fully

manifested at the end of 2008 with the bankruptcy of Lehman Brothers in September, and continued over the following three years (2010, 2011 and 2012). Considering the sub-period of the crisis and the years before and after (i.e. the 2008–2013 interval) the concentration of industrial significance is clear. As already indicated, results for 2009 were surprising, there was no significance at a time of deep and widespread recession, when Spanish GDP fell by 3.6%. This lack of industry significance only seems to be explained by the fact that the strong generalised shock in economic activity meant that the stakeholders were unable to differentiate between the different types of business activities. Despite the favourable economic situation, 2016 was once again a year of great financial, political and social uncertainty, although the industries' significance was similar to that of the crisis years.

The behaviour that seems to follow from the above is that the financial crisis led to an increase in industry significance, i.e. of the "industrial halo effect", mainly due to the uncertainty associated with the crisis. Uncertainty, associated with a lack of information, but above all with doubts as to how to interpret the information correctly, led stakeholders to place particular value on whether a company belonged to one industry or another. Thus, in 2008, which was not yet a year of full crisis, but uncertainty was increasing due to the worrying news from the US mortgage market, stakeholders relied heavily on the "industrial halo" to assess the reputational status of companies. Nevertheless, in the face of the widespread crisis in 2009, as all industries seemed to be equally affected, discriminating between them perhaps did not make sense. In the years immediately after, when the effect of the crisis on different types of firms could be observed more clearly, even despite the great uncertainty, discrimination by industry seemed to make sense again, as the difficulties affected different industries in different ways.

Although 2016 did not turn out to be a particularly negative year for Spain in economic terms (3.3% GDP growth), it was wrought with uncertainty, due to economic and financial turbulence both in Europe and Spain. In Europe, there was uncertainty about Brexit, about the solvency of some large German banks and the critical situation of banks in Italy and other countries (Carbó Valverde and Rodríguez Fernández, 2016). In Spain, there was also strong uncertainty, both political and economic (Jiménez, 2016). This could explain the increase in industrial significance during that year.

Turning to the frequency of significance by industry for the nine years in which this phenomenon was manifested, the information in this respect is provided in Table 4, ordering the industries from the highest to the lowest frequency and in chronological order. The years in which each industry showed a statistically significant differentiated behaviour in relation to the reference industry are shown.

Three industries (Insurance, Hotels and Energy) had a high annual presence/permanence (six times in twelve years) and therefore may have generated a halo effect, followed by Utilities, Passenger Transport and Department Stores, each being featured five times out of twelve years. This bias was most pronounced in the sub-period of the crisis in these six industries except for 2009, and in the years before (2008) and after (2013), as well as in 2016, a year of great uncertainty, as mentioned above.

We will turn now to consider whether the two proposed hypotheses are confirmed or not. Regarding H1, concerning the existence of an "industrial halo", at least two industries had an explanatory power in nine of the twelve years considered. An exception to this was 2007, when only one industry had explanatory power. Six or more industries were significant in four of the years analysed. As the existence of industrial halos in explaining corporate reputation in Spain seems to be confirmed, it cannot be rejected.

With regard to H2, concerning the permanence of the "industrial halo", the results obtained suggest several considerations. Firstly, no industry appears continuously as a halo generator for the entire period analysed (2005–2016). In fact, as noted above, in three of the twelve years no industry had an explanatory power for Reputation, although all of them were

significant in some of these years. Secondly, there were three industries (Insurance, Hotels and Energy) that had a high presence over time (six of the twelve years), accompanied by considerable levels of significance. Moreover, they were present in the three sub-periods analysed, but with a predominance at the initial and the consolidation stages of the crisis; The first two were at a considerable distance from the benchmark industry, Media. Finally, there were three other industries (Utilities, Passenger and Department Stores) had frequently featured in the ranking (five times). While they were at considerable distances from the benchmark, good levels of significance were found, and they were predominantly present at the initial and the consolidation stages of the crisis. The remaining industries (Banking, Engineering, Consumer Electronics and construction) were significant at least on three occasions in the 12 years under study.

As a conclusion to the above considerations, based on the results it cannot be stated that, strictly speaking, there was a “permanent industrial halo” effect on the reputation of Spanish firms. This led to the rejection of the second hypothesis. However, the results obtained, at least in some industries, suggest that this rejection should be qualified to a certain extent. For the group formed by Insurance, Hotels, Energy and Utilities, the “industrial halo” was mainly evident during the crisis years. It is therefore difficult to reject the existence of an “industrial halo” with a certain permanence for these years, so H2 was partially confirmed for these industries. Something similar could be said for Passenger Transport, Banking and Engineering, which obtained levels of significance in four years, mainly concentrated in 2008, 2010 and 2011.

These results constitute an important contribution, since, as far as we know, in previous studies industry has not been used as an explanatory variable, nor with so relevant results in terms of significance. In this sense, our results do not coincide with those of Fernández-Sánchez *et al.* (2015) and Aguilera-Caracuel *et al.* (2017), which do not find significance in the Industry variable, and are more in line with those of Brammer *et al.* (2009) and Melo and Garrido-Morgado (2012), although in these works the significance of industry refers to the relationship with another variable, specifically with gender diversity in the first case and with CSR in the second.

It may be inferred from the results of this research that industrial halos are not only present, but are intensified at times when business activity is subject to particular uncertainties, either because of negative contemporary economic conditions or because of worrying expectations. It may be of interest in this respect to compare the sequence of the *Índice de Confianza del Consumidor* (Consumer Confidence Index) of the *Centro de Investigaciones Sociológicas* (Sociological Research Centre) (2021) with the significance shown for industries in each year in Tables 1, 2 and 3 for the total period of our analysis (2005–2016). This comparison is featured in Figure 1. The reasons that justify this comparison are, on the one hand, in addition to the relationship between uncertainty and reputational halos observed in this work, the support of studies such as that of Díez-Martín *et al.* (2022b), which find how uncertainty plays an important role in the evaluation of organisational legitimacy, a concept not identical, but linked in many aspects, to corporate reputation (Deephouse and Carter, 2005). On the other hand, uncertainty is related to consumer confidence, as shown by various studies in both emerging economies (De Mendonça and Almeida, 2019) and developed economies (Ghosh, 2022). And, finally, the measure of reputation that we use, that is, the Merco Spain index, in its evaluation procedure is based on various samples, an important part of them being non-specialists, whose perception regarding organisational reputation is similar to that of the average consumer, so the measurement of reputation is highly influenced by the perception of consumer confidence.

As can be seen, the changes in the number of halos over time tends to accompany these consumer perceptions. Thus, in the sub-period prior to the crisis, in the “boom” period, only two halos appeared in 2005 and 2006, and one in 2007; but with the onset of the crisis at the

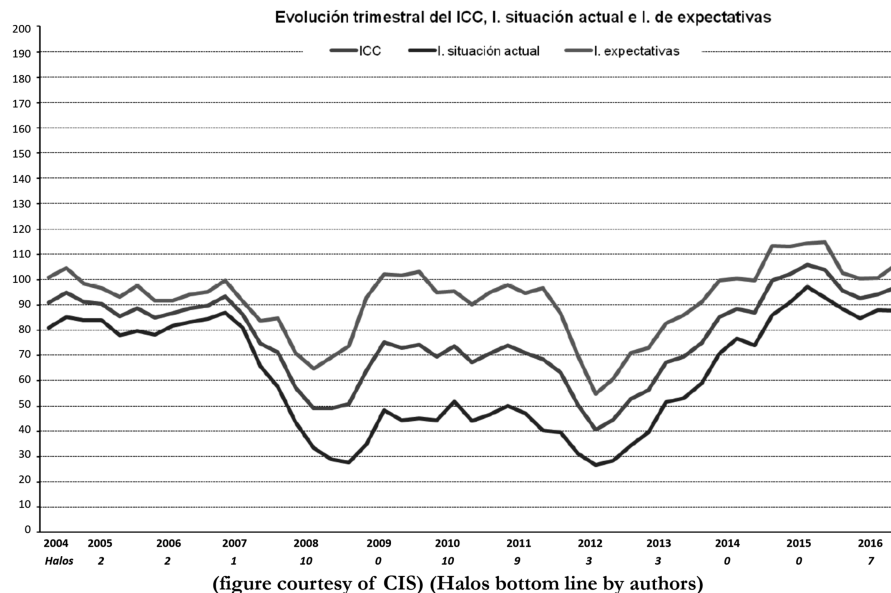


Figure 1.
Consumer Confidence
Index (ICC) in Spain
and industrial halos

Source(s): Centro de Investigaciones Sociológicas (CIS) (2016), and own results

end of 2008, all the industries considered featured halos. Moving on to the sub-period of full crisis, 2009, when the perception of the magnitude of the crisis and economic and social uncertainty had clearly emerged, the halos “collapsed”. This unfavourable perception was maintained in 2010–2011, with the appearance of ten and nine halos, respectively. In 2012, with a collapse in consumer perception and a contraction of –3% in Spanish GDP, only three halos were found to occur. In the sub-period towards the end of the crisis, in 2013, when there was a positive change in GDP in the last quarter (0.3%), uncertainty was reduced and consumer perception recovered, three halos appeared. In 2014 and 2015, consumer confidence continued to improve, and the halos disappeared; but in 2016, as indicated above, there was a marked upturn in uncertainty, generating a significant number (7) of industrial halos [4].

As for the control variables, *Corporate Responsibility*, as expected, had a very high explanatory power. This was particularly evident in the sub-period when the crisis was coming to an end, as all coefficients were significant at 1%. It seems that it was in this time interval that stakeholders considered this variable to be particularly important in explaining firm reputation. These results were in line with those found by Quintana-Garcia *et al.* (2021), Melo and Garrido-Morgado (2012) and Brammer and Pavelin (2006). *Leadership* had a peculiar performance in that it was highly significant from 2005 to 2011, and the results for this interval coincide with those by Love *et al.* (2017), and Urra-Urbieta *et al.* (2009). However, it subsequently lost its explanatory power for reputation precisely in the sub-period in which the significance of the previous variable was consolidated.

In contrast, the rest of the control variables did not exhibit the explanatory power they were supposed to have. The most striking case was that of *Profitability*, referring to the previous year. This variable has been widely covered in a wide range of studies, both with current and lagged values. In some of them it appeared positively and significantly associated with reputation (Musteen *et al.*, 2010; Brammer *et al.*, 2009; Brammer and Pavelin, 2006;

Dunbar and Schwalbach, 2000), while in the study described here, it only showed an explanatory power (at 10%) in 2008, and with the opposite sign to what was expected. Some authors (Olmedo-Cifuentes and Martínez-León, 2011) have indicated that financial position and value creation measures weaken as an explanatory factor of reputation in periods of economic crisis, although in the case described here, it was also weak both before and after the crisis.

Firm Size, measured by the Naperian logarithm of the number of employees, was positively significant in 2011, 2014 and 2016. Our results for these years coincided with those of Musteen *et al.* (2010), and Dunbar and Schwalbach (2000). It is presumed that larger company size may have a positive effect on reputational ratings, especially in the crisis and post-crisis sub-periods, although it is true that in many studies this variable has not been found to be significant. Additionally, the sample here showed large firm sizes and also low dispersion, which seems to hinder its explanatory power.

Finally, the attempt to include a factor reflecting the quality of the business offering in the model by using a proxy variable, namely, *Sales Growth*, does not seem to have yielded significant results. It failed to show explanatory power for reputation, except in 2015, when the significance was at 10% with a positive coefficient, as expected. These results are not consistent with those found by Musteen *et al.* (2010) or Urra-Urbieta *et al.* (2009).

The results of this study have some practical implications. Firstly, firms that publish corporate reputation rankings should be aware of the distortion that the industrial halo can produce, especially in times of uncertainty, and seek to correct for it in their measurements. And secondly, corporate groups themselves should assume that the reputation of the industry affects their individual reputation, and consequently, they should see the other companies in the industry not only as competitors but also as “reputational allies”. They should therefore make collective efforts to improve in this respect, especially in the face of reputational crises.

It would have been desirable for this study to have had sufficient data to include other industries, but this was not possible. As for possible extensions, in addition to expanding the period considered, other analytical techniques, such as panel data models, could be applied to allow comparison with the results obtained here.

Finally, this work opens up a wide range of future research possibilities. Thus, one line of research that opens is to delve deeper into the relationship between sectoral reputational halos and consumer confidence. Other lines of research of interest would be to analyse sectoral halos in other countries, or the relationship of these halos with organisational legitimacy (Diez-Martín *et al.*, 2021), or firm size (especially for small and medium-sized firms), or with entrepreneurial intention, in the latter case in line with the work carried out in this regard in relation to legitimacy (Diez-Martín *et al.*, 2022a).

Notes

1. See, for example, the process of preparing the Merco España report (Análisis&Investigación, 2010, 2013, 2014, 2016, 2017, 2018, 2019, 2020, 2021).
2. The American Consumer Satisfaction Index-ASCI. 1994–2023, <https://www.theacsi.org/>.
3. Descriptive statistics for the variables are available on request.
4. A comparison has also been made with the “Economic Policy Uncertainty Index” for Spain (Ghirelli *et al.*, 2019), with very similar results.

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