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Responsible innovation in organisations – unpacking the effects of leader trustworthiness and organizational culture on employee creativity

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Abstract

Ongoing changes in competitiveness and advancements in technology are challenging the ability of manufacturing firms to bring about responsible innovation in emerging economies. A crucial response to this situation involves supporting employee creativity as a strategy suited to foster responsible innovation. Prior research has established a positive correlation between employee creativity and responsible innovation. However, when attempting to promote employee creativity, firms are often faced with challenges to their organizational culture (OC), especially in the presence of limited employee trust in their leaders. Although, extant research has suggested a positive correlation between leader trustworthiness and employee creativity, little is known of the stability of such relationship under diverse OCs. Also, previous research on the correlation between OC and employee creativity has yielded conflicting findings, thus failing to contribute to the knowledge of how organisations may further engage in responsible innovation. Consequently, we investigated the influence of diverse OCs on employee creativity, and how leader trustworthiness affects the relationship between them. To do so, we undertook a quantitative analysis of a coded cross-sectional survey involving 222 participants from 54 manufacturing organizations in Malaysia. The survey data were evaluated through partial least squares structural equation modelling (PLS-SEM). An importance-performance map analysis shows that clan OC has the strongest positive correlation with employee creativity and exerts the highest level of importance to it. Surprisingly, leader trustworthiness was found to decrease employee creativity and to strengthen the positive relationships of market and hierarchical OC with employee creativity. Our study offers novel insights into how diverse OCs and leader trustworthiness impact employee creativity in an emerging economy context.

Keywords Creative ideas · Leader trustworthiness · Employee creativity · Organizational cultures

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In recent years, the United Nations Global Compact (UNGC) has called for manufacturing organisations to foster environmental sustainability by engaging in responsible innovation suited to aid in the achievement of its sustainable development goals (SDG) (Singh, Chen, Del Giudice, & El-Kassar, 2019; Stilgoe, Owen, & Macnaghten, 2013). In response to such call, the governments of developed and emerging economies have begun pressuring firms across the globe to move beyond profit maximisation and engage in responsible innovation initiatives (Singh, Del Giudice, Chierici, & Graziano, 2020; Othman, 2011). In this regard, prior research has advocated the adoption of core strategies that reflect human capital development—in terms of reinforcing employee creativity—as major actors and positive predictors of firms' engagement in responsible innovation (Ettlie, Bridges, & O'Keefe, 1984; Jiang, Wang, & Zhao, 2012). However, there is evidence that, in several firms, employee creativity is often impaired by challenges to their organizational culture (OC) (Atwater et al., 2021; Auernhammer & Hall, 2014; Parke, & Seo, 2017). Prior research has also found that employee creativity can be further stifled, especially in the presence of questionable leader trustworthiness (Peng & Wei, 2016). Although a positive association has been argued to exist between leader trustworthiness and employee creativity, little is known of the stability of the relationship under diverse OCs (Erturk & Albayrak, 2019; Singh, Del Giudice, Tarba, & De Bernardi, 2019a).

Likewise, while it has been established that employee creativity does positively influence responsible innovation (Ettlie, & O'Keefe, 1982; Gilson & Litchfield, 2017; Ogbeibu, Emelifeonwu, Senadjki, Gaskin, & Kaivo-oja, 2020a), some important questions are left unanswered within the spectrum of leader trustworthiness and of how diverse OCs perform as plausible drivers of employee creativity (Ann & Carr, 2010; Ogbeibu, Senadjki, Emelifeonwu & Paramjeet, 2020b). OC is defined as the shared influence of the frequently *subconscious* norms of values, beliefs, and behaviours that guides and regulates distinct actions and expectations of organisational members in an organisation (Martins & Terblanche, 2003; Ogbeibu et al., 2018a). Although studies have focussed on plausible implications of employee creativity, the OC, and leader trustworthiness, the benefits stemming from their findings are still far from being fully exploited in terms of bolstering the performance of the workforce (Gupta, 2011; Hirst, Van Knippenberg, Chen, & Sacramento, 2011). Consequently, several organizations across the globe are still paying the price of not giving adequate consideration to fostering an OC that is supportive of employee creativity and driven by leader trustworthiness (Erturk & Albayrak, 2019; Singh et al., 2019a).

With respect to today's global warming concerns and the need for organizations to engender responsible innovation, leaders are pressured as never before to build up the toughness and resilience of their organizations (Chughtai, 2014; Singh, Gupta, Busso, & Kamboj, 2019b). Thus, several leaders are dedicating ample resources to the development of strategies suitable to facilitate their employee's creativity (Peng & Wei, 2016; Ghosh, 2015). They are doing so as a necessary step towards bolstering the performance of their organizational workforce in regard to the fruition of responsible innovation and subsequent competitive advantage (Auernhammer & Hall 2014; Hanifah, Abdul-Halim, Ahmad & Vafaei-Zadeh, 2019).

Despite the consistent support provided by studies for the benefits of employee creativity, when examined through the lens of distinct OCs, its potential is still the subject of a heated debate among scholars (e.g., Karamipour, Mehraban & Jahani,

2015; Ogbeibu, Senadjki & Gaskin, 2018a). The conflicting views and findings yielded by studies imply that the science underpinning the employee creativity and OC relationship is still in a fractured state (Hogan & Coote, 2014; Ma, Long, Zhang, Zhang & Lam, 2017). While a positive relationship was found between OC and employee creativity by some studies (Amiri, Qayoumi, & Soltani, 2014; Einsteine & Hwang, 2007; Karamipour et al., 2015), Kaufman and Baer (2004) reported otherwise. Other studies (Hemmatinezhad, Shafiee, Sharari & Hemmatinezhad, 2012; Mobarakeh, 2011) also found OC to not be significantly correlated to employee creativity. Consequently, the sparse congruence among researchers raises uncertainty in regard to how OC influences employee creativity.

The evidence provided by the extant literature indicates the championing of different forms of OC, thus catalysing the incongruence in the results (Azizollah, Abolghasem, & Amin, 2016; Heritage, Pollock & Roberts, 2014; Naranjo-Valencia, Sanz-Valle & Jimenez-Jimenez, 2010). Rao (2019) conceptualised OC in the scope of workplace cultures, while Hardcopf, Liu, and Shah (2021) posited a developmental culture. Muisyo and Qin (2021) examined OC through the lens of green innovation culture. Rukh and Qadeer (2018) advocated reliance on hierarchical culture and a shift from bureaucratic culture to clan culture. Tran (2020) emphasised how OC has been exemplified by means of task and relationship-oriented cultures, and Di Stefano, Scrima, and Parry (2017) espoused the need for organisations to not overlook adhocracy OC and clan OC. Shin and Park (2019) conceptualised OC as strong-balanced, group-dominant, hierarchical, and weak-balanced, while Khan and Mir (2019) examined OC through an ambidextrous lens. Furthermore, Bamgbade, Kamaruddeen, and Nawi (2017) mainly used market OC to study the topic. With so many studies capturing the tenets of OC and positioning its conceptualisation in distinct contexts, Rai (2011) lamented that OC had increasingly become more theoretically fragmented and complex to measure. Ogbeibu et al. (2018a) further advocated that the conceptualisation of OC, as evidenced in several of these studies and others (Bamgbade et al., 2017; Khan & Mir, 2019; Muisyo & Qin, 2021), is both limited and limiting, as such studies had speciously overlooked the probable roles of other OCs underpinned by the Competing Values Framework (CVF) theorisations.

In an effort to provide a plausible reconciliation, four OC quadrants (market, adhocracy, hierarchy, and clan) have been advocated by Cameron and Quinn (2011) as highlighted in the authors' CVF, which provides a deeper view into what OC really is. In this study, the CVF is employed to shed further insights into how OC influences employee creativity. As a quick summary, according to Cameron and Quinn (2011), adhocracy OC mirrors a creative workforce of employees who are driven by a strong commitment towards scientific experimentation and innovation, and are usually risk takers who thrive in task autonomy (Cameron, 2008). Clan OC is underpinned by a responsive workforce and a climate of openness, whereby organizational members thrive by sharing values among each other. They coexist as the best of friends or as family members, and are bound by loyalty (Heritage et al., 2014). Market OC is mainly concerned with increased market share and productivity, and organizational members are thus mostly results-oriented, as their leaders are focussed on competitiveness. Lastly, hierarchical OC is formalized, structured, and bureaucratic in nature, with the organizational members in this dimension being usually governed by strict work ethics and rules (Cameron & Quinn, 2011; De Sivatte, Gordon, Rojo & Olmos, 2015).

Over the years, the CVF has received much attention and has been applied in diverse contexts to investigate employee creativity (Ogbeibu et al., 2018a). However, the approaches of several studies (Azizollah et al., 2016; Lau & Ngo 2004; Naranjo-Valencia et al., 2010) that have examined the CVF have suffered from endogeneity issues (Antonakis, 2017) due to their failure to empirically investigate all of the CVF quadrants. Scholars lament that it is particularly problematic to conceptualise one facet of a phenomenon in isolation, without considering the probable causal implication(s) of its other relative components (Antonakis, 2017; Hult, et al., 2018). In the CVF context, this raises fundamental concerns in regard to conclusions drawn from incomplete empirical investigations, as policy makers and practitioners could be misled to believe that mainly one or two kinds of OC are practiced across all investigated organisations within a given population (Ogbeibu et al., 2018a). This further questions the validity of the results, as the implications drawn may be founded on inconclusive evidence that only partly captured OC and inadvertently construed other insights that could have further advanced contemporary understandings of the CVF theorisation (Hult, et al., 2018). The one-dimensional or narrow approach employed by extant research to investigate OC is thus limited and potentially misleading, as the implications drawn may have originated from any confounding effects caused by the omitted CVF quadrants (Antonakis, Bendahan, Jacquart, & Landlive, 2010). Consequently, the lack of a clear understanding of how each OC quadrant compares to the others mainly leaves practitioners and policy makers with incomplete information on which specific OC quadrant is the most conducive to bolstering employee creativity. Therefore, part of our study's contribution to the literature is its attempt to investigate all four quadrants of the CVF in order to shed further insights into how OC influences employee creativity in an emerging economy context.

Likewise, by engendering employee creativity, leaders might enable their organisations to survive the blows levelled by constant change at the performance of any responsible innovation (Ogbeibu et al., 2020a; Pirola-Merlo, Härtel, C., Mann, & Hirst, 2002). Equally, the fostering of employee creativity would require organizational leaders to engage in exchanging creative ideas with their employees (Erturk & Albayrak, 2019; Wickramasinghe & Widyaratne, 2012). Although employee creativity reflects a construct from an individual-level that feeds on creative ideas, Ogbeibu Senadjki and Tan (2018b) and Ogbeibu et al. (2017) argued that the exchange of creative ideas usually requires mutual trust among the participants. Thus, being perceived as trustworthy is becoming increasingly important for leaders in order to enable a more reliable exchange of creative ideas (Schilke & Cook, 2015; Wickramasinghe & Widyaratne, 2012). Employees who find their leaders untrustworthy or have strong doubts regarding their trustworthiness may resolve to not exchange their creative ideas with them; a resolve that could be instigated by the fear of being betrayed, or even fired, should the leaders perceive the proposed creative ideas as threats to their job positions (Klimchak, Carsten, Morrell & Mackenzie, 2016; Majchrzak & Malhotra, 2020).

Drawing from extant literature, trustworthiness reflects a major factor that influences the willingness of an individual to agree to become susceptible to another (Bai, Li, & Xi, 2012; Ogbeibu et al., 2018a). Consequently, in our study, leader trustworthiness highlight the ideologies that view a leader as dependable, reliable, and credible, benevolent, having integrity and ability to foster the exchange of creative ideas, which is relevant to encourage employee creativity (Peng & Wei, 2016; Ranucci & Souder,

2015). It is also important to note that leaders who desire to foster employee creativity may find it quite challenging to maintain and demonstrate trustworthiness under diverse OCs (Erturk & Albayrak, 2019; Kujala, Lehtimaki, & Pucetaite, 2015). Equally, leader trustworthiness could produce different effects under dissimilar OCs; hence, fostering employee creativity may not yield the anticipated outcomes (Kujala et al., 2015; Peng & Wei, 2016). Likewise, an exhibition of low leader trustworthiness under a defined OC could cause employees to question their leaders' trustworthiness in matters relating to exchange of creative ideas (Heyns & Rothmann, 2015).

Conversely, exhibitions of high trustworthiness might incite negative consequences in cases where leaders decide to engage in such behaviours in order to somehow influence and or distort the established values of a defined OC in their favour (Bai, Li, & Xi, 2012; Kujala et al., 2015). Moreover, such actions may have confounding effects on the creativity of employees, as perception of their leaders to be highly trustworthy often tend to cause employees to rely on creative ideas of their leaders, rather than sharing their own (Erturk & Albayrak, 2019; Liu, Kwan, and Zhang, 2020). Subsequently, employee creativity could decline as it is gradually perceived to be redundant (Cheung & Zhang, 2020; Wickramasinghe & Widyaratne, 2012). Organizations ought to be fully aware of the unpredictable effects that leader trustworthiness could have on employee creativity, especially under dissimilar OCs. This then calls for further empirical investigation aimed at addressing the overarching question of how leader trustworthiness influences the distinct OCs and employee creativity relationships.

Although existing research on encouraging employee creativity has been conducted in manufacturing organizations in countries like Egypt (Mostafa, 2005), India (Gupta, 2011), South Africa (Ellen & Nico, 2002), Iran (Mobarakeh, 2011), and Nigeria (Dimnwobi, Ekesiobi, & Mgbemena, 2016), there is still scope to investigate the effects that leader trustworthiness has on the employee creativity and OC association in the Malaysian manufacturing industry context (Nasurdin, Ling & Hou, 2014), as such information may substantially contribute to advance recent insights into how organisations in the Asian context may demonstrate the reflexive behaviours (the ethical obligations for leadership and transparency) that foster responsible innovation and environmental sustainability (Stilgoe et al., 2013).

Malaysia presents a multicultural society in which each OC quadrant reflects distinct values, and may thus have different and unpredictable effects on employee creativity (Hofstede & McCrae, 2004; Raduan, Naresh, Haslinda, & Goh, 2008). Additionally, under dissimilar OCs, organizations and employees could even be exposed to the likelihood of being deceived and betrayed by untrustworthy leaders (Kujala et al., 2015; Liao & Hui, 2019). In Malaysia, leader trustworthiness has often been publicly shown to be questionable—as typified by widespread scandals—and this could inhibit employee morale and inspiration to engage in creativity initiatives (Chien & Ann, 2015; Mohamed, Omar, & Wei, 2015). Our study thus makes a threefold contribution to addressing the overarching question of how leader trustworthiness changes the relationship between distinct OCs and employee creativity. First, we jointly investigated all four quadrants of the CVF in order to shed further insights into how distinct OCs influence employee creativity in an emerging economy context. Second, we examined how each CVF quadrant and leader trustworthiness truly performs in relation to its respective importance in engendering employee creativity. Third, we investigated how leader trustworthiness influences the relationships between the various OC quadrants

and employee creativity in the Malaysian context. Our study consequently tapped into a multi-cultural population and context—an effort not often found in prior related research—to advance our knowledge of how each OC quadrant and leader trustworthiness simultaneously acts to foster the employee creativity needed for responsible innovation.

The rest of the paper is organized as follows. The next section presents an overview of the Malaysian manufacturing industry, followed by a discussion on our study's theoretical foundations and subsequent hypotheses development. Thereafter, we provide the methodology used in our study and empirical findings. We subsequently discuss and conclude on our findings, and provide several implications, study limitations and recommendations.

The Malaysian manufacturing industry – an emerging economy context

Over the past few decades, the Malaysian government has made a deliberate effort to maintain a constantly growing economy, as it has faced constant fluctuations in the growth rate of the country's gross domestic product (GDP) (The Global Economy, 2018a). However, compared to other fast-growing Asian economies, little economic improvement has so far been achieved (Nasurdin et al., 2014). Recent reports indicate that Malaysia's economic growth rate ranks below that of Indonesia, China, and India. This is in contrast to evidence that suggests that, from 2000 until about 2008, the country's economic growth rate had risen above those of countries like Indonesia, India, Singapore, and Hong Kong (The Global Economy, 2018a). Likewise, the Global Innovation Index report shows that Malaysia is still ranked below several Asian countries—e.g., Singapore, China, Hong Kong, South Korea, and Israel—with respect to innovation and creativity (Cornell University, INSEAD, &WIPO, 2017). Although Malaysia has struggled to increase its innovation index from about 43.5% in 2011 to over 46.5% in 2013, it has however recently dropped below 43.5%, between 2014 and 2016 (The Global Economy 2018b). Furthermore, even the Global Creativity Index (GCI) highlights that Malaysia ranks below countries like Singapore, Hong Kong, Japan, Israel, South Korea, China, and even the Philippines (Florida, Mellander, & King, 2015). This thus calls for closer attention.

Congruently, Nasurdin et al. (2014) accentuated that the Malaysian government has placed great emphasis on increasing creativity and innovation, particularly within the country's manufacturing industry, which is a significant contributor to the boosting of the national economic growth (Abdullah, Jamaludin, & Talib, 2015). However, Nasurdin et al. (2014) stressed that the creative capacity of the Malaysian manufacturing industry is still low, and other studies (Ibrahim, Isa, & Shahbudin, 2016; Isa 2014; Noor, Shirley, Adi, & Kamaruddin, 2013) have concluded that this is due to a lack of adequate consideration for engendering employee creativity. This is further supported by studies that emphasize that, from an individual perspective, engendering employee creativity ought to be the first step towards increasing the chances of organizational innovation (Cillo, Petruzzelli, Ardito, Del Giudice, 2019; Moghimi, & Subramaniam, 2013). Similarly, Noor et al. (2013) identified that two major problems hindering the

encouragement of employee creativity within the Malaysian manufacturing industry are internal employee resistance and organizational rigidity, which are probable due to the prevalence of a hierarchical OC (Cameron & Quinn, 2011; Kujala et al., 2015). Hofstede and McCrae (2004) also found that one of the dominant features of Malaysian organisations is a hierarchical OC, and studies (Naranjo-Valencia et al., 2016; Ogbeibu et al., 2018a) consistently espouse its negative influence on employee creativity.

It thus comes as no surprise that several employees of Malaysian manufacturing firms exhibit resistance to enticements to exhibit creativity, as rigid hierarchies are overly challenging to the exchange of creative ideas (Naranjo-Valencia et al., 2016; Noor et al., 2013). The features of a strong hierarchical OC are argued to sometimes breed distrust among organizational members and to affect perceptions of trustworthiness between employees and their leaders (Kujala et al., 2015; William & Du, 2014). Awareness of its probable consequences, such as organizational distrust, seems to do little to deter several Malaysian manufacturing organizational leaders from engaging in untrustworthy behaviours, as illustrated by cases of widespread scandal (Salin et al., 2011). In recent years, several leaders of Malaysian organizations have manifested high points of untrustworthiness in regard to corporate social responsibilities, financial statements, and the manipulation of results (Chien & Ann, 2015). The leaders' attempts to distort ethical business practices, which are embedded within OC values, are very likely to cause employees (through whom most of these acts are implemented) to question their trustworthiness (Bai, Li, & Xi, 2012; Kujala et al., 2015).

Likewise, 57% of the survey respondents in the Asia-Pacific Fraud survey indicated that, under conditions of vexing economic and financial uncertainty, their leaders had been more likely to make unethical business decisions and engage in untrustworthy behaviours in order to meet predetermined targets (Ernst & Young, 2013). Therefore, by distorting the values of the OC, untrustworthy leaders inadvertently impede the exchange of creative ideas which is relevant for encouraging employee creativity, (Salin et al., 2011). Hence, leaders ought to strive to remain trustworthy under any defined supportive OC, as any strong doubts pertaining to their trustworthiness tend to deter employees from committing to creativity initiatives (Erturk & Albayrak, 2019; Lee et al., 2019).

Theoretical foundation and hypotheses development

In line with this study's motivation, we therefore drew on the Componential Theory of Individual Creativity (CTIC) to drive further analysis (Amabile, 1997). The CTIC is an individual level theory that advocate that people do have basic level of competencies which enable them to exhibit creative behaviours. The CTIC argues that employees can engage in moderately creative behaviours regardless of domain and time. Three components of employee creativity have been identified in the CTIC: expertise, creativity skills, and task motivation (Amabile, 1997). Birdi, Leach, and Magadley (2016) espoused that such abilities—which foster all creative efforts across several domains—involve technical proficiencies, unique talents, and factual knowledge. Creativity skills deal with exploring and processing information via cognitive styles and suggesting novel solutions to problems (Ogbeibu et al., 2018a). Further, task motivation actually comes in two kinds: intrinsic and extrinsic. A strong craving to achieve

goals and objectives such as gaining any promised rewards or recognition that are set apart from the defined tasks is referred to as extrinsic task motivation (Chen, Lin, Lin & McDonough, 2012; Fryxell, Dooley, & Li, 2004) Conversely, intrinsic task motivation is usually driven by a strong interest powered by a sense of curiosity, deep satisfaction, or even challenge (Cheung & Zhang, 2020; Ryan & Deci, 2000). Likewise, the CTIC highlights that OC has the capacity to influence the results of the creative behaviours of organizational members (Amabile, Conti, Coon, Lazenby & Herron, 1996).

In the absence of further insights into the quadrants of OC, prior research (Amabile, 1997; Amabile et al., 1996) highlighted that OC (conceptualised as unidimensional) can also encourage or inhibit employee creativity. The CTIC thus overlooked a further empirical examination of which OC quadrants act as inhibitors or facilitators of employee creativity. Hence, over the years, organizational leaders may have been misled by the CTIC theorization that OC, in its entirety, either engenders or inhibits employee creativity (Hogan & Coote, 2014). Equally, deeper understandings of how OC quadrants specifically influence and perform in relation to employee creativity have therefore been overlooked. Additionally, the CTIC has yet to comprehensively and empirically investigate the concept of leader trustworthiness and its role in further engendering or hindering employee creativity (Erturk & Albayrak, 2019).

Examination of the influence of OC quadrants on employee creativity

In regard to the CTIC, Amabile (1997) stressed that employee creativity requires a certain degree of task autonomy to function effectively and efficiently. Considering the features of the ***adhocracy*** OC advocated by Cameron and Quinn (2011)—which involves employee freedom, risk taking, and innovation-driven employees that thrive on scientific experimentation—some studies (Gupta, 2011; Naranjo-Valencia et al., 2016) argue that such features are positively associated with employee creativity. This was further supported by Gupta (2011), who found a positive relationship between a future-oriented and innovation-driven OC and employee creativity. This is congruent with the focus on achievement of novel and unique products and services, as espoused within the adhocracy OC (Cameron, 2008). Therefore, we formulated the following hypothesis.

Hypothesis 1a. *The adhocracy OC and employee creativity are positively correlated.*

Likewise, the ***clan*** OC involves employees operating as a family or the best of friends, and being bound by mutual loyalty and commitment (Cameron & Quinn, 2011). According to Cameron (2008), the employees within this OC quadrant are known to share many values. Fernandes and Polzer (2015) stressed that this fosters homogeneity within groups and it also provides flexibility for involvement and the easy exchange of creative ideas among organizational members. Ogbeibu et al. (2020b) further supported that, for employee creativity to be engendered, ease of access needs to be given to enable the dissemination of creative ideas. Due to values like strong commitment, involvement, and loyalty found in this OC, leaders may find it less challenging to drive the creativity initiatives required to further engender employee creativity (Donati, Zappalá, & González, 2016). De Sivatte et al. (2015) and

Zakersalehi et al. (2011) therefore, emphasized that those OC values that encourage strong employee commitment and involvement (e.g., through reward schemes) are dominant factors that positively contribute to employee creativity. Consequently, we hypothesised as follows:

Hypothesis 1b: *The clan OC and employee creativity are positively correlated.*

Although the ***market*** OC reflects an organisation that is result-oriented, its drive for productiveness, focus, increased market share, competitive advantage, and directive capabilities could stimulate employees, motivating them, via strong leadership, to make novel creative efforts (Cameron & Quinn, 2011). In the CTIC, Amabile (1997) advocate that employees are capable of making at least moderate creative efforts regardless of domain and time. Hence, some studies (Ashraf, Kadir, Pihie & Rashid., 2013) grounded on the concept of employee creativity have also found that the features of market OC are positively associated with employee creativity. We therefore formulated the following hypothesis:

Hypothesis 1c. *The market OC and employee creativity are positively correlated.*

Finally, given that the ***hierarchy*** OC is characterized by well-coordinated leaders who strive to ensure stability, organization, predictability, and efficiency, Cameron & Quinn (2011) posited that they exercise the control needed to achieve their goals by means of strict rules and policies. Cameron (2008) further argued that these instruments of stringent control are aimed at ensuring the enactment of a formalized and bureaucratic work system that involves already established procedures governing employee behaviours. However, Naranjo-Valencia et al. (2016), Ogbeibu et al. (2018b), and Gupta (2011) argued that OC's that are hierarchical often negatively influence employee creativity by inhibiting creative ideas exchange. Moreover, this notion was supported by Ashraf et al. (2013), whose findings concerning the foundations of employee creativity confirmed that the hierarchy OC negatively affects it. We thus posited as follows:

Hypothesis 1d. *The hierarchy OC and employee creativity are positively correlated.*

The relationship between leader trustworthiness and employee creativity.

Some studies (Wickramasinghe & Widyaratne, 2012) have focussed on the positive implications of leader trustworthiness on employee creativity. Trustworthy leaders are commonly defined by their display of reliable, credible, and consistent performance in driving creativity initiatives (Bai, Li, & Xi, 2012; Brown, O'Kane, Mazumdar, & McCracken, 2018). Employees with strong perceptions of their leaders' trustworthiness may often find it less challenging to initiate and exchange creative ideas that are relevant for engendering employee creativity (Kulichyova, Moffett, & McKnight, 2019). This is also due to the fact that leader trustworthiness may be related to a certain degree of openness towards employees, who might consequently feel willing and motivated to commit to creativity-related routines. Trustworthy leaders are thus likely to be able to further inspire employees to be more creative and to engage in more creative behaviours (Gupta, 2011; Amabile & Pillemer, 2012). We therefore hypothesised as follows.

Hypothesis 2. *Leader trustworthiness is positively related to employee creativity.*

The moderating effect of leader's trustworthiness under diverse OC's.

Savolainen and López-Fresno (2014) highlighted that leader trustworthiness plays a positive part towards bolstering employee creativity. Under an adhocracy OC, employees usually have their minds set on innovative and entrepreneurial activities that

may often involve scientific experimentation (Cameron & Quinn, 2011). Engaging in scientific experiments and entrepreneurial practices involves a certain degree of risk taking, task autonomy, and employee confidence in trustworthy leaders willing to support creativity initiatives (Wang, Wang, & Liu, 2021; Wickramasinghe & Widyaratne, 2012). On this note, employees who perceive their leaders as trustworthy may willingly get more involved in creativity initiatives (Majchrzak & Malhotra, 2020; Kujala et al., 2015). Elisondo & Donolo (2016) and Erturk & Albayrak (2019) further accentuated employee involvement as a core factor necessary to foster the constant exchange of creative ideas relevant to the promotion of employee creativity. Therefore, we formulated the following hypothesis.

Hypothesis 3a. *Leader trustworthiness reinforces the positive influence that the adhocracy OC has on employee creativity.*

Likewise, employee knowledge and/or strong perception of a leader's trustworthiness do not only foster commitment, but also encourage efficient value exchanges among diverse teams (Bai, Li, & Xi, 2012; Cheung & Zhang, 2020; Kujala et al., 2015). This is relevant, and a probable outcome of the clan OC (Cameron, 2008). Driving exchanges of values among diverse homogeneous groups in order to foster the diffusion of creative ideas may require the deliberate efforts of trustworthy leaders (Erturk & Albayrak, 2019; Fernandes & Polzer, 2015). This relates to the high expectations held by employees of leaders who are consistently perceived as mentors, coaches, or parent figures. This may imply that leaders need to consistently exhibit highly trustworthy behaviours in order to engender employee creativity (Kujala et al., 2015; Wenxing, Zhang, Pengcheng, Jianqiao, Po & Jianghua, 2016). Additionally, under the clan OC, the more employees perceive their leaders as trustworthy, the more committed, loyal, and strongly involved they will be in any creativity initiatives that their leaders may conceive (Kujala et al., 2015). Some studies (Wenxing, Zhang, Pengcheng, Jianqiao, Po & Jianghua, 2016; Al-Daibat, 2017; Elisondo & Donolo, 2016) have also pointed out that employee involvement and commitment are positively associated with employee creativity. Therefore, we hypothesised as follows.

Hypothesis 3b. *Leader trustworthiness amplifies the positive influence that the clan OC has on employee creativity.*

Similarly, the market OC may drive employees to become more creative in order to produce innovative products and services that fulfil market needs (Naranjo-Valencia et al., 2016; Vera, & Crossan, 2005). In striving to increase an organization's competitive advantage, employees tend to engage in initiatives that stimulate their creativity (Auernhammer & Hall, 2014; De Sivatte et al., 2015). However, such employee efforts could be stifled in the absence of a leader perceived to be sufficiently reliable and credible to bring any creative ideation processes to fruition (Erturk & Albayrak, 2019). Hence, the presence of a trustworthy leader in the team does have a positive impact on building employee cognition suited to arouse the divergent thinking and motivation needed to engage in creative behaviours (Ogbeibu et al., 2018b; Peng & Wei, 2016). It thus comes as no surprise to find studies focussed on the positive effects that the market OC has on employee creativity as a consequence of the positive role played by a trustworthy leader (Ashraf, Kadir, Pihie, & Rashid., 2013; Tajudin et al., 2012). We therefore posited the following hypothesis.

Hypothesis 3c. *Leader trustworthiness increases the positive influence that the market OC has on employee creativity.*

Furthermore, under the hierarchy OC, the values demonstrated have been shown to exhibit a negative association with employee creativity (Naranjo-Valencia et al., 2016). Consequently, any efforts made to promote employee creativity may be stifled by organizational rigidity and a bureaucratic structure (Gupta, 2011). However, a leader with a strong reputation for reliability, credibility, kindness, and ability may still be able to drive creativity initiatives by exercising strategic control (Owoyemi & Ekwoaba, 2014), which is a form of control that helps to ensure that those employees who have been tasked with the development of defined creative ideas will stay clearly on track (Venkatraman & Huettel, 2012). Those leaders who are entrusted with guiding creativity initiatives often do so by controlling for and ensuring the smooth flow of the creative ideas that their employees are expected to implement (Cheung & Zhang, 2020; Chughtai, 2014). In doing do, such leaders prevent their employees from frequently digressing by splitting their focus on several creative ideas (Ogbeibu et al., 2018a). Likewise, by supplementing control with kindness, a trustworthy leader thus help to ensure that employee creativity is consistently exercised (Zhang et al., 2021). Hence, Cameron and Quinn (2011) advocated that, in the hierarchy OC, leaders thrive in ensuring stability, efficiency, predictability, and in controlling and organizing. We therefore hypothesised as follows.

Hypothesis 3d: *Leader trustworthiness will dampen the positive influence that the hierarchy OC has on employee creativity.*

The information in Fig. 1 highlights distinct theorized influences of leader trustworthiness on the nexus between the various OC quadrants and employee creativity. The employee creativity construct has yielded highly discrepant research findings over the years, having been examined either as a one-dimensional or multidimensional construct (Birdi et al., 2016). Although this lack of homogeneity may have yielded relevant results, it has also contributed to a growing fragmentation of the philosophies encountered within the creativity paradigm (Kaufman & Beghetto, 2009; Merrotsy, 2013). Therefore, for the purposes of this study, and as highlighted in Fig. 2, we resolved to measure employee creativity along three separate dimensions. Then, we subsequently scored and unified all three dimensions (Amabile & Pillemer, 2012; Hennessey & Amabile, 2010) in order to reflect a single latent construct, with each dimension acting as an indicator of employee creativity (Lowry & Gaskin, 2014).

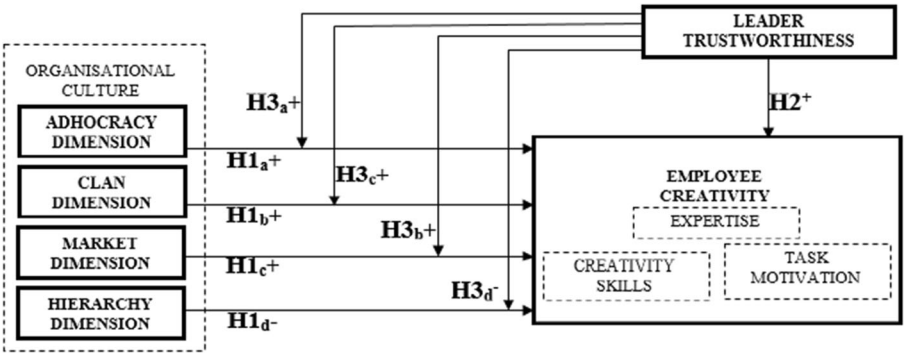

Fig. 1 Conceptual framework

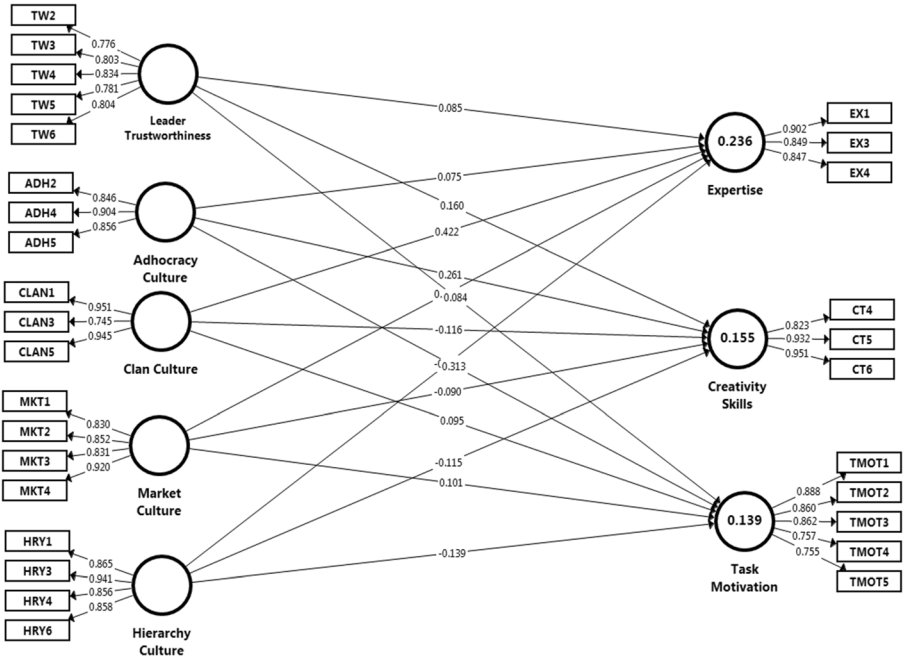

Fig. 2 Measurement model

Methodology

The sample size and the procedure for data collection

In our study, the population sample was represented by the research and development (R&D) employees of 54 manufacturing organizations recognized and indexed in the Malaysian Stock Exchange (MSE) (Bursa Malaysia, 2018). Our use of the MSE to identify our sample organizations was consistent with the approach taken in extant research (Goh, Rasli, & Khan, 2014). The specific OC quadrant(s) in operation at one branch of a manufacturing organization was applicable to its other branches nationwide (Wan Fairuz et al., 2013), which ensured a certain degree of generalization for our findings (Tipton et al., 2017). Our sample manufacturing organizations were located in the Klang Valley and Penang, which are Malaysia's major business and industrial trading hubs (Abdullah Jamaludin. & Talib, 2015).

The sample size measurement was guided by the Krejcie & Morgan (1970) determinant of sample size, which also helped to obtain a stratified proportionate sampling of employees. Out of a total of 600 copies of the questionnaire distributed (across leaders and team members), only 222 completed were returned and found to be useful for analysis. This represented a response rate of 37%, which far exceeded those recorded by similar studies (Abdullah et al., 2015; Islam & Karim, 2011). Our respondents' ages ranged from 20 to 60 years. The sample's distribution between male and female respondents (46.2% and 53.8%, respectively) indicated that neither gender was overrepresented. Likewise, 41% respondents were undergraduate degree holders,

41.3% held master's degrees, 13.6% held diplomas or equivalent titles, and only 4.1% held PhDs.

Four senior investigators and professionals helped to assess items of our questionnaire before distribution, and we recruited six research assistants (RAs) who were trained for the purposes of data collection. Fifty employees partook of the pilot survey phase, and this number of employees is consistent with the approach taken by extant research (Artino, La Rochelle, Dezee, & Gehlbach, 2014). The pilot survey's data were collected from employees of four different divisions of four different manufacturing organizations, and the results were analysed using the SPSS software (version 22). At this stage, several items were dropped due to poor loadings: one each from the leader trustworthiness and the market OC constructs; two each from the hierarchy, adhocracy and clan OC constructs, and three from employee creativity skills construct. We were anyhow able to retain a minimum of three items per each latent factor (Hair, Ringle, & Sarstedt, 2011). Finally, to facilitate the real collection of data, we established numerous contacts and official arrangements with the Human Resource Managers (HRM) of each manufacturing organization. Our RAs further engaged the sample employees in a quick ten-minute update regarding the aims, objectives, and importance of completing the questionnaires. The sample participants were advised to close, seal, and give back the envelopes containing the questionnaires to their respective HRMs. Afterward, our RAs collected the sealed envelopes for further collation purposes.

The participants in this study consisted of team leaders and subordinates who, based on their respective team objectives, were distinct from other teams in their R&D departments. Consequently, the respondents' perceptions originated from a varied spectrum of knowledge of the routines associated with their respective leader's trustworthiness and OCs. Although our study was cross-sectional in nature, time lags were applied to reinforce the validity and reliability of the findings. The questionnaires on employee creativity and leader trustworthiness were handed out 18 weeks after distributing those on the OC quadrants. While both leaders and their subordinates provided their respective measurements of OC, those of employee creativity were only provided by leaders, and those of leader trustworthiness only by subordinates. Consistent with extant research (Podsakoff, MacKenzie, & Podsakoff, 2012) this helped to mitigate any common source bias concerns. To account for common method bias (CMB), the participants were assured of their anonymity following Podsakoff et al. (2012), who emphasized that this approach helps reduce any apprehension evaluation and dishonest response behaviours exhibited by the participants while responding to questionnaires. Additionally, Kock (2015) stated that to help detect any CMB, researchers may conduct a complete collinearity evaluation of the variance inflation factor (VIF). The author further advocated that any VIF values lower than 3.3 show that a model is not significantly affected by CMB. Accordingly, the highest VIF value in our study was 1.055 (Table 1), thus indicating that CMB was not an issue (Kock, 2015).

Measures

The questionnaire was prepared in English and involved seven-point Likert scales that ranged from 'strongly disagree' to 'strongly agree'. We investigated *leader trustworthiness* by adapting six statements from Jiang, Bao, Xie, & Gao (2016). An example of

the statements used is, "*I never have to worry about whether my leader will keep to his/her words*". Cronbach's Alpha was .907 (Jiang et al., 2016). Twenty-four items were employed to examine the *OC quadrants*. Some examples of these items are, "*My organization is an entrepreneurial, and very self-motivating place where employees are eager to partake in risk taking activities*" and "*Leaders in my organization are commonly perceived to be coordinators, mentors or parental figures.*" The reliability scales ranged from .71 to .80 (Heritage, Pollock, & Robert, 2014). Four items were adapted from Burr & Cordery (2001) and one from Birdi et al. (2016) to measure *task motivation*. An example of the items used is "*This subordinate is strongly motivated by the recognition gotten from this company*". As supported by Birdi et al. (2016), reliability of task motivation was .79. Seven items were also adapted from Birdi et al. (2016) to examine *employee creativity skills*. An example of the items used is "*This employee is skilled at generating more than one solution to a problem*." Four items were adapted from Birdi et al. (2016) to measure *expertise*. An example item is "*This employee can address almost any problem in his/her job*." The reliability scales for employee expertise and creativity skills were .76 and .90, respectively (Birdi et al., 2016).

Analysis

This study utilized the SmartPLS3 software to estimate the measurements and structural models. A core reason for using SmartPLS3 was the reflective-formative scope of our research model's conceptual undergirding. The use of the variant-based structural equation modelling (VB-SEM) technique is strongly recommended for models of a formative nature by Hair, Lowry and Gaskin (2014). Some studies (Ringle, Sarstedt, Mitchell, & Gudergan, 2018; Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016) advocate that SmartPLS3 enables far more consistent estimates and the use of Latent Variable Scores (LVS). While our study's measurement model shows an estimate of the reflective measurement scales, the structural model indicates an examination of employee creativity as a one-dimensional (formative) construct (Lowry & Gaskin, 2014). This is to foster the predictability of this study's exogenous constructs (Hair et al., 2013).

Likewise, following the recommendations of Hair, Hult, Ringle, and Sarstedt (2013) in regard to the estimation of formative latent constructs, a two-stage approach was employed to examine the structural model of this study. According to Ringle et al. (2012), the LVS of all measurement model constructs are obtained in the first stage (measurement model estimation). Next is the second stage (structural model estimation), in which all the measurement model constructs ought to be represented by their respective LVS. However, at the second stage, employee creativity is represented as a single latent construct, with its distinct dimensions applied, and formatively positioned as its predictive manifest variables. This way, all other constructs are able to simultaneously predict employee creativity and yield consistent estimates.

Empirical results

The descriptive statistics highlighted in Table 1 show the mean and the standard deviation (SD) values. The mean value in our study ranges from 5.3 to 5.9, and

indicates that most respondents perceived their leaders to be trustworthy. Likewise, the SD results (1.07 to 1.70) indicate the absence of any substantial difference between each latent construct investigated, as the respective scores remain moderately near to each other. The skewness and kurtosis values ranged from −1.488 to .73 and from −2.018 to 2.192, respectively. The results show that the data were normally distributed (Hair, Ringle, & Sarstedt, 2011).

In examining the measurement model, a look at Fig. 2 shows that the measurement items used in our study were found to surpass the least requirement of .7, thus indicating their substantial contributions to their individual constructs. Likewise, the rho_A in Table 1 ranges from .83 to .96. Henseler (2017) suggesting that the rho_A is the only consistent and most essential reliability measure of PLS construct scores (compared to Cronbach's Alpha – CA), as CA is a lower boundary criterion which measures true reliability. Also, the Composite Reliability (CR) scores were found to range from .89 to .93. The rho_A and CR values were all found to surpass the least requirement of .7, and this confirms the reliability and the internal consistency of all constructs used in our study. Equally, the Average Variance Extracted (AVE) was found to be larger than the minimum threshold of .50, which suggests the constructs' convergent validity. The VIF was also examined to help account for plausible cases of multi-collinearity. Table 1 shows that the VIF values were found to fall considerably below the maximum threshold of 9. Construct validity was thus confirmed by a lack of multi-collinearity (Lowry & Gaskin, 2014). Additionally, a higher boundary criterion known as the Heterotrait-Monotrait Ratio (HTMT) was applied to probe for discriminant validity. Table 2 indicates that all HTMT values were found to be significantly lesser than .850, thus confirming discriminant validity, as all constructs showed clear distinctions from each other (Henseler, 2017). Furthermore, Henseler (2017) advocated that, for PLS path modelling, the only approximate model fit criterion is the standardized Root Mean Square Residual (SRMR). For this study's measurement model, the SRMR was found to be .075, and this value is lower than the maximum threshold of .8 (Hu & Bentler, 1999). The SRMR value obtained therefore, implies the fitness of this study's measurement model.

Several measures like R^2, effect sizes (f^2), statistical significance, Q^2, and SRMR ought to be considered to examine the structural model. To account for statistical significance, Hair et al. (2011) recommended a minimum t-statistic value of 1.65 at $p \leq .1$. Likewise, Ringle, Sarstedt, Mitchell, & Gudergan. (2018) emphasised that f^2 values of .35, .15, and .02 respectively indicate large, medium, and small effects. An estimation of the structural model was initiated by use of 5000 subsamples in the SmartPLS option for bootstrapping in order to obtain significant levels. The R^2 was examined to ascertain the variance level described by five exogenous constructs in our study. In Fig. 3, the obtained R^2 value (.271) suggests a modest explanation of variance in employee creativity. Yet, some studies (Hair et al., 2013) suggest that an appropriate R^2 value is contingent upon the type of research, and that an R^2 value even as low as .10 can be considered satisfactory in certain research contexts. Given that the R^2 value was also found to be statistically significant ($t = 5.442$, $p = .001$), significant explanations of employee creativity variance by all five constructs are suggested, and they are consequently considered meaningful for further interpretation purposes (Hair et al., 2013). Finally, to evaluate for structural model fit when using Smart PLS, recent studies (Ringle et al., 2018) advocate that researchers should mostly depend on a model's

predictive performance measurement criteria (Q^2, β, and R^2). As a further complement to the β and R^2 measures already analysed in this study, the values of Q^2 (.133), and SRMR ($\beta = .052$, $t = 5.695$, p=.001) therefore suggest that this study's model met the fit assessment criteria, and was thus valid (Henseler, 2017).

Figure 3 also highlights that clan OC exhibits the strongest association (β = .398, $t = 4.741$, p= .001) with employee creativity, followed by the adhocracy OC (β = .199, $t = 2.212$, p= .05) and the market OC (β = .141, $t = 2.173$, p= .05). These results confirm our hypotheses **$H1_a$**, **$H1_b$**, and **$H1_c$**, which are thus **supported**. Likewise, the f^2 values for the clan (.215), adhocracy (.053), and market (.026) OCs indicate medium, small, and small effects, respectively. Although hierarchy OC was found to show a positive (β = .109, $t = 2.094$, p= .05) association with employee creativity, it counters the postulation of **$H1_d$**, which is therefore **not supported**. Further, given its f^2 value of 0.016, hierarchy OC was found to have no meaningful effect on employee creativity. Additionally, leader trustworthiness was found to be in a negative (β = −.249, $t = 3.407$, p= .001) relationship with employee creativity. This is contrary to hypothesis of **H2**, which is thus **not supported**. The f^2 value for leader trustworthiness is .081, indicating a small effect on employee creativity. Moreover, Figs. 4, 5, 6, and 7 should to be considered to grasp the nature of the moderating effects. Their disordinal interaction graphs show a green, red, and blue line, which respectively suggests high, low, and mean positions of the moderator.

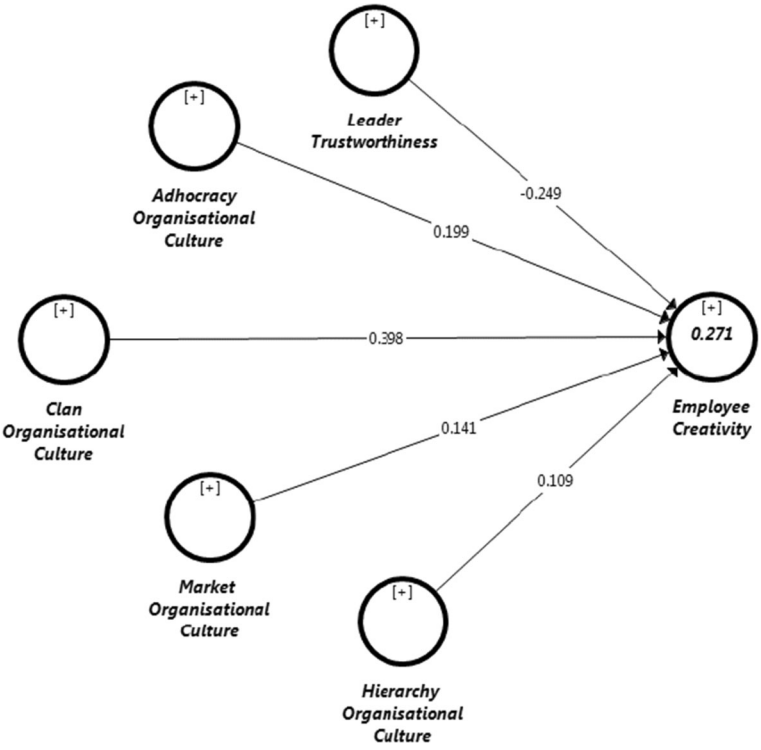

Fig. 3 Structural model and PLS-SEM estimates

Figure 4 points out that leader trustworthiness does not moderate the relationship between the adhocracy OC and employee creativity ($\beta = -.046$, $t = .478$, $p = .633$), thus **not supporting $H3_a$**. Figure 5 indicates that leader trustworthiness does not moderate ($\beta = -.024$, $t = .286$, $p = .775$) the relationship between the clan OC and employee creativity; thus, **$H3_a$** and **$H3_b$** are **not supported**. However, Fig. 6 shows an interaction that indicates that leader trustworthiness positively moderates ($\beta = .262$, $t = 2.325$, $p = .020$) the relationship between the market OC and employee creativity. **$H3_c$** is therefore **supported**.

Likewise, Fig. 7 highlights an interaction that suggests that leader trustworthiness positively moderates ($\beta = .145$, $t = 1.920$, $p \leq .055$) the relationship between the hierarchy OC and employee creativity, thus **supporting $H3_d$**. Furthermore, we examined how the predictor constructs of employee creativity were found to truly perform in line with their respective importance, this study conducted an Importance Performance Map Analysis (IPMA), as recommended by Ringle and Sarstedt (2016). The IPMA is relevant in helping policymakers and practitioners to make more targeted and informed decisions, and to identify any room for improvements (Ringle et al., 2018). Specifically, the y-axis of the IPMA graph indicates the performance of exogenous constructs in light of their average rescaled LVS, while the x-axis represents their importance in explaining the target construct.

The results pertaining to the constructs' unstandardized total effects (Fig. 8) show that all the OC quadrants, including leader trustworthiness, perform averagely in their respective contributions to engendering employee creativity. Although they exhibit relatively equal degrees of influence on employee creativity, their levels of importance differ. Likewise, when compared to leader trustworthiness, the clan OC makes the most important contribution to engendering employee creativity.

Discussion and conclusion

Our study leveraged an importance-performance map analysis to provide evidence suggesting that the clan OC typifies the strongest positive relationship with employee creativity, and exerts the highest level of importance to employee creativity.

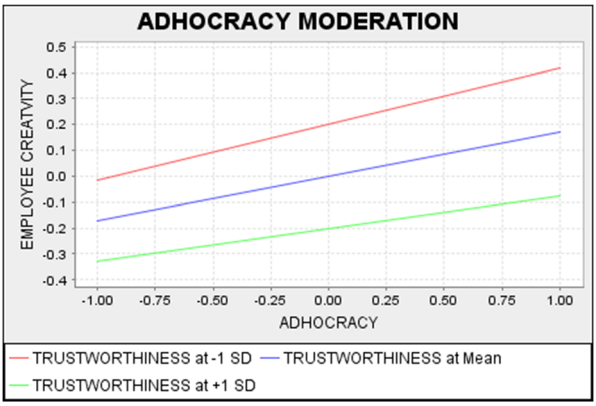

Fig. 4 The moderating effect of leader trustworthiness on the impact of adhocracy OC on employee creativity

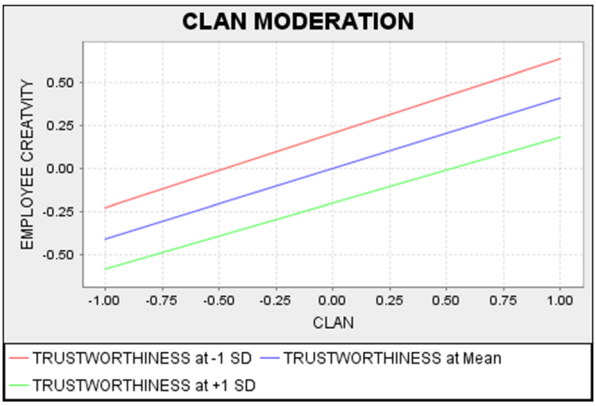

Fig. 5 The moderating effect of leader trustworthiness on the impact of clan OC on employee creativity

Unexpectedly, leader trustworthiness was found to dampen employee creativity and strengthen the positive associations of the market and hierarchy OCs with employee creativity. The strong positive association of the clan OC with employee creativity was found to be consistent with extant studies (Ashraf, Kadir, Pihie, & Rashid, 2013; Fernandes & Polzer, 2015) that focussed on the clan OC's (and its features) positive impact on employee creativity. However, our finding does stand in opposition to those of other studies (Naranjo-Valencia et al., 2016). Such conflicting views appear to be destined to remain unresolved, even though this study's results complement the body of literature that emphasize that the clan OC does help to engender employee creativity (Lin, Ma, Zhang, Li, & Jiang, 2016; Zakersalehi et al., 2011). Similarly, we found that the adhocracy and market OCs are positively correlated with employee creativity. These findings are also congruent to those of extant research (Ashraf et al., 2013; Gupta, 2011; Naranjo-Valencia et al., 2016). Nonetheless, the findings of Dadgar, Barahouei, & Mohammadi (2013) and Hemmatinezhad et al. (2012) still do not support the positive influences of the adhocracy and market OCs.

Consistent with a growing belief, heralded through the findings of extant research (Ashraf et al., 2013; Gupta, 2011), our study postulated that the hierarchy OC does negatively influence employee creativity. Surprisingly, our findings indicate that

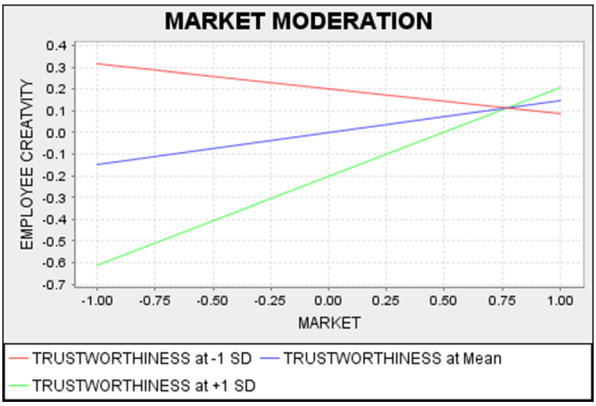

Fig. 6 The moderating effect of leader trustworthiness on the impact of market OC on employee creativity

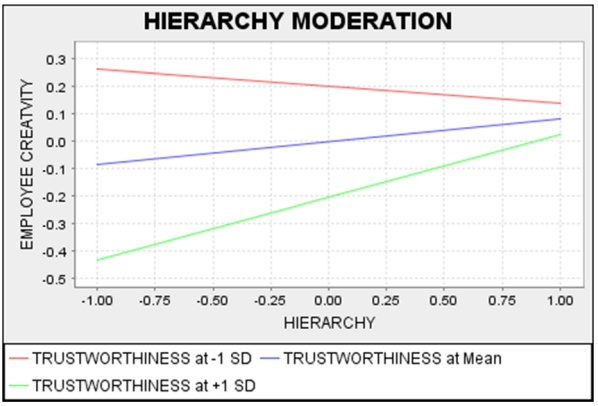

Fig. 7 The moderating effect of leader trustworthiness on the impact of hierarchy OC on employee creativity

hierarchy OC is instead positively associated with employee creativity, which is congruent to some extant literature (Caniels & Rietzschel, 2015; Dadgar et al. 2013). A possible explanation could be that, by enforcing formal control, leaders are able to guide, direct, and organize the development of creative ideas, and to instigate a defined system of employee task delegation (Chou et al., 2008; Trevino et al., 2021) that helps to mitigate any distractions that might arise from employees focussing on multiple creative ideas (Caniels & Rietzschel, 2015). Some studies (Caniels & Rietzschel, 2015) emphasize that this strategy plays a significant positive role in keeping employees on track and in ensuring that they exhibit the required values and novel actions in support of creativity related programs, that could consequently help to promote employee creativity (Elisondo & Donolo, 2016).

Although unexpected, the negative influence of leader trustworthiness on employee creativity confirms several arguments found in extant research (Fryxell, Dooley, & Li, 2004; Ogbeibu et al., 2018a; Wickramasinghe & Widyaratne, 2012). This finding could be a consequence of employees excessively relying on their leaders' trustworthiness in regard to creativity initiatives. This typifies a known organizational behaviour found in several Malaysian organizations that operate a clan OC (Cameron, 2008; Hofstede & McCrae, 2004; Ogbeibu et al., 2018b). Supported by the findings of our study, the clan

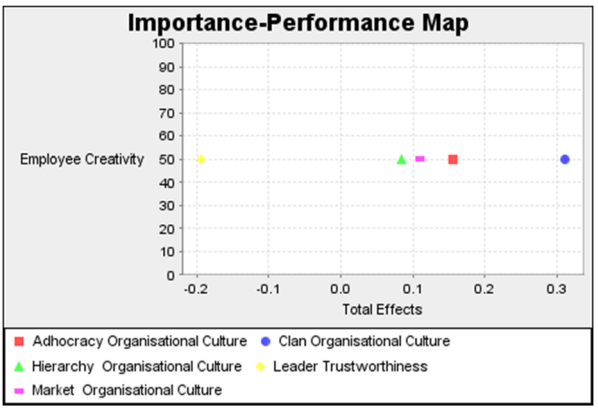

Fig. 8 Constructs unstandardized importance-performance effects on employee creativity

OC exemplifies the strongest influence on employee creativity (Fig. 3). Thus, as a demonstration of strong loyalty, several employees in Malaysia tend to exhibit high levels of reverence and fear towards their leaders, who are in most cases perceived to be highly credible, knowledgeable, and dependable (Chien & Ann, 2015; Hofstede & McCrae, 2004). Therefore, employees may tend to over-rely on their leaders' creative ideas and decisions, while overlooking the possibility that their leaders may not always be right (Ogbeibu et al., 2018a). Subsequently, the employees may view their own creative ideas as redundant, and thus suppress them. (Peng & Wei, 2016).

Additionally, leader trustworthiness has been found to significantly reinforce the positive associations between the market and hierarchy OCs with employee creativity. Under the hierarchy OC, an increase in leader trustworthiness provokes an increase in employee creativity (Fig. 7). Despite the degree of formal control and stress employees may face under a hierarchy OC (Liu, Lin, & Shu, 2017; McHugh, 1997), the results shown in Fig. 7 further support that employee creativity increases due to their perceptions of their leaders as caring and reliable.

This is akin to instances of stringent market OCs characterized by employees whose values have been shaped towards productiveness, increased market share, and competitive advantage (Cameron & Quinn, 2011). Congruent with tenets associated with leader trustworthiness and its increase as evidenced in Fig. 6, trustworthiness related attempts made by leaders under a market OC could help to further engender employee creativity (Ashraf et al., 2013; Peng & Wei, 2016). With an increase in leader trustworthiness, the exchange of creative ideas, and their subsequent diffusion aid to further enhance employee creativity (Ogbeibu, Senadjki, Emelifeonwu, Gaskin, & Pereira, 2021). Thus, leader trustworthiness might help to further inspire commitment towards risk-taking behaviours in creativity initiatives among employees. This is because trustworthy leaders could subsequently be perceived by employees to be dependable and capable of engaging in ethical practices that may provoke initiatives suited to engender employee creativity. It is further important to stress that leader trustworthiness not only strengthens the associations between the hierarchy and market OCs with employee creativity, but also that the nature of the respective interaction changes based on the level of leader trustworthiness.

Theoretical implications

The approach, taken by several studies, of investigating the CVF has raised endogeneity questions due to their failure to examine all OC quadrants. Additionally, the debates found in extant literature reflect a growing discord in relation to how OC affects employee creativity. While attempts to advance the employee creativity and OC foundations have been made by extant researchers, focus has mostly been on one-dimensional mode of investigations of the employee creativity and OC nexus. This may have produced an increasing magnitude of inconsistent findings.

The contentions and incongruent findings yielded by extant scholarly works on the OC and employee creativity nexus have also contributed to further rupturing the employee creativity and OC foundations. Contrary to distinct conflicting views expressed in extant empirical research, this study contributes to the literature and extends contemporary insights by investigating the multi-quadrant nature of OC, and

how each OC quadrant influences employee creativity. This study has also advanced this insight by exemplifying that the clan OC exhibits the strongest direct potential to engender employee creativity, while the hierarchy OC has the weakest. This study also challenges the prior conceptualizations of the positive influence of leader trustworthiness on employee creativity. By demonstrating that leader trustworthiness can be negatively associated with employee creativity, this study extends prior related understandings and consequently generates new insights. This study also complements the arguments of extant research focussed on the significant negative influence of leader trustworthiness on the creativity of an employee.

Likewise, the CTIC has championed the view that OC either promote or inhibit employee creativity. While our study contributes by complementing this conjecture in terms of the relative performance levels of distinct OC quadrants, it also extends the prior insights by providing evidence of which OC quadrant is the most important. Equally, the OC quadrant that requires the most attention and provides room for further performance improvement to more strongly bolster employee creativity has not been identified by the CTIC theorisations. This study extends the prior theoretical insights by demonstrating that all the quadrants of OC exhibit asymmetric degrees of importance in their association with employee creativity. Moreover, as another major contribution, this study exemplifies and challenges the prior theoretical assumptions by providing evidence that shows that the clan OC (rather than OC as a whole) makes the most substantive contribution towards engendering employee creativity. This finding provides organisational leaders with a more targeted window to make more effective decisions regarding the promotion of employee creativity. This study challenges the conventional juxtapositions found in the extant research by demonstrating that, despite prior relevant findings (such as the adhocracy OC being the most important quadrant), all OC quadrants and leader trustworthiness perform modestly in their respective contributions to stimulating employee creativity. This study further deepens past insights by showing that, though all OC quadrants exhibit relatively equal degrees of influence on employee creativity, their respective level of importance differ.

Similarly, values reflecting strict control, which are a strong feature of the hierarchy OC, have been argued by the CTIC to weaken employee creativity. This is contrary to another contribution of this study, which highlights that the hierarchy OC is positively associated with employee creativity. Although its impact is small, this study has further advanced this insight by shedding more light into the role that leader trustworthiness plays in amplifying it. This study found that leader trustworthiness actually strengthens the positive relationship between the hierarchy and market OCs and employee creativity. Despite the multiple significant roles played by leader trustworthiness in promoting the creativity of employees, particularly under diverse OCs, our findings reveal that in Malaysia's manufacturing organisations, leader trustworthiness is the least important to employee creativity when compared to other drivers such as the distinct OC quadrants.

Managerial implications

In light of the global warming concerns and of the need to consistently drive responsible innovation in organizations, this study presents a timely and novel investigation that is relevant to aid top managers, leaders, and policymakers in making informed decisions. This study utilized high quality data drawn from the manufacturing industry

to broaden the knowledge on how OC impacts employee creativity, thus providing a guide for leaders and policy makers in regard to which OC quadrant most strongly supports employee creativity within Malaysian manufacturing organizations. This study deepens insights into the clan OC as a recommended OC quadrant for leaders and policy makers interested in further boosting employee creativity. Thus, policy makers should endeavour to strongly encourage the clan OC, due to its effects on employee creativity. Notably, when compared to the other OC quadrants studied in the extant research, our study findings in regard to the adhocracy OC complement its previous empirically established position in promoting employee creativity. Therefore, policies could be instituted to further encourage the values found in the adhocracy OC, given its long-standing ability of engendering employee creativity.

Moreover, when allocating resources to foster the influence of OC quadrants and leader trustworthiness on employee creativity, it would be important for practitioners and policy makers to note that the clan OC exhibits the greater need for resources. Given the IPMA results, the clan OC is the one that shows more room for improvement, as it makes the most important contribution to engendering employee creativity. Additionally, those manufacturing organization leaders that currently operate the market and hierarchy OCs should take note of the small effects of these OC quadrants. Nevertheless, this study provides some comfort to leaders in that any increase in leader trustworthiness significantly amplifies the impact of the market and hierarchy OCs on employee creativity. Consequently, policies and initiatives aimed at inspiring leaders to become more trustworthy should be established. Those manufacturing firms leaders that promote their employees' creativity based on values that mirror trustworthiness can also take comfort knowing that such trustworthiness reflects a degree of influence similar to that achieved by other leaders via the clan OC. However, leaders should take care to eschew any unethical behaviours in order to avoid the negative direct influence, found in our study, of leader untrustworthiness on employee creativity. Furthermore, measures should be put in place to monitor and further ensure strict adherence to ethical practices that reflect transparency of leader trustworthy behaviours. This could help to boost opportunities for the exchange of the creative ideas that could be needed to combat future financial uncertainties and the ever increasing change that is overwhelming the global business environment.

Limitations and future directions

Considering the plausibly diverse effects that each OC quadrant may have on employee creativity across distinct cultural contexts, it would be important to investigate the conceptual underpinning of OCs by taking a longitudinal approach and through different theoretical lenses (Kristel & Jeroen, 2014). Further investigation could help deepen the knowledge encompassing the nexus between the CVF dimensions (not quadrants) and employee creativity because, congruent to this study's cross-sectional design and scope, the OC concept was examined via the lens of the CVF quadrants. Similarly, future empirical investigations conducted within various national contexts would be strongly encouraged to complement those of this study, which were focussed on the Malaysian manufacturing industry context. Attempts to generalize this study's results could be made in consideration of the fact that the data collection of this study was limited to the R&D employees of 54 manufacturing organizations located in only

two regions (major trading hubs) of Malaysia. However, our findings have validity because our investigations were conducted in the headquarters of nationally indexed and recognized manufacturing organizations.

This study was grounded on an individual level investigation, which might have limited the degree of information obtained. Therefore, future research could examine the OC underpinnings in relation to the organizational creativity perspective. This could help broaden the nexus encompassing the OC and creativity underpinnings, as new constructs of organizational creativity are further examined. Part of this study's investigations was based on employees' perceptions of their leaders' trustworthiness and OC quadrants. Future studies may investigate the leaders' perceptions of their distinct OC dimensions and employee trustworthiness to help verify the congruence among the extant research's findings.

Appendix

Table 1 A summary of the measurement model's validity, descriptive statistics and the reliability

Constructs	N	Standard deviation	Mean	VIF	AVE	CR	rho_A
Adhocracy	222	1.14404	5.8438	1.025	.755	.903	.853
Leader Trustworthiness	222	1.07711	5.9414	1.055	.776	.933	.931
Clan	222	1.50404	5.9114	1.010	.784	.915	.968
Creativity skills	222	1.70793	5.2883	**Endogenous**	.817	.930	.936
Expertise	222	1.57034	5.9985	**Endogenous**	.751	.900	.834
Hierarchy	222	1.46157	5.9167	1.032	.640	.899	.877
Market	222	1.34298	5.4606	1.047	.738	.918	.885
Task_motivation	222	1.59248	5.3045	**Endogenous**	.682	.915	.900
Valid N (listwise)	222						

Note: CR (Composite Reliability); Sample (N); VIF (Variance Inflation Factor); AVE (Average variance Extracted)

Table 2 The Heterotrait-Monotrait Ratio (HTMT) test

	AC	CC	CS	Expertise	HC	LT	MC	TM
Adhocracy Culture (AC)								
Clan Culture (CC)	**.070**							
Creativity Skills (CS)	.323	**.157**						
Expertise	.107	.448	**.159**					
Hierarchy Culture (HC)	.059	.118	.160	**.199**				
Leader Trustworthiness (LT)	.141	.075	.224	.151	**.122**			
Market Culture (MC)	.105	.069	.177	.101	.210	**.098**		
Task Motivation (TM)	.351	.166	.498	.184	.131	.146	**.116**	

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