CREATIVITY FOR PROBLEM SOLVING IN THE DIGITAL ERA: CONFIGURATIONS OF LEADERSHIP PROFILES

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Finding creative solutions to organizations' challenges is critical to determining the ability to thrive. Creative leadership promotes an organizational culture based on creative problem-solving skills. Five leadership elements (being digitally and technologically savvy, having a results orientation, promoting collaborative teamwork, possessing business skills, and providing resources to the team) enable leaders to pursue creative or uncreative problem-solving solutions. The current study used a fuzzy-set qualitative comparative analysis to identify the elements of creative leadership. The analysis comprises data from 123 leaders worldwide from different sectors collected from an online survey. The results showed five leadership profiles leading to creative problem-solving and another five profiles leading to an uncreative outcome. The results provided a tangible approach to the behaviors needed to be creative leaders and the configurations of uncreative behaviors to avoid. The study integrates academic and practitioner perspectives on creative leadership and offers a model supported in the academic literature and relevant to practical needs.

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The digital era requires individuals to be creative and continuously invent new solutions for fast-changing problems (Smailhodžić & Berberović, 2021). In the knowledge economy, there is a need for greater creativity (Gleave & Al-Hawamdeh, 2002). Therefore, creativity is no longer a choice. As an effective tool for solving organizational problems (Sohmen, 2015), creativity has become a source of business leverage (Abecassis-Moedas & Gilson, 2018). Thus, finding creative solutions to problems may be the critical element that enables organizations to secure a competitive advantage (Hughes et al., 2018; Mumford et al., 2002). However, creative thinking is neither easy nor comfortable because it requires suspending previous thinking that challenges existing beliefs, mindsets, and patterns (Harris, 2009). Therefore, creativity threatens the established order and overall stability and may not be desired by employees who operate based on routines and standardization (Loewenberger et al., 2014).

Leaders play a crucial role in creating the conditions where creativity thrives or flounders in organizations (Berg et al., 2017; Harris, 2009). Creativity is "the production of novel and useful ideas in any domain" (Amabile et al., 1996, p. 1155). Creative leadership provides a healthy change in the organizational ecosystem through innovative perspectives (Sohmen, 2015). Creative leadership is "leading others toward the attainment of a creative outcome" (Mainemelis et al., 2015, p. 393). Creative leaders are likely to promote an organizational culture based on skills for creative problem-solving (van Laar et al., 2020).

The current study aimed to answer the question: Are there different profiles of creative leaders? Creative leadership is a complex phenomenon influenced by numerous elements (Reiter-Palmon & Illies, 2004). The research addressed how a particular set of circumstances (being digitally and technologically savvy, having a results orientation, promoting collaborative teamwork, possessing business skills, and providing resources to the team) contributes to it.

The study is anchored on the contingency theory which states that there is no best way to lead an organization and leadership depends on the internal and/or external situation (He et al., 2020; Luthans & Stewart, 1977). Situational factors influence leadership

behavior (Horner-Long & Schoenberg, 2002), and what is effective in some circumstances may be indifferent or even dysfunctional in others (Vidal et al., 2017). Moreover, an individual's creativity results from a complex person–situation interaction (Li et al., 2022; Stough, 2010). The contingent approach is vital for managers aiming to improve results (Ganescu, 2012) by collaborating to facilitate work groups to adapt to change (Chaudhry, 2020). Contingency theory posits the effect of the use of resources depends on the context in which the resources exist (Citrin et al., 2007; Slater et al., 2010). The contingency aspect was used as a theoretical background for analyzing individuals' business skills and desirable characteristics (Chengseng et al., 2022; Unger et al., 2011). Furthermore, the current article follows the studies of Amabile and Mumford (e.g., Amabile et al., 1996; Mumford, 2003; Mumford et al., 2002) in which creative problem-solving is related to such aspects. Finally, the COVID-19 pandemic has transferred face-to-face and analog interactions to the digital realm (Faraj et al., 2021) in which being digitally and technologically savvy became important. COVID-19 fostered experimentation in creative problem-solving, as digital technology has helped leaders to adapt to the changes because of the pandemic (Fenwick et al., 2021). Contingency theory argues that major disruptions to a system, such as technological change, affect leadership (Stough, 2010) and the situational context of the digital scenario requires a different set of leadership characteristics (Horner-Long & Schoenberg, 2002; Tigre et al., 2023).

Although many studies have recognized the importance of the leadership role in the workplace, the focus on the determinants of creative problem-solving are few (van Laar et al., 2020). Additional research is needed to identify specific aspects of leadership that may contribute to it (Tierney et al., 1999). Because of creative problem-solving has not been wholly analyzed from a leadership perspective (Amabile et al., 1996), it is a gap that needs to be addressed. To date, no study has integrated all the leadership elements the current article addresses by analyzing the conditions that lead to creative leadership and its absence. Furthermore, creative leadership is a complex phenomenon (Reiter-Palmon & Illies, 2004). Studies using traditional statis-

tical techniques (i.e., based on correlation measures and symmetric relations between the correlated variables) can establish the combinations of causes in a context but cannot identify the patterns among the relationships (Fiss, 2011; Wagemann & Schneider, 2010) in such a complex phenomenon. Fuzzy-set qualitative comparative analysis (fsQCA) can identify the configurations of circumstances that lead to creative leadership and others to the absence of such leadership. FsQCA uses a configurational approach to identify the phenomenon and allows alternative ways to generate the presence and the absence of the outcome.

Finally, the current article contributes to the creative problem-solving literature by generating an analysis different combinations of leadership elements that lead to creative problem-solving. Different profiles allow managers with different personalities or leadership styles to be creative leaders. Furthermore, the characteristics the current study identifies with fsQCA produce alternative paths to uncreative problem-solving, which leaders should avoid.

Literature Review

CREATIVE LEADERSHIP

Creativity and problem-solving are considered desirable elements in organizations with large numbers of employers across different industries (Martz et al., 2017). Organizations face new and more complex challenges in today's world that require innovative responses based on creative problem-solving to deliver long-term competitiveness (Smailhodžić & Berberović, 2021). However, creativity and innovation are different constructs (Hughes et al., 2018). Creativity is related to generating new and valuable ideas to solve problems (Amabile, 1988). In comparison, innovation refers to implementing creative ideas (Amabile et al., 1996). Innovation does not occur without creativity, so leaders must first establish organizational contexts in which creativity can be promoted (Chughtai, 2016; Kremer et al., 2019). Creativity relies on divergent and convergent thinking abilities (Reiter-Palmon & Illies, 2004). It is at the core of creative problem-solving (Williams & Foti, 2011). Because individuals must think in different ways to find as many effective, feasible, and original solutions as pos-

sible, deploying divergent thinking (McCrae, 1987; Suifan et al., 2018). Afterward, individuals rely on convergent thinking to evaluate and compare possibilities to choose the best option to solve the problem (Zhu et al., 2019). Creative problem-solving is usually perceived as a form of "high-level" cognition in contrast to less demanding and automatic cognitive activities, such as recognition and recall (Mumford et al., 2012). A bibliometric analysis of creativity has shown that creativity has changed from being an important skill to a performance element within organizations (Castillo-Vergara et al., 2018).

Because of greater competition and unpredictable changes, leadership is a critical component in an organizational environment that can either boost or thwart organizational creativity (Amabile et al., 2004; Hughes et al., 2018). Furthermore, leaders can create a work environment that will promote creativity in followers (Tran et al., 2020) because leadership influences the ability of followers to solve problems creatively (Suifan et al., 2018). Leadership is essential in improving employee creativity (Černe et al., 2013; Koh et al., 2019). Organizations must stimulate creativity as the road to competitive advantage (Amabile et al., 1996). Creative problem-solving skills and business expertise are abilities used to evaluate the business ideas of creative people (Mumford et al., 2002). Furthermore, leaders need to promote team collaboration by creating a climate that supports idea generation on the part of others (Mumford et al., 2012) to achieve results for the organization (Li et al., 2016; Mumford et al., 2002). Leaders must be digitally literate to identify opportunities and threats facing the organization from a technological perspective (Kane et al., 2019). Further, leaders must provide the team with resources so that its members can adequately perform their tasks (Cordery et al., 2009). Nonetheless, the literature does not address the multiple and alternative paths leaders can take to generate creative solutions to organizational problems. Similarly, there is no evidence of prior work on identifying the configurations of such conditions that prevent leaders from being uncreative.

However, there are also challenges to the creative process. Leaders must prioritize which idea to creatively
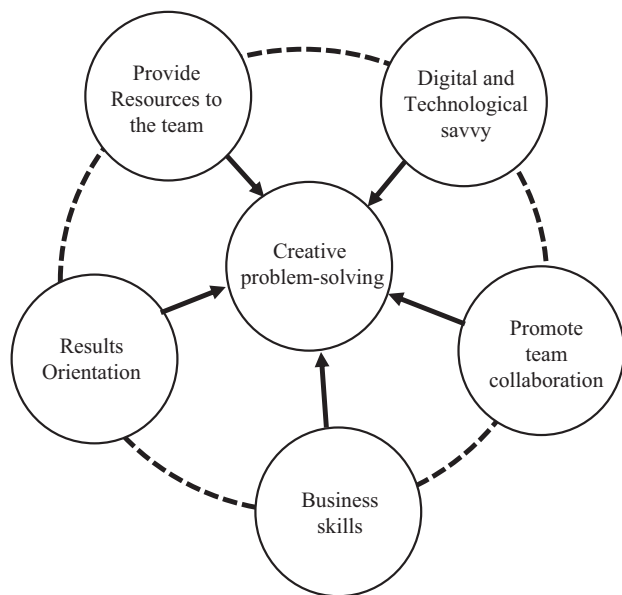
Figure 1 Conceptual Framework

solve a problem should be implemented (Smailhodžić & Berberović, 2021). People are often premature in their criticism by rushing to judgment and suppressing the flow of creative ideas (Basadur, 2004). Another organizational obstacle is the bias favoring executives who preserve the status quo and offer conventional, low-risk solutions devoid of originality (Mainemelis et al., 2015). Nonetheless, many organizations claim that creative leadership is essential (Mueller et al., 2011). Figure 1 shows the conceptual framework.

DIGITAL AND TECHNOLOGICAL SAVVY
In an information-rich society, workers need to use the available information to find the best answer to a problem (van Laar et al., 2020). The workforce needs to solve new problems, transfer knowledge in diverse situations, and find solutions to multiple scenarios (Barak, 2018). Organizations have experienced a growth in digital solutions. Technology-driven tools have improved traditional techniques of stimulating creativity (e.g., new communication tools, interactive dashboards), while the Internet of things, artificial intelligence, and virtual reality notably challenge the creativity of leaders and teams (Smailhodžić & Berberović, 2021). There are new digital elements that leaders have to address and cannot avoid (Hisrich & Soltanifar, 2021). Technology is bringing significant

change to organizations; pursuing greater efficiency and higher productivity in problem-solving delivers a vital competitive advantage (De Araujo et al., 2021). Being a digitally and technologically savvy leader goes beyond reactively responding to technology disruption. Such leadership requires the ability to redefine business models creatively so that the digital solutions adopted help to create a competitive advantage (Li et al., 2016). Competition is related to fulfilling consumer needs and solving customer problems efficiently and creatively (Smailhodžić & Berberović, 2021). A nondigital leader will struggle to evaluate new trends as opportunities or threats to the organization (Kane et al., 2019). Therefore, digital leaders can make better informed decisions in scenarios characterized by uncertainty. Consequently, the first proposition is:

> **Proposition 1.** Digital and technological savvy contributes to the leader's creative problem-solving.

PROMOTE COLLABORATIVE TEAMWORK
Collaboration is crucial for organizations, given that issues are multifaceted, and value is cocreated through team interaction (Fu et al., 2020; Raelin, 2016). As work is becoming more knowledge-based and interdisciplinary, the solution to a problem is usually obtained by teams with complementary expertise and roles working together to get an outcome (van Laar et al., 2020). Organizational issues are complex that demand combined efforts to produce creative solutions. No matter how talented, individuals lack the knowledge and skills to singlehandedly solve all problems (Mumford, 2003). Therefore, collaboration is a "joint effort toward a group goal" (de Vreede et al., 2009, p. 121). Teams are the leading structure that generate the knowledge that can create value and accomplish organizational aims (Amelkin et al., 2018; de Vreede & Briggs, 2019). With teamwork, organizational problem-solving is likely to improve as leaders encourage collaboration among members (Fu et al., 2020; Webb, 2016). Leading in today's digital times is conceived as "collaborative leadership" compared to the traditional leadership style of "command and control" (De Araujo et al., 2021). Hence, creative leadership resides in the dynamic interactions between leaders,

followers, and contextual characteristics (Mainemelis et al., 2015). As a result, the second proposition is:

> **Proposition 2.** Collaborative leadership contributes to the leader's creative problem-solving.

RESULTS ORIENTATION

Creative leadership aligned with a results orientation is a source of competitive advantage for organizations, boosting achievements, and enhancing organizational survival (Suifan et al., 2018). Leaders are crucial for organizational effectiveness because team performance can be defined in part as a function of leadership (Almatrooshi et al., 2016). When leaders orient teams toward achieving the desired outcome, employees will feel supported, which enhances creativity (Kremer et al., 2019). Previous research has shown that guidance from leaders helps to promote creativity, but narrow and constraining instructions may restrain followers' creative ideas (Reiter-Palmon & Illies, 2004). Creativity for problem-solving is not just a matter of idea production; it depends on creating high quality and original solutions to problems to achieve organizational ends (Mumford et al., 2012). Nonetheless, the creativity of employees deteriorates without the positive support of leaders to resolve problems (Wu & Chen, 2018). Although there is an inherent tension in organizations' creative efforts, given that innovative solutions can be expensive and risky, leaders must promote creative solutions that are compatible with the organization's priorities (Mumford et al., 2012). In a digital scenario, organizations need to determine digital vision leaders must convert into achievable results that the team can pursue (Sousa & Rocha, 2019). Thus, the third proposition is:

> **Proposition 3.** A results orientation contributes to a leader's creative problem-solving.

PROVIDE RESOURCES TO THE TEAM

Because of the need for resources in an organization is self-evident, and perhaps has received less research attention than other management factors (Amabile, 1988). Leadership supports the team in acquiring and distributing the resources needed to develop and implement new ideas in the organization (Amabile

et al., 2004; Koh et al., 2019; Lee et al., 2020; Mumford et al., 2002). Providing resources to the team—with the leader furnishing members with whatever the job demands—helps the team to deal with outside disruptions effectively and keeps them better informed and staffed to deal with the exigencies of work (Cordery et al., 2009). However, resources are rarely seen as creative contributions but are crucial to facilitating creative thinking (Mainemelis et al., 2015). Because of the leader's provision of resources to the team is essential in promoting its creativity, the opposite is true in that insufficient resources inhibit creativity (Amabile, 1988). Accordingly, the fourth proposition is:

> **Proposition 4.** The provision of resources contributes to the leader's creative problem-solving.

BUSINESS SKILLS

In a digital environment, leaders need business expertise (e.g., technical and project management skills) and interpersonal capabilities to efficiently accomplish tasks and orient the teams to effectively negotiate a technology-mediated environment (Lu et al., 2014). In the past, business skills used to be the most crucial capabilities that a leader needed for project success (Gillard, 2009). Although work in organizations has become more complex and technology-driven, business skills are still vital for leaders to thrive (van Laar et al., 2020). Leaders with good project management skills may help create an organizational environment that promotes creativity (Amabile, 1988). Leaders' business skills are recognized as good predictors of creative performance in organizations because creative work requires expertise (Mumford et al., 2002). As organizations increasingly add digital offerings (e.g., analytics, mobility, and social media) to the portfolios, leaders need to have business skills to integrate the solutions into organizations' existing business models (Sousa & Rocha, 2019). The quality of planning (and replanning, when necessary) and the effective management of the initiative itself (e.g., scope, cost, resources, and schedule) are essential to project success (Gillard, 2009). Creative problem-solving skills and business expertise represent critical cognitive influences on the leader's performance. Leaders face challenges in evaluating the business ideas

of creative people without possessing that attribute (Mumford et al., 2002). Hence, the fifth proposition is:

> **Proposition 5.** Business skills contribute to the leader's creative problem-solving.

Methods

The fuzzy-set qualitative comparative analysis (fsQCA) is based on Boolean algebra, and is a configurational examination of the causal relationships among a group of antecedent conditions leading to the same result (Ragin, 2008). FsQCA allows different combinations of conditions to explain the same outcome (Ragin, 1987). The study used fuzzy-set theory that operates in the same way as people process information, and permits configurational classifications based on multiple interdependent and simultaneous elements (Henriques et al., 2019). FsQCA is a valuable means for addressing complex causation (Bernardino & Curado, 2020) in which complex antecedents exist in the social sciences (Roig-Tierno et al., 2017). FsQCA offers a middle ground between statistical analysis methods and case-oriented methods (Rihoux, 2006). Nonetheless, "the QCA methodology was designed to evoke qualitative rather than quantitative patterns" (Miller, 2018, p. 6). Thus, hypothesis testing applied in quantitative methods is not included among the main goals of standard applications of set-theory-based methods (Schneider & Wagemann, 2012). The advantage over traditional statistical methods involves theoretical progress and testing of the conditions for the presence and absence in the outcome (Woodside, 2013). Another difference is that fsQCA enables the presence of an outcome not to be the logical opposite of the absence of the outcome (asymmetric causality); the same conditions generate different outcomes (multifinality), and multiple paths lead to the same result (equifinality) (Fiss, 2011; Rihoux & Ragin, 2008). To date, several authors have used the fsQCA method to analyze topics in different scientific domains concerning causal configurations, such as creativity (Cheng et al., 2019; Muñoz-Pascual et al., 2021), information technology (Mikalef & Pateli, 2017), sustainability (Muench, 2015), entrepreneurial orientation (Huang et al., 2023), research productivity (Henriques et al., 2019), green human

resources (Jerónimo et al., 2020), cooperation-competition paradox (Ricciardi et al., 2022), and competitiveness (Mas-Verdú et al., 2020).

Therefore, the study applies fsQCA to a dataset of 123 leaders worldwide and considers all possible logical combinations of causally relevant conditions leading to creative and uncreative leadership (Ragin, 2008). FsQCA uses the approach of necessary and/or sufficient conditions to achieve an outcome (Fiss, 2011; Wagemann & Schneider, 2010). A necessary condition must always be present for the outcome to occur. In contrast, a sufficient condition, when present, does not guarantee the occurrence of the outcome (Fiss, 2007). Therefore, necessary and sufficient conditions may be present (or absent) in the solution. Core conditions show strong associations with the outcome; peripheral conditions show weaker associations with the outcome (Fiss, 2011). Core conditions are present in both the parsimonious and intermediate solutions, while peripheral conditions are present only in the intermediate solution (Crilly et al., 2012). Coverage and consistency are the two main indicators used by fsQCA. The coverage score measures the number of cases leading to the outcome and consistency indicates the extent to which the cases sharing a combination of conditions demonstrate the outcome (Fiss, 2011; Rihoux & Ragin, 2008).

DATA COLLECTION AND MEASUREMENT

In the empirical study, data were analyzed from an online survey distributed to worldwide leaders working in different organizations that generated 123 valid responses. The respondents had to identify whether they were team leaders in the organizations. If they were, the survey continued. However, 51 responded that they were not leaders; thus, the survey finished. Although QCA was initially used in small N studies, it has been used both in small and large N values (Chu et al., 2019; Fiss, 2011; Tigre et al., 2022; Whittington & Bell, 2016). The sampling method is valid because fsQCA accepts purposeful samples (Rihoux & Ragin, 2008) to identify a concrete and specific complex reality (Ragin, 2009). FsQCA recognizes the use of a convenience sample (Santos & Gonçalves, 2019) that is not probabi-

listic, and the findings cannot be generalized (Martí-Parreño et al., 2018). However, fsQCA makes a valid initial approximation of the study phenomenon (Crespo-Hervás et al., 2019; Santos & Gonçalves, 2019). Qualtrics® was used to gather the online responses with the aim of achieving global reach, flexibility, convenience, speed, and timeliness (Evans & Mathur, 2018). A link was sent to the participants with an estimated time to respond to the survey and a brief explanation of the research. Self-reported assessments are a commonly used measure in the literature, although they may be prone to recall bias and affect the accuracy of responses (Guerard et al., 2016). The survey assured participant anonymity and confidentiality and used counterbalanced questions using survey software to reduce online limitations and minimize the variance from common method bias (Chang et al., 2010; Evans & Mathur, 2018; Podsakoff et al., 2003). Moreover, the questionnaire was pretested to reduce comprehension problems (e.g., ambiguity, unfamiliar terms), and the general instructions informed participants that there were no right or wrong answers to reduce evaluation apprehension (Chang et al., 2010). In addition, Harman's single-factor test was performed. All items were loaded on a single nonrotated factor that explained 38.6% of the variance (Podsakoff et al., 2003). Therefore, common method bias does not seem to be a problem.

The phenomenon under analysis (i.e., the outcome of interest) is creative and uncreative leaderships. The data for the outcome of uncreative leadership were generated by the set negated function of calibrated data in the fsQCA® software. The outcome reflects the absence of creative leadership. The measurement of all items (i.e., the outcome and the antecedent conditions) used a 5-point Likert scale that ranged from 1 = totally disagree to 5 = totally agree. The questionnaire contained questions about demographics (i.e., age and gender), and the items were formulated from the literature. Creative leadership (outcome), which is finding new ways to resolve problems, used questions such as "I think that there is no single rule to solve organizational problems."

The following are the study's conditions: *Promote collaborative teamwork* is working with others to accomplish tasks that can yield better results. For the condition the survey had sentences such as "I use diverse talents and experiences of the group to maximize the outcome." *Digital and technological savvy* is knowing about digital and new technologies to anticipate the impact on business, and the condition was formulated with the question: "I am able to assess the potential impact of digital technologies on the business." *Results orientation* focuses on achieving results that have a positive effect on the organization, and the survey used sentences like: "I encourage my team to work towards goal attainment." *Provide resources to the team* concerns supplying anything needed to execute a task, and an example of a sentence is: "I predict the future resource requirements before a project begins." Finally, *business skills* are the abilities and knowledge needed to manage a project, and the survey used sentences such as "I utilize project management skills to get things done."

Regarding the demographics of the respondents, men accounted for 64.2%, and the average age of the respondents was 47.1 years-old (SD = 6.19). Furthermore, 74.8% had postgraduate degrees, with 1.6% having only an undergraduate degree; and the respondents came from multiple business sectors (see Table 1).

DATA CALIBRATION

The outcome and the conditions were calibrated to provide a degree of membership to a particular set or to represent an ambiguous situation. Following Ragin (2005), the three "cutoff points" defined to calibrate survey data to fuzzy were .95 for full membership ("fully in"), .50 for maximum ambiguity, and .05 for full nonmembership ("fully out"). Table 2 shows the descriptive statistics of the conditions and outcomes and the three calibration cutoff points. The outcome and all the conditions were calibrated, and a truth table listed all the possible configurations for the outcome. The truth table had 2^k configurations or rows, where k was the number of conditions (Schneider & Wagemann, 2012). There were $2^5 = 32$ combinations. FsQCA provides three different solutions to manage logical remainders (Schneider & Wagemann, 2012): a "complex solution," a "parsimonious solution," and an "intermediate solution" (for more

information about complex, parsimonious, and intermediate solutions, see Fiss (2011) and Ragin (2008)). The intermediate solution was used because logical remainders could be restricted to the most plausible (Ragin, 2008), and that was the best practice (de Crescenzo et al., 2020; Whittington & Bell, 2016).

Results

All conditions for creative leadership (CL) and uncreative leadership (~CL) are core conditions. The models of causal configurations leading to CL and ~CL are reported in Tables 3 and 4. Both models

have five configurations, all of which are sufficient. In fsQCA, a model is considered informative when its consistency is above .75 (Fiss, 2011). The solution consistency is .782 for CL and .806 for ~CL that represent an acceptable fit for both models. The coverage of the global solution for both models has good adequacy within the range of .25–.90 that is suggested in the literature (da Silva et al., 2019; Ragin, 2008). Black circles (●) denote the presence of a condition, and white circles (○) specify its absence. Blank spaces signify that the condition does not contribute to the configuration. The five solutions in the CL model accounted for 78.8% of the membership in the outcome. In the ~CL model, the solutions represent 82.4% that demonstrates a good fit for the overall coverage. Furthermore, all configurations in both models have high consistency values between .833 and .937 that indicate that all configurations were sufficient to explain the outcomes of CL and ~CL (Ragin, 2008). The results confirm the assumptions of fsQCA for asymmetric causality, multifinality, and equifinality for CL and ~CL (Fiss, 2011; Rihoux & Ragin, 2008).

The findings show five different profiles of a creative leader (see Table 3): A leader who is results-oriented and digital-tech savvy (configuration 1) provides a high level of CL; a leader who provides resources to the team and is digital-tech savvy (configuration 2) provides a high level of CL; a leader who promotes collaboration and provides resources but is not results-oriented (configuration 3) provides a high level of CL; a leader who promotes collaboration, provides resources, and is business-focused (configuration 4) provides a high

Table 1	Sample Characteristics		
Measure	**Characteristics**	**Frequency**	**Percentage (%)**
Gender	Female	44	35.8
	Male	79	64.2
Age (years)	30–39	12	9.8
	40–49	67	54.5
	50–59	41	33.3
	>60	3	2.4
Level of study	Secondary	2	1.6
	Graduate	29	23.6
	Postgraduate	92	74.8
Professional profile	Service	59	48.0
	Retail	12	9.8
	Finance	11	8.9
	Industry	10	8.1
	Technology	8	6.5
	Other sectors	23	18.7

Note. N=123.

Table 2	Calibration Cutoffs and Descriptives						
	Calibration cutoffs			**Descriptives**			
Outcome and conditions	**Fully in .95**	**Maximum ambiguity .5**	**Fully out .05**	**M**	**SD**	**Min**	**Max**
Creative leadership (CL)	4.7	4.1	3.2	4.0	.4	2.8	5.0
Business skills (BS)	4.7	4.1	3.6	4.1	.4	3.2	5.0
Results orientation (RO)	4.9	4.5	3.9	4.4	.3	3.3	5.0
Provide resources to the team (PRT)	4.3	3.9	3.4	3.9	.3	2.6	5.0
Promote collaborative teamwork (PCT)	4.8	4.3	3.6	4.3	.3	3.4	5.0
Digital and technological savvy (DTS)	4.6	3.9	2.7	3.8	.6	2.0	5.0

Table 3 Causal Configurations for Creative Leadership (CL)

Conf.	Causal conditions					Coverage		Consistency	Leader profiles
	PCT	DTS	RO	PRT	BS	Raw	Unique		
1		●	●			.557	.039	.865	Results-oriented and digital-tech savvy
2		●		●		.653	.073	.842	Digital-tech savvy and resource provider
3	●		○	●		.433	.013	.857	Collaborative and resource provider but not results-oriented
4	●			●	●	.518	.015	.852	Collaborative, resource provider, and business-focused
5	●	●			●	.521	.012	.888	Digital-tech savvy collaborative, and business-focused

Note. Model: CL=f (PCT, DTS, RO, PRT, BS). Solution coverage: .788; Solution consistency: .782. BS=business skills; CL=creative leadership; DTS, digitally and technologically savvy; PCT=promote collaborative teamwork; PRT=provide resources to the team; RO=results orientation.

Table 4 Causal Configurations for Uncreative Leadership (~CL)

Conf.	Causal conditions					Coverage		Consistency	Leader profiles
	PCT	DTS	RO	PRT	BS	Raw	Unique		
1	○			○		.562	.019	.859	Noncollaborative and nonresource provider
2		○	○			.595	.042	.870	Nondigital-tech savvy and not results-oriented
3			○	○		.596	.032	.833	Nonresource provider and not results-oriented
4		○			○	.605	.027	.870	Nondigital-tech savvy and nonbusiness-focused
5	○		●		○	.369	.007	.937	Results-oriented but noncollaborative and nonbusiness-focused

Note. Model: ~CL=f (PCT, DTS, RO, PRT, BS). Solution coverage: .824; Solution consistency: .806. BS=business skills; ~CL=uncreative leadership; DTS=digitally and technologically savvy; PCT=promote collaborative teamwork; PRT=provide resources to the team; RO=results orientation.

level of CL; and a leader who is digital-tech savvy, business-focused, and that promotes collaboration (configuration 5) provides a high level of CL. Regarding the propositions, Table 3 shows that configurations 1, 2, and 5 support proposition 1; configurations 3, 4, and 5 support proposition 2; configuration 1 supports proposition 3; configurations 2, 3, and 4 support proposition 4; and configurations 4 and 5 support proposition 5.

The results show five different profiles that lead to uncreative leaders, and therefore should be avoided (see Table 4): a leader who is noncollaborative and nonresource provider (configuration 1) provides a low level of CL; a leader who is nondigital-tech savvy leader and

not results-oriented (configuration 2) provides a low level of CL; a leader who is nonresource provider and not results-oriented (configuration 3) provides a low level of CL; a leader who is nondigital-tech savvy and nonbusiness-focused (configuration 4) provides a low level of CL; and a leader who is results-oriented but noncollaborative and nonbusiness-focused (configuration 5) provides a low level of CL.

Discussion

In the current article, the five causal conditions that lead to creative leadership were investigated. The findings showed five different profiles that led to creative

leadership. In addition, fsQCA also identified the configurations that led to the absence of creative leadership (i.e., uncreative leadership). The results showed that there were also five different profiles that led to uncreative leaders. The conditions were appropriate; all were core conditions for creative leadership. Likewise, the absence of the conditions were core conditions for uncreative leadership. In addition, all conditions were present in both models that reinforced the appropriateness of the conditions chosen as stated by Amabile and Mumford (e.g., Amabile et al., 1996; Mumford, 2003; Mumford et al., 2002).

The findings contribute to both theory and practice. They contribute by presenting empirical evidence that creative leadership is a complex phenomenon by addressing its presence and absence. Besides, the creative leader's results align with previous studies (e.g., Amabile et al., 1996; Mumford et al., 2002). The importance of being digitally and technologically savvy to creative solutions is also consistent with the research (e.g., Ogbeibu et al., 2021), and the findings support proposition 1. Collaboration may be a particularly relevant condition, as it appeared in most creative profiles that supported proposition 2. The findings align with other studies by showing that collaboration was essential to creative leadership, as Kremer et al. (2019) had reported. Effective collaborative teamwork creates positive outcomes and is a critical success factor in projects (Caniëls et al., 2019). Moreover, digital expertise and collaboration promote creative solutions (Barak, 2018). The resources leaders provide to the team influence creativity, as Mumford et al. (2002) had reported; and the results support proposition 4. Furthermore, the findings support proposition 3 and are in line with Kremer et al. (2019) concerning results orientation. Finally, leaders must have the necessary business skills to discuss creative solutions with the teams, which is in line with Mumford et al. (2002). Leaders' business skills appear in two profiles for the CL and reinforce the findings of other studies on its importance, as stated by Martz et al. (2017). The findings support proposition 5.

The lack of business skills tends to contribute to the uncreative leader. Therefore, it aligns with Mum-

ford et al. (2002) who state that business expertise may represent a critical cognitive influence on leadership performance. Moreover, the lack of collaboration seems to reduce the exchange of ideas, and place constraints on arriving at an effective creative solution. As Fu et al. (2020) stated, problem-solving is likely to improve through collaboration. When the leader lacks digital and business skills, the leader is likely to be an uncreative problem-solver. The reason may come from the leader's need to be digitally literate to evaluate new trends, as Kane et al. (2019) reported. As organizations add digital offerings to the portfolios, leaders must have the business skills to creatively integrate the solutions into existing business models (Sousa & Rocha, 2019).

The current article also contributes to the literature by suggesting theoretical profiles using different perspectives (digital, relational, results, and business). Moreover, it expands the creative problem-solving literature by exploring the conditions to avoid pathways toward an uncreative leader, as the characteristics identified fsQCA were able to provide. The different leadership profiles allow exploration of different strategies deployed by organizations for creative solutions and the avoidance uncreative ones. Furthermore, the research adds to the contingency theory. It concludes that it is a valuable frame from which to analyze the role of leadership in a complex creative setting. Finally, the data came from various sectors that provide a broad perspective of the phenomenon. The current study is different from other studies that focus on a specific industry, such as German manufacturing companies (e.g., Kobarg et al., 2019) or the Finnish technology sector (e.g., Lemmetty et al., 2020).

PRACTICAL IMPLICATIONS

The current article contributes to practice by pointing to different configurations that can identify distinct organizational realities. The findings indicate that the models may have the same difficulty in implementation. Therefore, leaders should be more aware of establishing the behaviors needed to be creative problem-solvers who can generate an organizational environment for creative problem-solving. The five different profiles illustrate to managers with different personalities or

leadership styles how to be creative leaders. Moreover, the results offer alternative profiles that lead to uncreative problem-solving, so leaders can become aware of such options and take active steps to avoid them.

In addition, the leaders' desired behaviors can guide the recruitment and training of employees. The results provide objective profiles for leaders to develop so that the organizations can thrive in a rapidly changing landscape. For example, in a modern environment, creativity is a source of competitive advantage that an organization can overlook at its peril. Moreover, human resources (HR) can hire and train leaders based on the most manageable profile to be creative problem-solvers. By contrast, HR may take active steps to avoid uncreative leadership profiles.

LIMITATIONS AND FUTURE RESEARCH

Nonetheless, the study has limitations. The lack of generalizability is a limitation resulting from the research method and the use of a convenience sample. Nevertheless, the study is replicable in other settings without any restraining factors. Moreover, the questionnaire did not collect the respondents' nationality or the organizational role. Hence, the study could not verify national cultural influences and role differences. Future avenues could address different causal conditions for a digital and technological scenario, as creativity and problem-solving have not been studied much in the digital context (van Laar et al., 2020). In addition, a confirmatory analysis could test the influence of the configurational conditions leading to creative leadership. Moreover, upcoming studies could consider creative problem-solving at the employee and organizational levels by evaluating the causal conditions embedded in an organizational scenario undergoing rapid change. The configurations also show different profiles of creative leaders that can be explored using different methodologies and theories.

Conclusion

The current stuy uncovered and analyzed different profiles of creative and uncreative leaders. However, the findings show an equal number of leadership profiles for both models that illustrates the challenge of being a creative leader. The different profiles can inspire leaders to reflect on the leadership behavior and compromise on the configurations that lead to being creative problem-solvers. Furthermore, the HR department should encourage leaders' creative profile throughout the organization while discouraging uncreative profiles. Creative leadership is vital to remain competitive and thrive in a fast-changing digital scenario. Nonetheless, creativity is considered an important performance element in organizations (Castillo-Vergara et al., 2018).

Author Contributions

Conceptualization: Fernanda Bethlem Tigre, Paulo Lopes Henriques and Carla Curado. Methodology: Fernanda Bethlem Tigre, Paulo Lopes Henriques and Carla Curado. Software: Fernanda Bethlem Tigre. Formal analysis: Fernanda Bethlem Tigre. Writing–original draft preparation: Fernanda Bethlem Tigre. Writing–review and editing: Paulo Lopes Henriques and Carla Curado. Supervision: Paulo Lopes Henriques and Carla Curado. All authors have read and agreed to the published version of the manuscript.

Acknowledgments

Conflict of Interest

The authors have no conflict of interest to disclose.

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