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Organizational resilience model in SMEs using management control systems: the case of the Saudi Arabian Economy

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Abstract:

While recently, academic and practitioner interest has turned to organizational resilience in SMEs, empirical research examining factors influencing resilience for SMEs remains sparse. This empirical research examines the role of organizational factors, including adaptive organizational culture, strategic HRM practices, and management control systems, as well as the individual factor of employee resilience in enhancing organizational resilience, among Saudi SMEs in a post-coronavirus context.Data was collected through as survey questionnaire from 330 SMEs operating in several industrial and service sectors, and PLS-SME was applied to analyze data. The results reveal the positive influence of adaptive organizational culture and strategic HRM practices on resilience at the employee and organizational level for SMEs in Saudi Arabia. Moreover, employee resilience positively correlates with organizational resilience and is a significant or partial mediator of the association linking organizational factors to organizational resilience. Management control systems also moderate employee / organizational resilience links. The results offer senior and middle management in the Saudi SME an understanding of the importance of strategic HRM and adaptive organizational culture for enhancing resilience for employees and organizations and also point to the significance of management control systems for a strong link between employee-level and organization-level resilience.

Keywords: Organizational resilience, Employee resilience, Adaptive organizational culture, Strategic HRM practices, Management control systems.

1. Introduction

Large-scale events such as armed conflicts and pandemics have global impacts and influence the strategy and business model of firms, posing a competitive threat to companies worldwide, which puts their stability at risk (Sethi and Gupta, 2024). Recent responses to such events, turbulence, and change emphasize resisting risks through organizational resilience (Liu et al., 2019). According to Tasic et al. (2020), resilience is a desirable capability through which resources and environmental relationships are leveraged to sustain the capacity to weather unexpected crises, recover from and adapt to such events.

In the existing literature, organizational resilience is defined primarily as the capacity for resistance to and recovery from disruptive internal or external events or crises affecting organizations or systems (Annarelli and Nonino, 2016). Furthermore, the resilient organization predicts possible threats to respond effectively to undesirable events or altered circumstances (Duchek, 2020). For Liu et al. (2024), organizational resilience reflects the organization's capacity for anticipation, avoidance, and surviving shocks, as well as the ability to sustain operations in adverse circumstances while adapting and enhancing those operations. This highlights three aspects of organizational resilience: predictive, defensive and growth responses. A consistent definition of organizational resilience has not been developed (Hillmann and Guenther, 2021), as a concept involving complexity and dynamic responses (Garrido-Moreno et al., 2024; Do et al., 2022 ; Burnard and Bhamra, 2011).

According to Su and Junge (2023), organizational resilience centers on organizations and their components (staff and groups) and the capacity for withstanding adverse events through effective use of resources and capacities and interaction with external agents for performance maintenance and improvement. Previous literature has shown that organizational resilience is critically reliant upon both the ability of individuals (as parts of the system) and organizational design to detect crises early (Williams et al., 2017; Linnenluecke, 2017; Lengnick-Hall et al., 2011, etc.). From a holistic point of view, organizational resilience emerges from individually held knowledge and skills, procedures, and organization-level processes (such as strategic HRM practices) through which a company is conceptually oriented, takes action, and sets a framework of adaptable integration and diversity which can withstand the severe effects of disruptive trauma (Lengnick-Hall et al., 2011; Rodríguez-Sánchez et al., 2021). Other scholars also suggest that organizational resilience may emerge from employee resilience, with individuals recovering effectively from crises and leveraging and seeking the development of individual and organizational resources (Kim, 2020; Liang and Cao, 2021). However, Georgesci et al. (2024) recently demonstrated the importance of adopting and aligning strategic HRM practices with organizational culture to enhance organizational resilience and corporate sustainability.

While many recent studies (e.g., Sethi and Gupta, 2024; Napier et al., 2024; Su and Junge, 2023; Chen et al., 2021a; Reatze et al., 2021; Tasic et al., 2020, etc.) have reviewed the antecedent/enabler factors of organizational resilience at multiple levels, such as individual, group, organizational, networks, and/or environmental levels, few empirical studies have investigated the individual and organizational factors supporting

organizational resilience, and especially after COVID-19 (Karman, 2020; Tasic et al., 2020). Moreover, the study of factors influencing organizational resilience is still considered theoretical, and relevant empirical studies are still being developed (Chen et al., 2021a). Gover and Duxbury (2018) highlight the lack of empirical testing for many organizational resilience models, with further empirical study of the relationships between individual and/or organization-based factors and organizational resilience being needed.

According to Zhou et al. (2023), studies investigating organizational resilience for small and medium-sized enterprises (SMEs) are rare, and limited work has sought to understand the contribution of strategic HRM practices to organizational resilience in such a context. Existing research mainly investigates leadership resilience as a factor leading to organizational resilience (Lin and Liao, 2020; Morale et al., 209; Barasa et al., 2018; Gover and Duxbery, 2018; Teo et al., 2017; Williams et al., 2017; Ledesman 2014, etc.), with less focus on adaptive organizational cultures (Sethi and Gupta, 2024; Madi Odeh et al., 2023) or the use of management control systems (MCSs) to strengthen the organization's resilience (Roffia and Dabić, 2024; Eichholz et al., 2024; Baird et al., 2023, etc.). Liang and Cao (2021) state that although there is evidence that organizational resilience is supported by employee resilience, the reasons and mechanisms for this relationship require exploration. Liu et al. (2019) also assert that investigating contributing factors in organizational resilience may increase understanding of crisis response and improve overall organizational resilience.

The consequences of the COVID-19 pandemic have shaken business globally (Shela et al., 2023), and manufacturers have been particularly heavily impacted: keeping these companies resilient is the primary concern of most countries to ensure economic wealth and prosperity. Moreover, the industrial SME sector, which plays an important role in Saudi Arabia's GDP (gross domestic product) growth, has met unprecedented difficulties (Alharbi, 2023; Nurunnabi, 2020). Consequently, the organizational resilience of SMEs in Saudi Arabia is currently a matter of academic and practical interest (e.g., Alshebami, 2023; Wided, 2023; Nurunnabi, 2020).

Given the paucity of empirical research on individual and organizational factors affecting SME organizational resilience in developing nations, and with calls from many researchers to investigate antecedents of organizational resilience at different levels (Duchek, 2020; Riolli and Savicki, 2003), this research examines the contribution of individual (employee resilience) and organization-based (strategic HRM practice, adaptive organizational cultures) factors towards establishing organizational resilience in SMEs in Saudi Arabia in a post-COVID context. Moreover, it contributes to an understanding of employee resilience as a mediator of the links between adaptive organizational culture, strategic HRM practices, and organizational resilience and of MCSs as moderators of the employee–organizational resilience nexus.

This paper continues with Section 2, which provides a literature review to define hypothesis development; Section 3, which outlines the methodology used; Section 4, with the results, analysis, and discussion; and finally, Section 5, which provides the main conclusions, limitations, and implications of the research.

2. Literature review and hypotheses

This literature review considers previous work on the impact of organizational factors such as adaptive organizational culture and strategic HRM upon employee resilience and the influence of both factors on organizational resilience. It also explores the literature on MCS as a moderator of the relationship between employee and organizational resilience. A literature review supports the conceptual framework developed for adoption in the current study.

2.2. Organizational factors and employee resilience

Researchers and practitioners show increasing interest in employee resilience in determining firm-level organizational resilience (Prayag et al., 2024; 2023; 2020; Liang and Cao, 2021). Prayag et al. (2020) define employee resilience in terms of employees' capability, given organizational support and facilitation, to use resources to cope effectively when business conditions alter, adapt, and succeed in this environment. Moreover, employee resilience behaviors are impacted by some enabling factors from the organization, such as leadership (supportive supervising), support in the working environment (with supportive teams and organization), and a culture of learning culture (Tonkin et al., 2018). Recently, Prayag et al. (2024) have indicated that promoting employee resilience fundamentally requires enhancing culture and core values within the firm and establishing a clear sense of purpose in staff as they apply their knowledge and skills to adapt to difficult circumstances. Furthermore, Sethi and Gupta (2024) report that adaptive organizational cultures, in which the group view, think about, and carry out actions in a way that is common to that group, promotes positive individual behaviors while encouraging adaptations and creativity in responding to adverse events.

However, Malik and Garg (2020; 2017) argue that the organization's learning culture can underpin employee resilience by providing consistent motivation to respond to challenges and uncover forward-thinking approaches to responding to change. According to Chen et al., (2021b), a resilient organizational culture also helps form a community spirit, supporting effective responses to adverse events. Moreover, Park and Park (2019) highlight the capacity of organizations to enhance employees' adaptive performance by modifying jobs and tasks, creating processes for group support, and developing supportive cultures in the organization's workplaces. Parent and Lovelace (2018) show that positive organizational cultures improve both employee engagement and employees' ability to adapt to change. Therefore, organizational management can promote employee resilience by developing a supportive culture with scope for learning based on trying new approaches (Caniëls and Baaten, 2019), as well as by emphasizing adaptive values and beliefs and integrating these into internal processes and systems, which influences employees' values and behaviors (Costanza et al., 2016). This leads to the first research hypothesis:

H1: "An adaptive organizational culture positively influences employee resilience".

According to Zhai et al. (2023), strategic HRM systems can significantly promote the development of employee resilience during crises. Haque (2023) also indicates that strategic HRM assists in resilience-building by selecting talented employees, supporting them, improving job satisfaction, and decreasing intention toward turnover, which fosters a resilient workforce and enables organizations to overcome uncertainties. Cooke et al. (2019) state that HRM approaches based on investing in staff and managers (through training and development and management development), increasing the engagement value of work, positive social and physical environments, and extensive communication help develop a resource context which staff can call upon when resources are depleted.

Numerous HRM practices that promote employee resilience has been identified, such as employee assistance and development programs, flexible work arrangements, crisis

management systems, social support development, etc. (Bardoel et al., 2014; Zhai et al., 2023). Therefore, given the importance of strategic HRM practices in developing an organizational environment that facilitates employee resilience (Cooper et al., 2014; Lengnick et al., 2011), the second research hypothesis is:

H2: "Strategic HRM practices positively influence employee resilience".

2.3. Employee resilience and organizational resilience

Sethi and Gupta (2024) recently indicated through a literature review that resilient employee with unique skills, knowledge, and abilities effectively absorb adversity and respond to it strategically, which helps organizations maintain their resilient capabilities. Moreover, organizational resilience relies primarily on employee resilience (Hillmann, 2021; Linnenluecke, 2017).

Moreover, other studies point to employees' behavior, ability, and skills as the key components in resilient organizations (Kim, 2020; Kuntz et al., 2017), which can enhance their ability to adapt to change and creatively approach problems (Liang and Cao, 2021). This improves organizational effectiveness in responding to external shocks and maintains the competitive capacity that makes the organization resilient. Furthermore, He et al. (2023) add that each employee's capacities in applying knowledge and skills contribute positively to organizational resilience by identifying potential threats in the anticipation phase and providing solutions with creativity and flexibility in the adaptation phase. Through their cognitive, behavioral, emotional, and relational abilities, employees therefore both predict and respond to adverse events (Williams et al., 2017; Tasic et al., 2020).

The literature reveals employee resilience and engagement with work as organizational resilience indicators (Al Ameri, 2023). Recently, Prayag et al. (2024) have shown that employee resilience, as a multidimensional concept, has diverse impacts on organizational resilience among service Sri Lankan service businesses. The authors also highlight context-based, cognitive and behavior-based aspects of employee resilience as positively influencing organizational resilience capabilities, whether adaptive or planned. In addition, an empirical study of 44 European manufacturing firms (Gerschberger et al., 2023) found that 10 individual employee traits positively influence organizational resilience, grouped into three categories: namely cognitive abilities (e.g, situational appraisal, experience, commitment, and sensemaking), emotional traits (emotional stability, psychological safety, and empowerment) and behavioral traits (employee preparedness, resourcefulness, and improvisation that enable effective organizational avoidance, resistance, or recovery from disturbances. These findings agree with Van der Veget et al.'s (2015) conclusion that employee traits are the primary basis for organizational resilience, including individual skills and capacities, cognition, affect, behavior, and self-regulation processes.

According to Hartmann et al. (2020), personal characteristics existing regardless of the employee's experience of adverse events can enhance organizational resilience. Fisher et al. (2019) state that individual reactions, responses, and strategies under threatening conditions constitute resilience mechanisms. Kantur and İşeri-Say (2012), Lengnick-Hall et al. (2011), Burnard and Bhamra (2011), and Riolli and Savicki (2003) also highlight the critical role of employees (and their capabilities, skills, etc.) in enhancing company resilience. Thus, it is hypothesized that employee resilience is the most important factor in organizational resilience, especially for SMEs that lack organizational and financial resources to adapt to difficult events and crises. Therefore, the following research hypothesis is given:

H3: "Employee resilience shows a positive association with organizational resilience".

2.4. Organizational factors and organizational resilience

According to Chen et al. (2021a), at the organizational level, factors that impact organizational resilience consist of organizational resources, behaviors, and attributes. Furthermore, Duchek et al. (2020) identify corporate social resources such as social capital, positive relationships, and an open, trusting, and learning-oriented organizational culture as the key drivers/foundations of organizational resilience. Nevertheless, Morales et al. (2019) found in Mexican manufacturing firms that organizational resilience has direct associations with leadership (including change management and shared vision), organizational culture, and the capacity for organization and management of operations. Gover and Duxbury (2018) link organizational resilience with leadership and management of staff (HRM practices), the values demonstrated and which the organization rewards (e.g., leadership and organizational culture), how far employees are perceived as flexible, change management processes, network processes supporting changes, and external environmental factors.

Firms' resilience capacities are derived from high-complexity processes, as developed and enhanced through HRM practices and different organizational resources, and including structures, practices, cognitions, and behaviors (Do et al., 2022). Based on a review, Georgescu et al. (2024) assert that strategic HRM practices should align with organizational culture to enhance the organization's resilience and perform sustainably and well despite changes in a business environment. Furthermore, Bouaziz et al. (2018) highlight the significance of strategic HRM for resilience building. Lai et al. (2016) also indicate that companies with HRM practices show greater resilience through economic downturns. Lengnick-Hall et al. (2011) argue that organizational resilience develops based on a strategic HRM system that helps develop employees' knowledge, skills, relevant competencies, and collective actions and procedures, which, in the aggregate, allow organizations to respond with resilience to severe shocks.

Recently, Madi Odeh et al. (2023) have indicated that transformational leadership and adaptive organizational culture are keys to surviving a crisis such as COVID-19. McManus et al. (2008) also agree that an adaptive organizational culture supports rapid decisions in periods of normality or crisis and determines how flexible and creative the firm can be, which supports adaptation and proactive response to uncertainties or negative impacts. Cooper et al. (2014) report a highly engaged culture as supporting employees in resilience-building development of coping strategies, informing the following hypotheses:

H4: "An adaptive organizational positively impacts organizational resilience".

H5: "Strategic HRM practices positively impact organizational resilience".

2.5. The role of employee resilience in mediating the relationship of organizational factors with organizational resilience

According to Liang and Cao (2021), the development of the traits and skills that make up employee resilience is supported by relevant HRM practices. The authors highlight the role of HRM practices and professionals in the relationship linking employee resilience with organizational resilience, as HRM policies and practices enhance staff's creativity, professional knowledge, and approaches to responding to crises, thus contributing to organizational resilience, HRM practices may support organizational resilience by supporting and developing human capital (Zhou et al., 2023).

Bouaziz et al. (2018) also report that strategic HRM practices aim to develop organizational resilience through skilled, engaged, committed and motivated employees. However, in a study of Chinese SMEs, Rehman et al. (2021) show that employees' resilient behaviors significantly mediate this association of strategic HRM practice with the organization's resilient behaviors

(an aspect of organizational resilience). Therefore, in line with the above, the current study suggests that employee resilience acts as the key mechanism through which organizations can translate the outcomes of their managerial practices (i.e, HRM) into strengthened organizational resilience, leading to the following research hypothesis:

H6: "Employee resilience significantly/partly mediates the association which links strategic HRM with organizational resilience".

Georges et al. (2024) recently indicated, based on a literature review, that companies' adaptive capabilities require not only HRM policy and processes but also changes to mindset and organizational culture to support employees in developing the attributes needed for organizational resilience. Moreover, several authors have shown the important role of adaptive organizational culture in motivating employees to develop abilities, skills, and resilient behaviors in crises (Malik et al., 2020; 2017; Park and Park, 2019; Costanza et al., 2016, etc.), pointing to positive impacts from employee resilience on resilience at organization level (Prayag et al., 2024; 2023; 2020; Liang and Cao, 2021; Kuntz et al., 2016, etc.). The current study builds on this picture to demonstrate the positive impacts from adaptive organizational culture on organizational resilience via employees' resilience capabilities as a mediating factor, which leads to the following research hypothesis:

H7: "Employee resilience significantly/partly mediates the association which links adaptive organizational culture with organizational resilience".

2.6. **Management control systems as a moderator of the employee resilience - organizational resilience relationship**

According to Störmer and Hiebl (2023), SMEs may gain an advantage from implementing management control systems (MCS), which are key to supporting professionalization, growth, and organizational resilience. MCS was first defined by Anthony in 1965 as systems through which management ensures the effective and efficient accessing and exploitation of resources to reach organizational goals (Langfield-Smith, 1997). According to Otley and Berry (1994), an MCS comprises procedures and processes that are applied by management and others in the organization to achieve individual and organizational objectives (Bisbe and Otley, 2004). However, Malmi and Brown (2008) indicate that MCS does not include systems simply intended to support decision-making but refer to any system or device applied to promote the alignment of employee decision-making and behaviors with organizational strategy/objectives, including systems, regulations,s, practices, and values established to guide employee behaviors.

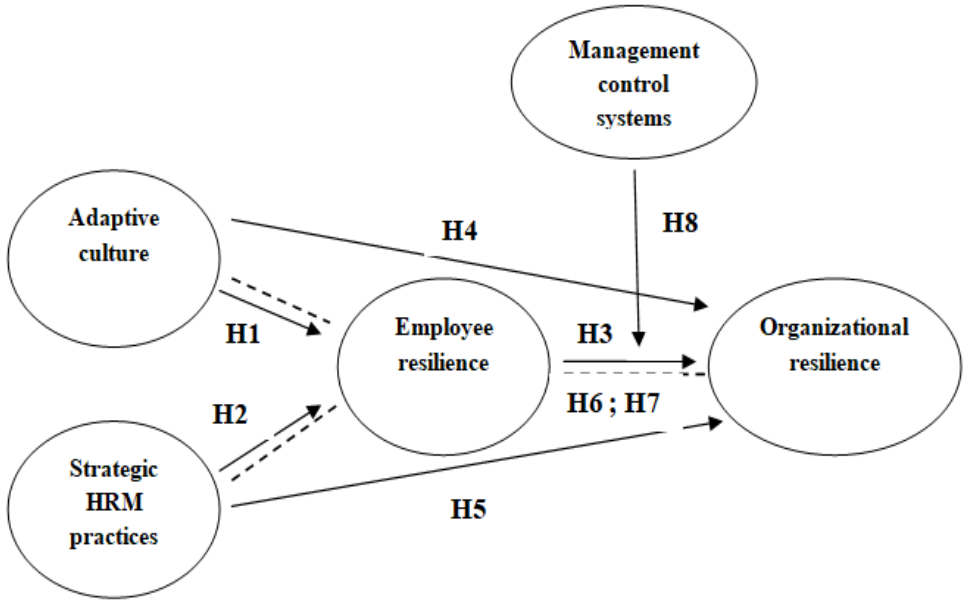
Moreover, recent studies have shown that adopting MCS positively impacts SME resilience by predicting financial outcomes and incentivizing business continuity during the COVID-19 pandemic (Roffia and Dabić, 2024; Eichholz et al., 2024). Baird et al. (2023) also suggest that three control levers from Simon's (1995) taxonomy (belief system, interactive application of control, and control for diagnosis), positively influence organizations' ability to manage operations in crises and enhance organizational resilience. MCS is shown to drive organizational change (Nuhu et al., 2019; Bracci and Rallaki, 2021), which is significant in building proactive and adaptive capabilities within organizations.

According to Bracci and Rallaki (2021), MCS allows for the control and monitoring of company results, helping to redefine and improve goals and revise both budget and business plans. These authors also note that MCS (e.g., budget activities, planning, monitoring, control of operations, and awareness of environment) drive organizational resilience through motivation and empowerment of employees for adaptive behaviors and to activate organizational learning processes, making the organization more resilient.

In fact, MCS characteristics also influence managers' motivations regarding their work environment and contribute to organizations dealing effectively with adversity and emergencies (Beuren et al., 2020). These authors also noted that MCS help organizations absorb changes and regain equilibrium after some temporary disruption. It supports changes, empowers managers/leaders, and helps individuals to face challenges by increasing access to information and psychological empowerment (e.g., self-determination, autonomy, competencies, and necessary relationships). According to Hall (2008), such MCS affects the individual's behavior within the organization (i.e., employees), facilitating the achievement of organizational goals. Furthermore, in their study, Hempel et al. (2012) showed that formalizing organizational processes (through adopting a comprehensive MCS) enhances team empowerment by reducing uncertainties within firms. Based on the above discussion, we assume that the influence of employee resilience on organizational resilience is supported by the presence of flexible MCS, the latter enabling employees to face crisis situations through their developed competence, autonomy, and relatedness (Van der Kolk et al., 2015; Beuren et al., 2020). Therefore, the following research hypothesis:

H8: "MCS positively moderates the relationship between employee resilience and organizational resilience."

Figure 1: Conceptual model



Source: author

3. Research methods

This section describes the methodological details of the research, including sample characteristics, the survey questionnaire, analytical tools and techniques, and measurement of study constructs.

3.1 Sample and data collection

Using a survey questionnaire, the author collected data from 330 SMEs operating in diverse industry and service sectors in several regions of Saudi Arabia after contacting

412 SME managers by telephone and email from January to April 2023 to obtain their consent to participate in the study.

From April to August 2023, online questionnaires and face-to-face interviews were used to collect the opinions of 356 managers who confirmed their willingness to participate. However, only 330 completed responses were received. Table 1 provides sample and respondent characteristics, indicating that 47.88% of the companies are industrial companies while 52.12% are service companies. In addition, in terms of industrial/service sectors, 13.03% of companies operate in the pharmaceutical industry, 8.48% in the chemical industry, 8.18% in real estate, 17.57% in IT services, 10% in transportation, and 8.79% in accounting.

The questionnaire comprises two main parts: firstly, it collects sample characteristics such as the age of the company, number of employees, sector type, and the gender, age, and professional status of participants. Secondly, short, easy-to-understand questions aimed to collect respondents' opinions on various study concepts through a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree).

Table 1: Sample demographics

Sample' characteristics		Respondents' characteristics	
Age of company		**Gender**	
• Less than 5 years	92	• Male	216
• Between 5 and 10 years	203	• Female	114
• Over 10 years	35		
Number of employees			
• 1 - 9	52	**Age of respondents**	26
• 10 - 49	185	• 20 or less	196
• 50 - 249	93	• Between 21 and 30	75
Industry vs. Service sector		• Between 31 and 40	33
• Industry sector	158	• 41 or over	
• Service sector	172		
Industry type		**Professional status**	102
• Electronics industry	18	• Top manager	152
• Pharmaceutical industry	43	• Middle manager	76
• Medical, precision and optical instruments industry	22	• Supervisor	
• Chemical industry	28		
• Real estate industry	27		
• Other	20		
Service type			
• Legal services	27		
• Transportation	33		
• IT services	58		
• Accounting services	29		
• Other	25		

Source: Author

3.2 Analytical approaches

Partial least squares structural equation modeling (PLS-SEM) was applied in analyzing and interpreting the gathered data and testing the study hypotheses, using SmartPLS 3.0 as a tool for data analysis (Ringle et al., 2015). Hair et al. (2019; 2017a) define PLS-SEM as a causal predictive SEM approach with simultaneous uses in exploratory and confirmatory research. It emphasizes predictions when estimating statistical models seeking to offer causal explanations. This approach was chosen for advantages including flexibility with complex models and data, capacity for achieving appropriate results with smaller samples, comprehensive evaluation of out-of-sample prediction, and estimating direct and indirect effects (mediation) and interaction (moderation) simultaneously (Legate et al., 2023; Hair et al., 2019).

3.3 Measures

To measure the study constructs, scales were adopted from other research that had been tested sufficiently to be valid in current and future studies. For instance, adaptive organizational culture was measured by 9 items from Costanza et al. (2016). For strategic HRM practices, measurement items were taken from Bouaziz et al. (2018) as follows: recruitment (1 item); training (3 items); participation (2 items); performance appraisal (2 items); and compensation (2 items). For employee resilience, 9 items were adopted from Näswall et al. (2019) and modified to adapt them to managers' responses, e.g., instead of "I collaborate effectively with others to handle challenges at work," the author adopted, "Our employees collaborate effectively with others to handle challenges at work." For organizational resilience, 9 items based on Prayag et al. (2020) were used to reflect both planned and adaptive resilience (as recommended by Lee et al. (2013)). Finally, two control levers based on Simons' (1994) categorization were applied: the belief control system that communicates and reinforces core values and tasks and the interactive use of control that enables senior managers to personally interact with subordinates and processes to enforce dialog and learning (Chenhall, 2003). Both of these were measured by 8 items adopted from Baird et al. (2023).

3.4. Common method and non-response bias

Common method bias was checked for via Harman's one-factor test (Harman, 1976). Exploratory factor analysis (EFA) conducted with the variables showed that the first extracted factor explains 0.48622 (i.e., 48.62%) of variance compared to the 50% threshold (Podsakoff et al., 2003), indicating no common method bias. Non-response bias testing used a t-test between early responses and later responses, as recommended by Armstrong and Overton (1977), with results not indicating non-response bias as the responses from the first two and last three months were not significantly different at a 5% significance level.

4. Results analysis and discussion

4.1. Assessing the measurement model

Hair et al. (2019; 2017a) state that assessments of PLS-SEM findings require an evaluation of both measurement models and structural models. Measurement models

(also called outer indicator variables. Structural models (inner models) show associations linking the various constructs within a model (Hair et al., 2017a; 2014).

Moreover, measurement models should be evaluated regarding internal consistency reliability and convergent and discriminant validity. Internal consistency reliability is generally assessed through composite reliability and Cronbach's alpha (both must exceed 0.7). Convergent validity (how far a construct converges, explaining item variance) is tested using average variance extracted (AVE) for all items in the construct (must exceed 0.5). Discriminant validity (defined as the degree of empirical difference between one construct and others within the same structural model) is assessed through the Fornell-Larker criterion (1981) and/or Henseler et al. (2015)'s heterotrait-monotrait ratio of correlations (HTMT) (Hair et al., 2017a; 2019).

Table 2 reveals that findings for Cronbach's alpha and composite reliability exceed 0.7 for each study construct, with no reliability issues therefore found. AVE values exceed 0.5 (ranging from 0.506 to 0.556), thus confirming convergent validity. Regarding discriminant validity, the author used HTMT ratio (Henseler et al., 2015), which is defined as the mean value of the item correlations across constructs relative to the (geometric) mean of the average correlations for the items measuring the same construct, and should be less than 0.9 (Hair et al., 2019).

Table 2: Composite reliability and convergent validity

Construct	Dimensions/items	Factor Loading	Cronbach's Alpha	CR	Rho-A	AVE
AC	“AC1”	0.647	0.877	0.902	0.879	0.506
	“AC2”	0.719				
	“AC3”	0.678				
	“AC4”	0.720				
	“AC5”	0.664				
	“AC6”	0.729				
	“AC7”	0.793				
	“AC8”	0.738				
	“AC9”	0.702				
SHRM	“SHRM1”	0.811	0.883	0.911	0.871	0.521
	“SHRM2”	0.684				
	“SHRM3”	0.824				
	“SHRM4”	0.528				
	“SHRM5”	0.740				
	“SHRM6”	0.679				
	“SHRM7”	0.677				
	“SHRM8”	0.799				
	“SHRM9”	0.670				
	“SHRM10”	0.568				
ER	“ER1”	0.807	0.890	0.910	0.892	0.507
	“ER2”	0.686				
	“ER3”	0.660				
	“ER4”	0.764				
	“ER5”	0.701				

	"ER6"	0.707				
	"ER7"	0.630				
	"ER8"	0.612				
	"ER9"	0.744				
	"ER10"	0.776				
MCS	"MCS1"	0.764	0.811	0.859	0.828	0.513
	"MCS2"	0.780				
	"MCS3"	0.741				
	"MCS4"	0.653				
	"MCS5"	0.508				
	"MCS6"	0.746				
	"MCS7"	0.632				
	"MCS8"	0.678				
OR	"OR1"	0.633	0.892	0.911	0.896	0.556
	"OR2"	0.628				
	"OR3"	0.688				
	"OR4"	0.667				
	"OR5"	0.735				
	"OR6"	0.661				
	"OR7"	0.617				
	"OR8"	0.688				
	"OR9"	0.776				
	"OR10"	0.788				
	"OR11"	0.652				

Source: Author

Moreover, **Table 3** shows that all HTMT values are less than 0.9, indicating that the conditions required to confirm the discriminant validity of the measurement model are met.

Table 3: Discriminant validity (HTMT ratio)

	AC	SHRM	ER	MCS	OR
AC					
SHRM	0.81				
ER	0.64	0.83			
MCS	0.75	0.80	0.78		
OR	0.66	0.69	0.74	0.82	

Source: author

4.2 Evaluation of the structural model

Following Hair et al. (2019), collinearity must be tested after evaluating a measurement model and before assessing structural relationships to identify any bias to regression results. Here, a variance inflation factor (VIF) calculation test was performed to avoid any potential errors caused by unnecessary correlations between the latent constructs used. As shown in **Table 4**, all calculated values were less than 3, indicating no issues in the correlation between the predictor constructs.

Moreover, structural models can be evaluated via standard criteria that include the coefficient of determination (R2), a blindfolding-based cross-validated redundancy

measure (Q2), path coefficient statistical significance and relevance (using absolute value, standard error, significance level, t-value and p-value), as well as effect size (f2) (Hair et al., 2019; 2017b). R2 measures a model's predictive accuracy, representing combined effects from the exogenous variable on the endogenous variable(s) (Hair et al., 2019). Its values range between 0 and 1, 1 representing perfect predictive accuracy. Q2 shows the predictive importance of the model, and must exceed 0 to indicate significant model predictors. Finally, f2 assesses effects from each exogenous latent variable upon the endogenous latent variable, accounting for the change in R^2, with 0.02, 0.15, and 0.35 f2 values, respectively, indicating a weak, moderate or strong effect (Hair et al., 2019; 2017b).

Table 4 points to adaptive organizational culture and strategic HRM practices as explanatory for 78.3 % of the variance in employee resilience and to employee resilience as explanatory for 90.9 % of organizational resilience variance. Furthermore, using blindfolding assessment, Q2 values of ER (Q2 = 0.297) and OR (Q2 = 0.475) exceed 0, indicating good predictive relevance for the model. For f2 values, **Table 5** shows that adaptive organizational culture moderately affected employee resilience (f2=0.191) and organizational resilience (f2=0.247). Furthermore, strategic HRM practices strongly affected employee resilience (f2=0.369) and organizational resilience (f2=0.415). Employee resilience had a weak effect on organizational resilience (f2=0.038).

Table 4: VIF, R2 and Q2 values

Construct	VIF	R2	Q2
Employee resilience	2.556	0.783	0.297
Organizational resilience	2.333	0.909	0.475

Source: Author

Table 5: F2 values

Relationships		f2 values	Interpretation
Adaptive organizational culture	Employee resilience	0.191	Moderate effect
	Organizational resilience	0.247	Moderate effect
Strategic HRM practices	Employee resilience	0.369	Strong effect
	Organizational resilience	0.415	Strong effect
Employee resilience	Organizational resilience	0.038	Weak effect

Source: Author

To test the research hypotheses, the author used path coefficient analysis. Moreover, the PLS-SEM results (as shown in **Table 6** and **Figure 2)** indicate that: (1) adaptive organizational culture positively affects employee resilience ($\beta = 0.385$, $p = 0.001$), (2) strategic HRM practices impact employee resilience ($\beta = 0{,}535$, $p = 0.000$), (3)

employee resilience shows a positive association with organizational resilience (β = 0.175, p = 0.032); (4) adaptive organizational culture positively influences organizational resilience (β = 0.336, p = 0.007); and (5) strategic HRM practices positively impact organizational resilience (β = 0.441, p = 0.000), leading to the acceptance of H1, H2, H3, H4, and H5.

Regarding the mediation effects described in the research model, Zhao et al.'s (2010) approach was followed, where direct effect direction and related level of significance were compared against the directions of identified indirect effects. Furthermore, mediation type (partial or complete) was established by calculating variance accounted for (VAF) values (Nitzl et al., 2016). However, **Table 7** reveals that employee resilience exerts a partial mediation effect between adaptive organizational culture and organizational resilience (β = 0.114, t = 2.144, p = 0.033), and between strategic HRM practices and organizational resilience (β = 0.128, t = 2.005, p = 0.045), therefore, confirming both H6 and H7.

Finally, in line with Hayes (2012), the Baron and Kenny (1986) product indicator method of multiplying MCS*employee resilience was used to predict the outcome variable "organizational resilience." **Table 8** and **Figure 3** show that MCS positively and significantly moderates the employee-organizational resilience association (β=0.091, p=0.046), leading to the acceptance of H8.

Table 6: Hypotheses testing: Direct effects

Direct effects	Beta	t-statistics	p-values	Decision
H1: Adaptive organizational culture → Employee resilience	0.385	3.423	0.001	Support hypothesis
H2: Strategic HRM practices → Employee resilience	0.535	4.539	0.000	Support hypothesis
H3: Employee resilience → Organizational resilience	0.175	2.597	0.032	Support hypothesis
H4: Adaptive organizational culture → Organizational resilience	0.336	2.709	0.007	Support hypothesis
H5: Strategic HRM practices → Organizational resilience	0.441	5.170	0.000	Support hypothesis

Source: Author

Table 7: Hypotheses testing: indirect effects

Indirect effects	Beta	VAF	t-statistics	p-values	Decision
H6: Adaptive organizational culture → Employee resilience → Organizational resilience	0.114	0.28 (28%)	2.144	0.033	Support hypothesis

H7: Strategic HRM practices → Employee resilience → Organizational resilience	0.128	0.24 (24%)	2.005	0.045	Support hypothesis

Source: Author

Table 8: Hypotheses testing: moderating effects

Moderating effects	Beta	t-statistics	p-values	Decision
H8: MCS* Employee resilience → organizational resilience	0.091	2.003	0.046	Support hypothesis

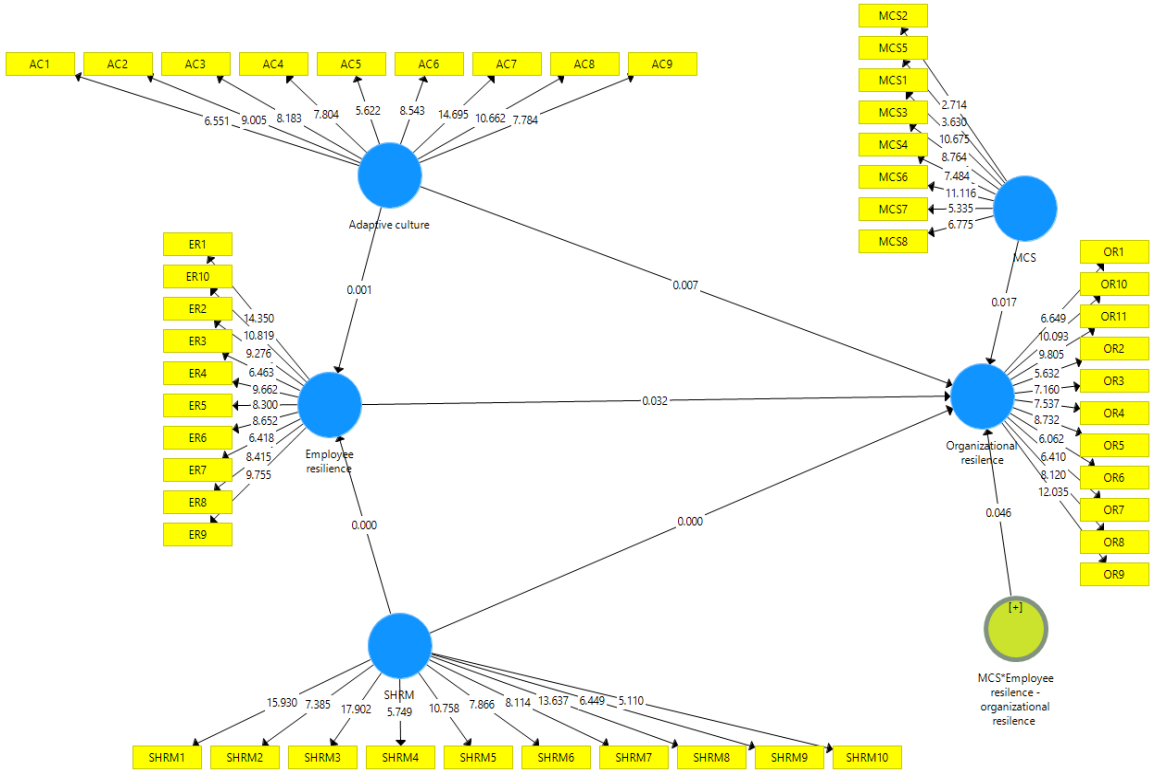
Source: Author

Notes:

(1) p-values < 0.05; significant effects

(2) VAF = Indirect effect/Total effect: VAF < 0.20, no mediation; 0.20 <VAF>0.80, partial mediation; VAF>0.80, full mediation.

Figure 2: Structural model



Source: Created using SmartPLS 3.0 software

Figure 3: Moderating effect of MCS

Source: Author

Notes: MCS significantly moderates the relationship between employee resilience and organizational resilience (The impact of employee resilience on organizational resilience is higher at a high level of MCS adoption than at a low level).

4.3 Discussion of results

According to Pal et al. (2014), SMEs are highly susceptible to crises. They are affected by compounding impacts and cascades of various interrelated problems and limitations, especially regarding finance and staffing resources. Bernard and Bahamra (2011) indicate that fixed and flexible capabilities to deal with uncertain conditions are recognized in SMEs, considering common strong and weak points of these organizations. Nevertheless, Zhou et al. (2023) argue that SMEs with lower staff numbers rely more on HRM practices to develop a creative and singular body of knowledge, which provides a sustainable competitive advantage.

The current study has built on previous organizational resilience literature (including reviews, conceptual and empirical work) to investigate organizational and individual factors supporting organizational resilience among SMEs in a developing country such as Saudi Arabia. The findings suggest that adaptive organizational culture and strategic HRM practices (as organizational factors) positively influence employee resilience. This accords with findings from Caniëls et al. (2019), Parent and Lovelace (2018) and Malik and Garg (2017), showing the significance of cultural aspects, including positive organizational culture and learning culture) for promoting employee resilience and adaptability, as well as with studies by Zhai et al. (2023), Cooke et al. (2019), Bardoel et al. (2014), and Lengnick-Hall et al. (2011) that demonstrate the importance of strategic HRM practices for building employee resilience capabilities within organizations.

According to Sethi and Gupta (2024), an adaptive organizational culture raises entrepreneurial orientations among employees, with change seen as an opportunity. Furthermore, Park and Park (2019) argued that organizations can enhance the adaptive performance of staff through offering opportunity for learning and development and adjusting the organization's practices and culture. Thus, adaptive organizational culture may be viewed as organizational support of employee resilience that directly affects cognitive, behavioral, and social abilities in a crisis. Moreover, Lai et al. (2016) suggest that HRM policy and practice effectiveness helps SMEs improve performance across critical spheres, becoming more creative, innovative, flexible, and entrepreneurial and improving quality. As a core organizational process, strategic HRM practices are directly linked to employee resilience by supporting knowledge and skills development and employee inclusion, motivation, and compensation.

Previous studies have discussed individual employee resilience as the primary determinant of organizational resilience (Kantur and İşeri-Say, 2012; Lengnick-Hall et al., 2011). However, recent literature has also reported employee resilience as enhancing organizational resilience (Prayag et al., 2024; 2023; 2020; Al Ameri, 2023; Liang and Cao, 2021). This study's findings, therefore, align with previous research and add empirical findings for the positive association linking resilience at employee and organizational levels. Alshebami (2023) reports that after the pandemic, limited entrepreneur resilience access and recovery depended largely on internal knowledge enhancements and individual attributes, including self-efficacy and internal locus of control. The present research has focused on other important determinants of organizational resilience for SMEs in Saudi Arabia, such as adaptive organizational culture, strategic HRM practices, and employee resilience.

Furthermore, as mentioned earlier (in the Introduction section), academic and professional attention toward SME organizational resilience in Saudi Arabia has grown. For instance, Wided (2023) investigated the relationship between IT capability, strategic flexibility, and organization resilience within Saudi SMEs. Nurunnabi (2020) discussed the planning of recovery and resilience among Saudi SMEs in the COVID-19 pandemic. Nonetheless, the current study has addressed the scarcity of empirical studies examining the impacts of individual and organizational factors on organizational resilience and their combined effects on the latter.

The study findings also indicate that adaptive organizational culture and strategic HRM practices positively impact organizational resilience. This aligns with Georgesci et al.'s (2024) findings in public institutions in Romania. In the private sector, several studies show that adaptive organizational culture (e.g., Hollands et al., 2024; Madi Odeh et al., 2023; Morale et al., 2019; Constanza et al., 2016; Sawalha, 2015; Mc Manus et al., 2008) and strategic HRM practices (e.g, Haque, 2023; Zhou et al., 2023; Liu et al., 2021; 2019; Bouaziz et al., 2018; Lai et al., 2016, Lengnick-Hall et al., 2011) contribute to organizational resilience capabilities. Hollands et al. (2024) report that an empowering and creative culture that allows learning from mistakes is critical to enhancing organizational resilience. Furthermore, Chen et al. (2021b) indicate building organizational resilience through organizational culture can enhance the sustainability and recovery capacity of the organization. Fisher et al. (2019) report that organizational

cultures promote social support relations and that the design of work structures promotes resilience and wellness. Therefore, an organization's culture and capacity for adaptability and flexibility contribute significantly to organizational resilience (McManus et al., 2008).

According to Haque (2023), strategic HRM practices create resilience capabilities that influence the selection and retention of talented employees, supporting both employee motivation/performance and organizational resilience. In addition, Zhou et al. (2023) state that strategic HRM has a systematic impact on human capital, contributing to organizational resilience and performance. Therefore, in line with these studies, as well as Georgesci et al. (2024) and Madi Odeh et al. (2023), adaptive organizational culture and strategic HRM practices can be considered critical factors in building organizational resilience during and after crises.

This study also adds empirical findings on the positive impact of employee resilience as a mediator of organizational factors (adaptive organizational culture and strategic HRM practices) and organizational resilience. The findings accord with the few existing studies showing employee resilient behaviors positively mediating the association between strategic HRM practices and organizational resilience behaviors (Rehman et al., 2021). MCS (i.e., belief system of control and interactive use of control) are positive mediators of the association linking resilience across employee and organizational levels. These findings in particular have not been addressed in previous research but align with some reports that empowering MCS is positively linked to employees' psychological empowerment and behaviors in the face of challenges, and to orgnizational resilience (Beuren et al., 2020; Hall, 2008). According to Beuren et al. (2020), enabling MCSs to provide detailed and objective information, clarify responsibilities, and encourage experimentation that leads to employee satisfaction and motivation. In addition, Bracci and Rallaki (2021) indicate that MCSs support adaptive behaviors and aid decisions, offering ready-to-use knowledge for dealing with external shocks. However, the current findings show that the specific MCSs implemented by Saudi SMEs (in particular, belief control systems and interactive control systems) significantly enhance positive impacts from employee resilience upon organizational resilience.

5. Conclusion, implications, limitations and future research

5.1 Conclusion

This research sought to investigate the impact of organizational factors (adaptive organizational culture and strategic HRM practices) and individual factors (employee resilience) on SME organizational resilience after the COVID-19 pandemic. It was conducted in a developing country (Saudi Arabia) and focused mainly on SMEs operating within manufacturing or services. The results show that adaptive organizational culture and strategic HRM practices are antecedents of employee and organizational resilience. Indeed, as crucial organizational processes, learning and adaptation-oriented organizational culture and strategic HRM practices are critical in building resilience capabilities across employees and organizations. Furthermore, this study highlighted employee resilience as a significant/partial mediator of the

association between the above-mentioned organizational factors and MCS as a moderator of the association linking employee resilience and organizational resilience.

5.2 Theoretical and practical implications

Given the limited empirical research available on influences from organizational and individual factors upon organizational resilience, as well as the growing interest in this organizational phenomenon over the past two decades, this study has contributed empirical evidence on the factors determining SME organizational resilience at the organizational level (adaptive organizational culture and strategic HRM practices) and the individual level (employee resilience).

This study expands on previous literature by offering an integrated theoretical framework that combines concepts of adaptive organizational culture, strategic HRM practices, employee resilience, MCS, and organizational resilience into a single conceptual model. Most previous studies focus only on individual rather than combined impacts from organizational or individual factors upon organizational resilience. Therefore, the current research has empirically investigated the relationship between organizational factors (adaptive organizational culture, strategic HRM practices and MCS), and an individual factor (employee resilience) and organizational resilience.

From a practical perspective, the findings are particularly useful for senior and middle managers within SMEs in Saudi Arabia. They highlight the key determinants of organizational resilience (adaptive organizational culture, strategic HRM practices, employee resilience, and MCS) in this setting and the importance of employees' resilience capabilities to enhance organizational resilience.

5.3 Limitations and future research directions

This research naturally has some limitations. First, it was conducted on Saudi SMEs operating in the manufacturing and services sectors, and its results cannot be generalized to other sectors and companies in Saudi Arabia or abroad. Second, its cross-sectional design may limit how much causal relations can be extrapolated into a long-term perspective. Third, the authors investigated only four factors of organizational resilience (adaptive organizational culture, strategic HRM practices, employee resilience, and MCS) and ignored other factors (e.g., leadership resilience, entrepreneurial resilience, organizational structure, social capital, etc.) which the existing literature considers as essential determinants of organizational resilience for both SMEs and large companies. Based on the above, further empirical research on organizational and individual factors incorporating other factors of organizational resilience is called for, in particular, with large firms in developing countries, as well as longitudinal studies and/or mixed methods studies to determine in depth the relationship between these factors and organizational resilience.

References

Al Ameri, K.A.M.A., 2023. Antecedents of Organizational Resilience after COVID-19: The Case of UAE. *Sustainability,* 15, 5841. https://doi.org/10.3390/su15075841

Alharbi, R.K., 2023. Saudi Arabia's small and medium enterprises (SMES) sector post-Covid-19 recovery: stakeholders' perception on investment sustainability. *International Journal of Organizational Analysis*, 31, 2222–2238. https://doi.org/10.1108/IJOA-10-2021-2993

Alshebami, A.S., 2023. Redefining resilience: The case of small entrepreneurs in Saudi Arabia. *Front. Environ. Sci.*, 10, 1118016. https://doi.org/10.3389/fenvs.2022.1118016

Annarelli, A., & Nonino, F., 2016. Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, 62, 1-18.

Armstrong, J. S., & Overton, T. S., 1977. Estimating nonresponse bias in mail surveys. *Journal of marketing research*, 14(3), 396-402.

Baird, K., Su, S., Munir, R., 2023. The mediating role of levers of controls on the association between sustainable leadership and organisational resilience. *J Manag Control* 34, 167–200. https://doi.org/10.1007/s00187-023-00354-1

Bardoel, E.A., Pettit, T.M., De Cieri, H., McMillan, L., 2014. Employee resilience: an emerging challenge for HRM. *Asia Pac J Human Res*, 52, 279–297. https://doi.org/10.1111/1744-7941.12033

Barasa, E., Mbau, R., & Gilson, L., 2018. What is resilience and how can it be nurtured? A systematic review of empirical literature on organizational resilience. *International journal of health policy and management*, 7(6), 491.

Baron, R. and Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

Beuren, I., Santos, V., Bernd, D. (2020). Effects of the Management Control System on Empowerment and Organizational Resilience. *BBR*, 17, 211–232. https://doi.org/10.15728/bbr.2020.17.2.5

Bisbe, J., Otley, D., 2004. The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations and Society*, 29, 709–737. https://doi.org/10.1016/j.aos.2003.10.010

Bouaziz, F., Smaoui Hachicha, Z. (2018). Strategic human resource management practices and organizational resilience. *JMD*, 37, 537–551. https://doi.org/10.1108/JMD-11-2017-0358

Bracci, E., Tallaki, M. (2021). Resilience capacities and management control systems in public sector organisations. *JAOC*, 17, 332–351. https://doi.org/10.1108/JAOC-10-2019-0111

Burnard, K., Bhamra, R. (2011). Organisational resilience: development of a conceptual framework for organisational responses. *International Journal of Production Research*, 49, 5581–5599. https://doi.org/10.1080/00207543.2011.563827

Caniëls, M.C.J., Baaten, S.M.J. (2019). How a Learning-Oriented Organizational Climate is Linked to Different Proactive Behaviors: The Role of Employee Resilience. *Soc Indic Res*, 143, 561–577. https://doi.org/10.1007/s11205-018-1996-y

Chen, R., Liu, Y., Zhou, F. (2021a). Turning Danger into Safety: The Origin, Research Context and Theoretical Framework of Organizational Resilience. *IEEE Access*, 9, 48899–48913. https://doi.org/10.1109/ACCESS.2021.3069301

Chen, R., Xie, Y., Liu, Y. (2021b). Defining, Conceptualizing, and Measuring Organizational Resilience: A Multiple Case Study. *Sustainability*, 13, 2517. https://doi.org/10.3390/su13052517

Chenhall, R.H. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28, 127–168. https://doi.org/10.1016/S0361-3682(01)00027-7

Cooke, F.L., Wang, J., Bartram, T. (2019). Can a Supportive Workplace Impact Employee Resilience in a High Pressure Performance Environment? An Investigation of the Chinese Banking Industry. *Applied Psychology*, 68, 695–718. https://doi.org/10.1111/apps.12184

Cooper, C.L., Liu, Y., Tarba, S.Y. (2014). Resilience, HRM practices and impact on organizational performance and employee well-being: *International Journal of Human Resource Management 2015 Special Issue*. *The International Journal of Human Resource Management*, 25, 2466–2471. https://doi.org/10.1080/09585192.2014.926688

Costanza, D.P., Blacksmith, N., Coats, M.R., Severt, J.B., DeCostanza, A.H. (2016). The Effect of Adaptive Organizational Culture on Long-Term Survival. *J Bus Psychol*, 31, 361–381. https://doi.org/10.1007/s10869-015-9420-y

Do, H., Budhwar, P., Shipton, H., Nguyen, H.-D., Nguyen, B. (2022). Building organizational resilience, innovation through resource-based management initiatives, organizational learning and environmental dynamism. *Journal of Business Research*, 141, 808–821. https://doi.org/10.1016/j.jbusres.2021.11.090

Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Bus Res*, 13, 215–246. https://doi.org/10.1007/s40685-019-0085-7

Eichholz, J., Hoffmann, N., Schwering, A. (2024). The role of risk management orientation and the planning function of budgeting in enhancing organizational resilience and its effect on competitive advantages during times of crises. *J Manag Control*, 35, 17–58. https://doi.org/10.1007/s00187-024-00371-8

Fisher, D.M., Ragsdale, J.M., Fisher, E.C.S. (2019). The Importance of Definitional and Temporal Issues in the Study of Resilience. *Applied Psychology*, 68, 583–620. https://doi.org/10.1111/apps.12162

Garrido-Moreno, A., Martín-Rojas, R., & García-Morales, V. J. (2024). The key role

of innovation and organizational resilience in improving business performance: A mixed-methods approach. *International Journal of Information Management*, 77, 102777.

Georgescu, I., Bocean, C.G., Vărzaru, A.A., Rotea, C.C., Mangra, M.G., Mangra, G.I. (2024). Enhancing Organizational Resilience: The Transformative Influence of Strategic Human Resource Management Practices and Organizational Culture. *Sustainability*, 16, 4315. https://doi.org/10.3390/su16104315

Gerschberger, Melanie, Ellis, S.C. and Markus Gerschberger (2023). Linking employee attributes and organizational resilience: An empirically driven model. *J of Business Logistics*, 44, 407–437. https://doi.org/10.1111/jbl.12337

Gover, L., Duxbury, L. (2018). Inside the Onion: Understanding What Enhances and Inhibits Organizational Resilience. *The Journal of Applied Behavioral Science*, 54, 477–501. https://doi.org/10.1177/0021886318797597

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M., 2017a. PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123.

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European business review*, 26(2), 106-121.

Hair, J., Hollingsworth, C.L., Randolph, A.B., Chong, A.Y.L. (2017b). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*, 117(3), 442–458.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hall, M. (2008). The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. *Accounting, Organizations and Society*, 33, 141–163. https://doi.org/10.1016/j.aos.2007.02.004

Haque, A. (2023). The impact of the COVID-19 pandemic on employee motivation and organisational resilience and the role of strategic HRM: renewal of a resource-based conceptual model. *MANM*, 20, 117–133. https://doi.org/10.1108/MANM-02-2022-0022

Hartmann, S., Weiss, M., Newman, A., Hoegl, M. (2020). Resilience in the Workplace: A Multilevel Review and Synthesis. *Applied Psychology*, 69, 913–959. https://doi.org/10.1111/apps.12191

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

He, Z., Huang, H., Choi, H., Bilgihan, A. (2023). Building organizational resilience with digital transformation. *JOSM*, 34, 147–171. https://doi.org/10.1108/JOSM-06-2021-0216

Hempel, P.S., Zhang, Z.-X., Han, Y. (2012). Team Empowerment and the Organizational Context: Decentralization and the Contrasting Effects of Formalization. *Journal of Management*, 38, 475–501. https://doi.org/10.1177/0149206309342891

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43, 115-135.

Harman, H.H. (1976). *Modern Factor Analysis*. The Univesity of Chicago Press, Chicago.

Hillmann, J. (2021). Disciplines of organizational resilience: contributions, critiques, and future research avenues. *Rev Manag Sci 15*, 879–936. https://doi.org/10.1007/s11846-020-00384-2

Hillmann, J., Guenther, E. (2021). Organizational Resilience: A Valuable Construct for Management Research? *Int J Management Reviews,* 23, 7–44. https://doi.org/10.1111/ijmr.12239

Hollands, L., Haensse, L., Lin-Hi, N. (2024). The How and Why of Organizational Resilience: A Mixed-Methods Study on Facilitators and Consequences of Organizational Resilience Throughout a Crisis. *The Journal of Applied Behavioral Science*, 60, 449–493. https://doi.org/10.1177/00218863231165785

Kantur, D., İşeri-Say, A. (2012). Organizational resilience: A conceptual integrative framework. *Journal of Management & Organization,* 18, 762–773. https://doi.org/10.5172/jmo.2012.18.6.762

Karman, A. (2020). An examination of factors influencing the application of mechanisms of organizations' resilience to weather extremes. *Bus Strat Env,* 29, 276–290. https://doi.org/10.1002/bse.2364

Kim, J., Lee, H.W., Chung, G.H. (2024). Organizational resilience: leadership, operational and individual responses to the COVID-19 pandemic. *JOCM*, 37, 92–115. https://doi.org/10.1108/JOCM-05-2023-0160

Kim, Y. (2020). Organizational resilience and employee work-role performance after a crisis situation: exploring the effects of organizational resilience on internal crisis communication. *Journal of Public Relations Research*, 32, 47–75. https://doi.org/10.1080/1062726X.2020.1765368

Kuntz, J.R.C., Näswall, K., Malinen, S. (2016). Resilient Employees in Resilient Organizations: Flourishing Beyond Adversity. *Ind. Organ. Psychol.*, 9, 456–462. https://doi.org/10.1017/iop.2016.39

Kuntz, J. R., Malinen, S., & Näswall, K. (2017). Employee resilience: Directions for resilience development. *Consulting Psychology Journal: Practice and Research*, 69(3), 223.

Lai, Y., Saridakis, G., Blackburn, R., Johnstone, S. (2016). Are the HR responses of small firms different from large firms in times of recession? *Journal of Business Venturing*, 31, 113–131. https://doi.org/10.1016/j.jbusvent.2015.04.005

Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society*, 22, 207–232. https://doi.org/10.1016/S0361-3682(95)00040-2

Lee, A.V., Vargo, J., Seville, E., 2013. Developing a Tool to Measure and Compare Organizations' *Resilience. Nat. Hazards Rev.*, 14, 29–41. https://doi.org/10.1061/(ASCE)NH.1527-6996.0000075

Ledesma, J., 2014. Conceptual frameworks and research models on resilience in leadership. Sage open, 4(3), 2158244014545464.

Legate, A.E., Hair, J.F., Chretien, J.L., Risher, J.J., 2023. PLS-SEM : Prediction-oriented solutions for HRD researchers. Human Resource Dev Quarterly 34, 91–109. https://doi.org/10.1002/hrdq.21466

Lengnick-Hall, C.A., Beck, T.E., Lengnick-Hall, M.L., 2011. Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21, 243–255. https://doi.org/10.1016/j.hrmr.2010.07.001

Liang, F., Cao, L. (2021). Linking Employee Resilience with Organizational Resilience: The Roles of Coping Mechanism and Managerial Resilience. *PRBM*, 14, 1063–1075. https://doi.org/10.2147/PRBM.S318632

Lin, T. T., & Liao, Y. (2020). Future temporal focus in resilience research: when leader resilience provides a role model. *Leadership & organization development journal*, 41(7), 897-907.

Linnenluecke, M.K. (2017). Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda. *Int J Management Reviews*, 19, 4–30. https://doi.org/10.1111/ijmr.12076

Liu, Y., Chen, R., Zhou, F., Zhang, S., Wang, J. (2021). Analysis of the Influencing Factors of Organizational Resilience in the ISM Framework: An Exploratory Study Based on Multiple Cases. *Sustainability*, 13, 13492. https://doi.org/10.3390/su132313492

Liu, Y., Guo, M., Han, Z., Gavurova, B., Bresciani, S., Wang, T. (2024). Effects of digital orientation on organizational resilience: a dynamic capabilities perspective. *JMTM*, 35, 268–290. https://doi.org/10.1108/JMTM-06-2023-0224

Liu, Y., L. Cooper, C., Y. Tarba, S. (2019). Resilience, wellbeing and HRM: a multidisciplinary perspective. *The International Journal of Human Resource Management*, 30, 1227–1238. https://doi.org/10.1080/09585192.2019.1565370

Madi Odeh, R.B.S., Obeidat, B.Y., Jaradat, M.O., Masa'deh, R., Alshurideh, M.T. (2023). The transformational leadership role in achieving organizational resilience through adaptive cultures: the case of Dubai service sector. *IJPPM*, 72, 440–468. https://doi.org/10.1108/IJPPM-02-2021-0093

Malik, P., Garg, P. (2020). Learning organization and work engagement: the mediating role of employee resilience. *The International Journal of Human Resource*

Management, 31, 1071–1094. https://doi.org/10.1080/09585192.2017.1396549

Malik, P., Garg, P. (2017). The relationship between learning culture, inquiry and dialogue, knowledge sharing structure and affective commitment to change. *JOCM*, 30, 610–631. https://doi.org/10.1108/JOCM-09-2016-0176

Malmi, T., Brown, D.A. (2008). Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research*, 19, 287–300. https://doi.org/10.1016/j.mar.2008.09.003

McManus, S., Seville, E., Vargo, J., Brunsdon, D. (2008). Facilitated Process for Improving Organizational Resilience. *Nat. Hazards Rev*,. 9, 81–90. https://doi.org/10.1061/(ASCE)1527-6988(2008)9:2(81)

Morales, S.N., Martínez, L.R., Gómez, J.A.H., López, R.R., Torres-Argüelles, V. (2019). Predictors of organizational resilience by factorial analysis. International Journal of Engineering Business Management 11, 1847979019837046. https://doi.org/10.1177/1847979019837046

Napier, E., Liu, S. Y., & Liu, J. (2024). Adaptive strength: Unveiling a multilevel dynamic process model for organizational resilience. *Journal of Business Research*, 171, 114334.

Näswall, K., Malinen, S., Kuntz, J., Hodliffe, M. (2019). Employee resilience: development and validation of a measure. *JMP*, 34, 353–367. https://doi.org/10.1108/JMP-02-2018-0102

Nitzl, C., Roldan, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models. *Industrial management & data systems*, 116(9), 1849-1864.

Nuhu, N.A., Baird, K. and Appuhami, R. (2019). The impact of management control systems on organisational change and performance in the public sector. *Journal of Accounting and Organizational Change*, 15(3), pp. 473-495.

Nurunnabi, M. (2020). Recovery planning and resilience of SMEs during the COVID-19: experience from Saudi Arabia. *JAOC*, 16, 643–653. https://doi.org/10.1108/JAOC-07-2020-0095

Otley, D. T., & Berry, A. J. (1994). Case study research in management accounting and control. *Management accounting research*, 5(1), 45-65.

Pal, R., Torstensson, H., Mattila, H. (2014). Antecedents of organizational resilience in economic crises—an empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, 147, 410–428. https://doi.org/10.1016/j.ijpe.2013.02.031

Parent, J.D., Lovelace, K.J. (2018). Employee engagement, positive organizational culture and individual adaptability. *OTH*, 26, 206–214. https://doi.org/10.1108/OTH-01-2018-0003

Park, S., & Park, S. (2019). Employee adaptive performance and its antecedents: Review and synthesis. *Human Resource Development Review*, 18(3), 294-324.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.

Prayag, G., Dassanayake, D.M.C. (2023). Tourism employee resilience, organizational resilience and financial performance: the role of creative self-efficacy. *Journal of Sustainable Tourism*, 31, 2312–2336. https://doi.org/10.1080/09669582.2022.2108040

Prayag, G., Muskat, B., Dassanayake, C. (2024). Leading for Resilience: Fostering Employee and Organizational Resilience in Tourism Firms. *Journal of Travel Research*, 63, 659–680. https://doi.org/10.1177/00472875231164984

Prayag, G., Spector, S., Orchiston, C., Chowdhury, M. (2020). Psychological resilience, organizational resilience and life satisfaction in tourism firms: insights from the Canterbury earthquakes. *Current Issues in Tourism*, 23, 1216–1233. https://doi.org/10.1080/13683500.2019.1607832

Raetze, S., Duchek, S., Maynard, M. T., & Kirkman, B. L. (2021). Resilience in organizations: An integrative multilevel review and editorial introduction. Group & Organization Management, 46(4), 607-656.

Rehman, K.U., Mata, M.N., Martins, J.M., Mariam, S., Rita, J.X., Correia, A.B. (2021). SHRM Practices Employee and Organizational Resilient Behavior: Implications for Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7, 159. https://doi.org/10.3390/joitmc7020159

Ringle, C.M., Wende, S. and Becker, J.-M. (2015). *SmartPLS 3,* SmartPLS, Bönningstedt.

Riolli, L., Savicki, V. (2003). Information system organizational resilience. *Omega*, 31, 227–233. https://doi.org/10.1016/S0305-0483(03)00023-9

Rodríguez-Sánchez, A., Guinot, J., Chiva, R., López-Cabrales, Á. (2021). How to emerge stronger: Antecedents and consequences of organizational resilience. *Journal of Management & Organization*, 27, 442–459. https://doi.org/10.1017/jmo.2019.5

Roffia, P., & Dabić, M. (2024). The role of management control and integrated information systems for the resilience of SMEs. *Review of Managerial Science*, 18(5), 1353-1375.

Sawalha, I.H.S. (2015). Managing adversity: understanding some dimensions of organizational resilience. Management Research Review 38, 346–366. https://doi.org/10.1108/MRR-01-2014-0010

Sethi, M., Sushil, Gupta, M.P. (2024). Modelling the enablers of organizational resilience: a modified total interpretive structural modeling (*m*- TISM) approach. *BIJ*, https://doi.org/10.1108/BIJ-09-2023-0621

Shela, V., Ramayah, T., Noor Hazlina, A. (2023). Human capital and organisational resilience in the context of manufacturing: a systematic literature review. *JIC*, 24, 535–559. https://doi.org/10.1108/JIC-09-2021-0234

Simons, R., 1994. How new top managers use control systems as levers of strategic renewal. *Strategic management journal*, 15(3), 169-189.

Simons, R. (1994). *Levers of control: How managers use innovative control systems to drive strategic renewal.* Harvard Business Press.

Störmer, M., Hiebl, M.R.W. (2024). How Management Control Systems Can Help Small and Medium-Sized Enterprises Develop Resilience, in: Durst, S., Henschel, T. (Eds.), *Small and Medium-Sized Enterprise (SME) Resilience: Strategies for Risk and Crisis Management.* Springer Nature Switzerland, Cham, pp. 33–62. https://doi.org/10.1007/978-3-031-50836-3_3

Su, W., Junge, S. (2023). Unlocking the recipe for organizational resilience: A review and future research directions. *European Management Journal*, 41, 1086–1105. https://doi.org/10.1016/j.emj.2023.03.002

Tasic, J., Amir, S., Tan, J., Khader, M. (2020). A multilevel framework to enhance organizational resilience. *Journal of Risk Research*, 23, 713–738. https://doi.org/10.1080/13669877.2019.1617340

Teo, W. L., Lee, M., & Lim, W. S. (2017). The relational activation of resilience model: How leadership activates resilience in an organizational crisis. *Journal of Contingencies and Crisis Management*, 25(3), 136-147.

Tonkin, K., Malinen, S., Näswall, K., Kuntz, J.C. (2018). Building employee resilience through wellbeing in organizations. *Human Resource Dev Quarterly*, 29, 107–124. https://doi.org/10.1002/hrdq.21306

Van Der Kolk, B., Ter Bogt, H.J., Van Veen-Dirks, P.M.G. (2015). Constraining and facilitating management control in times of austerity: Case studies in four municipal departments. *Acc Auditing Accountability J*, 28, 934–965. https://doi.org/10.1108/AAAJ-03-2014-1660

Van Der Vegt, G.S., Essens, P., Wahlström, M., George, G. (2015). Managing Risk and Resilience. *AMJ*, 58, 971–980. https://doi.org/10.5465/amj.2015.4004

Wided, R., 2023. IT Capabilities, Strategic Flexibility and Organizational Resilience in SMEs Post-COVID-19: A Mediating and Moderating Role of Big Data Analytics Capabilities. Glob J Flex Syst Manag 24, 123–142. https://doi.org/10.1007/s40171-022-00327-8

Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Shepherd, D.A., Zhao, E.Y. (2017). Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Streams. *ANNALS*, 11, 733–769. https://doi.org/10.5465/annals.2015.0134

Zhao, X., Lynch, J.G. and Chen, Q, (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research*. 37, 2, 197–206.

Zhai, X., Zhu, C.J., Zhang, M.M. (2023). Mapping promoting factors and mechanisms of resilience for performance improvement: The role of strategic human resource management systems and psychological empowerment. *Applied*

Psychology 72, 915–936. https://doi.org/10.1111/apps.12411

Zhou, Q., Edafioghor, T.E., Wu, C., Doherty, B. (2023). Building organisational resilience capability in small and medium-sized enterprises: The role of high-performance work systems. *Human Res Mgmt Journal*, 33, 806–827. https://doi.org/10.1111/1748-8583.12479

Appendix 1

Adaptive organizational culture (Costanza et al., 2016).

AC1: "Our company cares about its external environment, especially its customers and it is able to read and interpret signals from its environments".

AC2: "Our company proactively identifies internal and external problems and is able to anticipate future problems or environmental changes".

AC3: "Our company is willing to take risks".

AC4: "Our company embraces innovation, change and new ideas, is a flexible organization and does not feel bound by certain rules and procedures to carry out its work".

AC5: "Our company believes that it has the power to change".

AC6: "Our company develops the ability to deal with the environmental situations".

AC7: "Our organization enables collaboration between business units allowing them to develop solutions to problems proactively and reactively".

AC8: "Our organization is capable of implementing adaptive change".

AC9: "Our organization is able to sustain change by creating systems that promote change".

Strategic HRM practices (Bouaziz et al., 2018)

SHRM1: "We select employees based on experience and skills".

SHRM2: "Formal training activities are available in our company".

SHRM3: "Comprehensive training policies and programs are available in our company".

SHRM4: "Problem-solving ability training is available in our company".

SHRM5: "Employees make the decisions at our company".

SHRM6: "Employees suggest improvements at our company".

SHRM7: "We evaluate individuals based on the results".

SHRM8: "We evaluate individuals based on the behaviours".

SHRM9: “Our company has an incentive salary”.

SHMR10: “We link performance and rewards”.

Employee resilience (Näswall et al., 2019)

ER1: “Our employees collaborate effectively with others to deal with unexpected challenges”.

ER2: “Our employees have successfully managed a high workload for long periods of time”.

ER3: “Our employees solve crises efficiently at work”.

ER4: “Our employees learn from mistakes at work and improve the way they do their work”.

ER5: “Our employees re-evaluate their performance and continually improve the way they do their work”.

ER6: “Our employees respond effectively to feedback at work, and even criticism”.

ER7: “Our employees reach out to managers when they need their support”.

ER8: “Our employees ask for help when they need specific resources”.

ER9: “Our employees use change at work as an opportunity to grow”.

Organizational resilience (Prayag et al., 2020)

OR1: “We focus on the ability to respond to the unexpected”.

OR2: “We have clearly prioritized what is important during and after the crisis”.

OR3: “The way we plan for the unexpected is appropriate given how dependent others are on us”.

OR4: “People in our organization are committed to working on a problem until it is solved”.

OR5: “Our organization is committed to practicing and testing its emergency plans to ensure their effectiveness”.

OR6: “Our organization maintains sufficient resources to accommodate some unexpected changes”.

OR7: “If key people are not available, there are always others who can fill their roles”.

OR8: “There will be good leadership from within our organization if we reorganize ourselves due to the crisis”.

OR9: “We are known for our ability to use knowledge in new ways”.

Management control systems (Simon, 1995; Baird et al., 2023).

MCS1: “Our mission statement clearly communicates the organization's core values to our workforce”.

MCS2: “Our company's senior managers convey core values to our workforce”.

MCS3: “Our employees are well aware of the core values of the organization”.

MCS4: “Our mission statement inspires our workforce”.

MCS5: “There is constant interaction between operational management and senior managers”.

MCS6: “Controls are regularly used in face-to-face meetings between executives and senior managers”.

MCS7: “Controls are used as a means of developing ongoing business plans”.

MCS8: “Controls are used to discuss changes that occur within a business unit”.