

Employee resilience in the post-merger integration phase: Unveiling the role of employee cognitive uncertainty

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ABSTRACT

Objective: The article aims to empirically examine how employee resilience (ER) during post-merger integration (PMI) develops through two complementary behavioural mechanisms: the reduction of cognitive uncertainty (CU) driven by visionary leadership (VL) and communication effectiveness (CE), and organisational identification (OI) as a source of adaptive capacity.

Research Design & Methods: We applied structural equation modelling (covariance-based SEM and PLS Path Modelling methods) using data from a unique survey of 305 office workers across 295 mergers and acquisitions (M&A) in 2014-2023, evaluating their experiences during the PMI phase.

Findings: Results confirmed the proposed dual-mechanism structure. Namely, CU negatively affects ER and serves as a central mediating mechanism linking organisational practices to adaptive behaviour and CE influences ER exclusively through the reduction of CU (full mediation). Meanwhile VL exerts both a direct positive effect and an indirect effect via reduced CU (partial mediation). In parallel, OI independently and positively predicts ER. The effects of control variables (gender, age, residence, and firm size) were not significant.

Implications & Recommendations: The findings indicate that ER during PMI is not merely an individual trait but a behavioural capability shaped by organisational practices. Managers can strengthen ER by systematically reducing employees' CU through CE and VL, while simultaneously fostering identification with the newly formed organisation.

Contribution & Value Added: This study contributes to M&A integration research by introducing a dual-mechanism framework that integrates cognitive (uncertainty reduction) and identity-based (organisational identification) pathways to explain how resilience develops during PMI. It reconceptualises CU as a manageable cognitive state that directly conditions adaptive capacity. By uncovering the mechanisms underlying resilient behaviour, the study deepens theoretical understanding of employee adaptation in conditions of profound organisational change.

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INTRODUCTION

Mergers and acquisitions (M&A) are complex organisational changes (Bansal & King, 2022) that require a multidimensional approach. Therefore, the economic literature carefully analyses M&A, typically from organisational, financial, and legal perspectives, providing a deep insight into each stage of these processes (Gemson, 2024; García & Herrero, 2022; Sułkowski *et al.*, 2019). However, a significant number of M&A still fail to meet their economic expectations (Dao & Bauer, 2021; Kaur & Sharma, 2024; Paumen *et al.*, 2022).

Analysis of the existing literature reveals a need to extend previous studies and examine the role of human integration in creating M&A's success (Birkinshaw *et al.*, 2000; van Oorschot *et al.*, 2023). Notably, M&A success as such is defined as the ability to establish a stable new organisation that generates positive economic outcomes. One can measure this success in various ways, either financially or culturally (Carleton & Lineberry, 2004). The literature emphasises the critical role of employees, particularly during the post-merger integration (PMI) phase, which is essential for establishing a new organisational entity (Thakur & Yadav, 2025). This ongoing issue has led to the emergence of studies focused on human integration and the behavioural aspects of M&A, including employees' adaptive behaviours.

One such adaptive behavioural capability is employee resilience (ER), which refers to employees' ability to adapt to changes and cope with changing circumstances under conditions of uncertainty (Kuntz *et al.*, 2016; Näswall *et al.*, 2019). This aspect is especially relevant given its direct positive contribution to organisational resilience (Wang & Wang, 2023), which is critical in the context of M&A. Moreover, ER constitutes a pivotal determinant, especially during the PMI, as it underpins individuals' capacity to accommodate organisational transformation and navigate heightened uncertainty (Cooper *et al.*, 2013; Khan *et al.*, 2020).

Uncertainty constitutes another significant psychological state induced by organisational changes (Haynie *et al.*, 2016). As very complex and profound changes, M&A generate considerable uncertainty among employees (Bansal & King, 2022). During PMI, new rules are still being developed, leading to a significant increase in CU. People often lack confidence in their decisions and fear making mistakes (Enke & Graeber, 2023). The amount and consistency of rules affect their daily uncertainty (Bernards *et al.*, 2021). Beyond ambiguity arising from missing or inconsistent information, the central challenge during PMI is uncertainty about the future consequences of present decisions, as employees must allocate effort, adapt to new expectations, and engage with the emerging organisation without knowing how these choices will affect future outcomes. Accordingly, in this study, we focused on uncertainty rather than ambiguity. Following Enke and Graeber (2023), we define cognitive uncertainty (CU) as 'people's subjective uncertainty over their *ex ante* utility-maximising decision.' This definition reflects the forward-looking nature of decision-making during PMI, in which uncertainty stems from not knowing how current actions will translate into future rewards, evaluations, or organisational fit.

Beyond CU, PMI also challenges employees' sense of belonging and attachment to the newly formed organisation. During PMI, employees must not only understand new goals, roles, and tasks, but also redefine their organisational identification (OI). This suggests that ER may emerge from two complementary behavioural mechanisms: a cognitive mechanism, in which visionary leadership (VL) and effective communication (CE) reduce uncertainty, and an identity-based mechanism, in which OI provides meaning and a sense of belonging that sustain adaptive behaviour.

Despite the growing recognition of ER as a critical factor in successful post-merger integration (PMI), existing research provides limited insight into how it is formed and how it can be managed and strengthened in the context of heightened uncertainty that characterises M&A processes. Prior studies have established that leadership and communication are important antecedents of employee attitudes and behaviours during organisational change. However, the cognitive mechanisms through which these organisational practices translate into resilient employee behaviour during PMI remain insufficiently understood. Although scholars widely acknowledge uncertainty as a defining feature of PMI, research has predominantly examined uncertainty as a general contextual condition rather than as a specific cognitive state that shapes decision-making and adaptive capacity (Allen *et al.*, 2007; Diduc, 2022; Steigenberger, 2017). Leaving unanswered how uncertainty experienced at the levels of goals, roles, and tasks influences ER, and it can be actively managed by organisations during PMI. Simultaneously, although researchers have examined OI in M&A contexts, its role as an independent identity-based pathway to resilience has not been clearly integrated with uncertainty-based explanations. Consequently, there remains a need for a coherent framework that would explain ER during PMI through complementary cognitive and identity-based mechanisms.

In this study, we addressed this gap by developing a dual-mechanism framework of ER during PMI. Specifically, we conceptualised CU as a central mediating mechanism through which VL and CE shape ER, while positioning OI as an independent identity-based pathway that supports adaptive capacity. By

doing so, we advance understanding of ER not merely as an individual disposition or outcome, but as a behavioural capability emerging from complementary cognitive and identity-based processes under conditions of organisational transformation.

Accordingly, we focused on the human dimension of M&A integration and the mechanisms underlying employees' adaptive behaviours. Drawing on behavioural insights, we examined the factors influencing ER and explored the significance of CU during PMI. Consequently, we aimed to empirically examine how ER during PMI develops through two complementary behavioural mechanisms: the reduction of CU driven by VL and CE, and OI as a source of adaptive capacity. Previous studies analysing the importance of employees' behaviour during M&A focused on a limited number of cases, often providing in-depth insight into a single integration (Diduc, 2022; Edwards *et al.*, 2024; Lipponen *et al.*, 2017; Mühlemann *et al.*, 2022; Sung *et al.*, 2017). To strengthen the empirical basis for understanding employee behaviour during PMI, we analysed a unique sample of 305 respondents, each representing one of 295 different M&A between 2014 and 2023. We propose that an employee's position may affect their CU. To ensure a consistent perspective, we focused on a specific group, *i.e.*, office workers.

The remainder of this article is organised as follows. The following section provides a literature review and hypotheses development. The next section describes the methods, including the data collection procedure and the sample characteristics. The subsequent section presents and discusses the results of the empirical analyses. The final section concludes the study and outlines its limitations.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Employee Resilience

Employee resilience (ER) constitutes a crucial determinant of organisational success in managing M&A, particularly during the PMI phase (Cooke *et al.*, 2021; Khan *et al.*, 2020). Thus, in our study, we applied the concept of ER, defined as a behavioural 'capacity of employees to utilise resources to continually adapt and flourish at work, even when faced with challenging circumstances' (Kuntz *et al.*, 2016; Näswall *et al.*, 2019). This definition explicitly captures employees' ability to adapt to challenges connected with uncertainty (Kuntz *et al.*, 2016), making it suitable to the examined M&A context.

The literature provides substantial evidence of the connection between ER and organisational resilience (Liang & Cao, 2021; Wang & Wang, 2023), which further justifies the application of this concept in studies of a newly established entity. Furthermore, it is worth noting that the idea of ER relates to psychological resilience, which was also found to affect employee commitment to change in the M&A context (Cho *et al.*, 2017). However, personal resilience (stress-coping ability) and ER (resilient workplace behaviours), although related, are distinct concepts (Tonkin *et al.*, 2018).

The importance of ER in M&A, particularly during the PMI phase, lies in its ability to enable employees of the new entity to adapt and cope with existing uncertainty (Cooper *et al.*, 2013; Khan *et al.*, 2020). Several studies addressed ER in response to uncertainty. Li and Tong (2021) emphasised the importance of implementing programs that build ER to enhance their capacity to manage uncertainty. Breevaart and Woerkom (2024) suggest that as employees face increasing uncertainty in navigating their careers, enhancing ER is crucial in building employee work engagement. Liang and Cao (2021) argue that resilient employees enable organisations not only to survive but also to flourish, as they enhance the capacity to learn from adversity and uncertainty. Wang and Wang (2023) explored ways to strengthen the resilience of project managers and employees in coping with the uncertainty and complexity inherent in construction projects. McEwen (2022) noted that due to the prevalence of high pressure, constant change, and uncertainty in contemporary workplaces, resilience becomes increasingly significant. Plimmer *et al.* (2023) found that the following three factors, *i.e.*, role ambiguity, job insecurity, and unclear organisational goals are negatively correlated with ER. These factors are linked to the three dimensions of CU: goal uncertainty, role uncertainty, and task uncertainty (Bernards, 2023).

Cognitive Uncertainty

Cognitive uncertainty (CU) arises when agents face a complex problem with relatively poor access to information (Al-Najjar *et al.*, 2003). Enke and Graeber (2023) claim that CU, induced by the complexity

of the issues, is the origin of decision anomalies as it changes people's behaviours and responses. As they analysed CU from the perspective of decision-making theory, they defined CU as 'people's subjective uncertainty over their ex-ante utility-maximising decision.' They claimed its importance in predicting 'systematic biases in economic decisions.' CU resulting from limited access to information refers to uncertain or incomplete information about situations, rules, and procedures (Bernards *et al.*, 2021; Raaphorst, 2018). It also arises from conflicting or contradictory information (Bernards *et al.*, 2021). As such, CU that stems from both the complexity of a problem and limited access to relevant information may lead to ineffective decisions and problems during M&A.

Notably, some studies used the term 'ambiguity' to refer to a similar concept. However, uncertainty is a broader concept than ambiguity and is more oriented toward the future. Dequech (2000) distinguishes between ambiguity, which refers to missing information that could, in principle, be known, and uncertainty, when some information simply does not exist at the time a decision is made, as the future has yet to be determined. Consequently, ambiguity may be considered as a potential source of uncertainty (Bernards *et al.*, 2021; O'Driscoll & Beehr, 1994).

Uncertainty is a context-dependent concept, hence it lacks a precise definition, leading to various ideas of uncertainty in the literature, for instance, strategic and implementation uncertainty (Allen *et al.*, 2007; Bordia *et al.*, 2004), effort-to-performance uncertainty, performance-to-outcome uncertainty, and uncertainty regarding supervisors' acceptance (O'Driscoll & Beehr, 1994), and finally, CU (Bernards, 2023, 2024; Bernards *et al.*, 2021). In his works, Bernards combined three types of CU experienced by employees, *i.e.*, goal uncertainty, role uncertainty, and task uncertainty.

In our research, we concentrated on CU as conceptualised by Bernards. We focused on the PMI phase, when employees consider adjusting their daily responsibilities to meet the requirements of the newly established entity. During the post-acquisition phase, employees experience multiple and overlapping uncertainties, such as uncertainty about job security, roles and responsibilities, strategic priorities, and future organisational practices. Integration team members must make decisions under both their own uncertainty and the uncertainty experienced by others, which together significantly complicate their decision-making processes (Diduc, 2022).

Linking Cognitive Uncertainty and Employee Resilience

Notably, ER relies on employees' ability to cognitively interpret their work environment and translate this understanding into adaptive behaviour. Meanwhile, CU undermines this capacity by impairing sense-making and decision-making, thereby limiting employees' ability to evaluate alternative courses of action and deploy available resources effectively. When organisational goals, roles, or task expectations are unclear or conflicting, employees increasingly devote their cognitive resources to managing uncertainty rather than engaging in adaptive action. This diversion constrains the behavioural flexibility that characterises ER, particularly during PMI, when rapid adjustment to new structures, expectations, and workflows is required. Accordingly, heightened CU is expected to weaken employees' resilient behaviour during PMI. Regarding this mechanism and consistent with prior studies demonstrating the negative impact of constructs conceptually related to CU, such as role ambiguity, job insecurity, unclear organisational goals, etc., on ER (Bernards, 2023; Cooke *et al.*, 2021; Khan *et al.*, 2020; Kuntz *et al.*, 2016; Liang & Cao, 2021; Plimmer *et al.*, 2023; Wang & Wang, 2023), we propose the following hypothesis:

H1: There is a negative relationship between cognitive uncertainty and employee resilience.

Visionary Leadership

Effective leadership during M&A helps integrate team members and reduces uncertainties, thereby contributing to the success of the integration (Diduc, 2022). Empirical evidence suggests that leadership also plays a significant role in the development of ER. Breevaart and Woerkom (2024) argue that as employees experience growing uncertainty, leaders who actively support subordinates in identifying, utilising, and developing their strengths have a significant impact on the development of ER. Nguyen *et al.* (2016) found that empowering leadership, fostering subordinates' autonomy and confidence and promoting participative decision-making, has a significantly positive effect on ER. Caniels and Curseu (2024) proved

that leaders' resilient behaviours shape the resilience of other employees. Dimas *et al.* (2018) provided evidence on a positive relationship between transformational leadership and team resilience.

Because we conducted our study in the context of M&A and PMI, we decided to focus on visionary leadership (VL) for several reasons. First, it is fundamentally oriented toward shaping the future. It focuses on the vision of the future that a leader communicates, guiding employees toward contributing to the shared goal (Bernards, 2023; Stam *et al.*, 2014). Second, scholars widely regard VL as one of the most popular forms of leadership (Mascareño *et al.*, 2020) and consider it an essential element of effective leadership (Buss & Kearney, 2024). Studies that reduce transformational leadership to its visionary component underscore the importance of VL in the context of organisational changes (Jensen *et al.*, 2019). Through cultivating a sense of meaning, visionary leaders are likely to strengthen employees' capacity to adapt and persevere in challenging contexts. Consistent with prior empirical findings on leadership and ER (Breevaart & Woerkom, 2024; Caniëls & Curseu, 2024), we hypothesised:

H2: There is a positive relationship between visionary leadership and employee resilience.

One reason effective leadership is crucial to the PMI is that it provides direction and reduces employees' uncertainty (Steigenberger, 2017). Thus, VL constituted a particularly critical factor in our study because it is recognised as essential for reducing employees' CU by providing clear directions and giving employees a sense of purpose in their work (Bernards, 2023). Beyond offering directions and guidelines to employees, VL also employs another mechanism: it reduces CU through team cohesion (Bernards, 2023). Furthermore, VL operates at a collective level (Stam *et al.*, 2014), aligning team efforts and enhancing groups' ability to navigate uncertainty and the complex changes that occur during the PMI. It aligns goals, which contributes to team creativity and innovation (Mascareño *et al.*, 2020).

Studies by Breevaart and Woerkom (2024) and Li and Tong (2021) suggest that leadership may influence ER, especially when employees cope with uncertainty. Liu *et al.* (2023) go even further, claiming that leader mindfulness affects ER, with perceiver environmental uncertainty as a moderating factor.

Building on the above findings, we focused on VL as a critical leadership style to cope with uncertainty and change, which may strengthen ER during PMI. From this study's perspective, the interplay between VL and CU is particularly significant. As previously discussed, employees' CU subsequently influences their resilience. Therefore, one could expect that employees' CU would mediate the effectiveness of VL in fostering ER. While existing studies separately explored the effects of leadership on uncertainty and the relationship between uncertainty and ER, an integrated framework in the PMI context remains underdeveloped. Thus, drawing on prior research (Bernards, 2023; Breevaart & Woerkom, 2024; Li & Tong, 2021), we hypothesised:

H3: Cognitive uncertainty mediates the relationship between visionary leadership and employee resilience.

Communication Effectiveness

Effective communication of change to employees can be conceptualised along four dimensions: usefulness, sufficiency, timeliness, and accuracy in interactions (Bansal & King, 2022). It was found to be critical to integration success in both the pre-acquisition and post-acquisition phases (Al Hosani *et al.*, 2020; Gomes *et al.*, 2013; Senior *et al.*, 2017), with open communication identified as a significant determinant of integration outcomes (Angwin *et al.*, 2016). Soontornchaiya and Charoensukmongkol (2024) found that management communication affects shared goals and organisational commitment during PMI.

Communication effectiveness (CE) plays a crucial role in shaping ER, particularly during organisational change, such as M&A. Effective communication of organisational change is essential for fostering employees' positive attitudes towards this change (Amiot *et al.*, 2006; Bansal & King, 2022). Communication plays a crucial role in the success of acquisitions by increasing employee coping abilities and productivity (Appelbaum *et al.*, 2017). This way, it may foster ER defined as the capability to adapt to change and cope with changing circumstances. Consistent with prior findings (Amiot *et al.*, 2006; Appelbaum *et al.*, 2017; Bansal & King, 2022), we hypothesised:

H4: There is a positive relationship between communication effectiveness and employee resilience.

Notably, M&A announcements can lead to several adverse outcomes, including communication issues and increased uncertainty (Senior *et al.*, 2017). However, effective communication helps address uncertainties related to change (Allen *et al.*, 2007). Al Hosani *et al.* (2020) demonstrated that it is a crucial factor in alleviating feelings of alienation among employees during the PMI. It is also essential for building trust (Al Hosani *et al.*, 2020; Allen *et al.*, 2007). Efficient communication is necessary to address employees' uncertainty and ambiguity about future M&A outcomes (Amiot *et al.*, 2006). Birkinshaw *et al.* (2000) claimed that clear and consistent communication reduced uncertainty and facilitated both task and human integration. By reducing ambiguity, effective communication provides employees with the information they need to make sense of organisational change, thereby lowering CU and encouraging a stronger sense of control. Regular vertical and horizontal communication enhance employees' commitment to organisational change (Appelbaum *et al.*, 2017). Therefore, we may see reducing CU as a key pathway through which communication supports ER, making it a central factor in successfully navigating the PMI. Although prior research examined the relationships between CE and uncertainty and between uncertainty and ER, these studies evolved independently, and the integrated framework in the context of PMI remains underdeveloped. Consequently, building on prior studies (Al Hosani *et al.*, 2020; Allen *et al.*, 2007; Amiot *et al.*, 2006; Birkinshaw *et al.*, 2000), we proposed the following hypothesis:

H5: Cognitive uncertainty mediates the relationship between communication effectiveness and employee resilience.

Organisational Identification

Within the identity pathway proposed in this study, organisational identification (OI) represents a stabilising resource that supports employees' adaptive capacity during PMI. It is a 'specific form of social identification where the individual defines him or herself in terms of their membership in a particular organisation' (Mael & Ashforth, 1992). It encompasses both cognitive and affective identification (Xenikou, 2014).

There is a wide array of studies on pre-integration and post-integration OI. For instance, Sung *et al.* (2017) conducted pre- and post-merger analyses. They found that changes in employees' perception of a company's overall status and individual position affect their OI. Lipponen *et al.* (2017) and Mühlemann *et al.* (2022) found a positive relationship between pre- and post-integration OI. Edwards *et al.* (2024) argue that pre-merger work-related identification is a buffer during organisational change. Scholars consider OI to be a significant determinant of M&A success, especially in the PMI (Kroon *et al.*, 2009). Thakur and Yadav (2025) analysed PMI, considering this phase crucial for shaping organisational changes. Klok *et al.* (2022) revealed that OI becomes a critical emotional process in the post-M&A phase, as employees renegotiate their sense of belonging and attachment to the newly formed entity (Klok *et al.*, 2022).

Trenerry *et al.* (2021) highlighted workplace resilience and team identification as important factors during organisational change. They observed that OI can support collective adaptation and help employees align with new goals and group norms. Peng and Liang (2023) found a positive effect of OI on ER during the COVID-19 pandemic. Arshad *et al.* (2023) observed an indirect effect of OI on ER, with sequential mediation by the desire to have a significant impact through work (motivation to make a meaningful difference or contribution through their job) and voice behaviour (proactive communication and focus on improvement).

Overall, the literature suggests that OI enhances employees' adaptive responses and coping mechanisms, thereby strengthening their resilience. Therefore, in line with previous findings (Trenerry *et al.*, 2021; Peng & Liang, 2023; Arshad *et al.*, 2023), we proposed that:

H6: There is a positive relationship between organisational identification and employee resilience.

RESEARCH METHODOLOGY

Our study was based on a questionnaire consisting of two sections. The first one assessed respondents' demographic characteristics (gender, age, place of residence, and the size of the firm they worked for during the M&A). The second part consisted of 33 statements, representing five scales, as proposed by other authors. We modified the statements in two ways. First, as we measured variables retrospectively, we converted each statement into the past tense. Second, we asked respondents to indicate their feelings 'directly after the merger/acquisition took place,' and in three statements, it was necessary to clarify that they pertained to the situation within the new company. Respondents indicated the answers for each statement on the 5-point Likert-based scale (from 'strongly disagree' to 'strongly agree').

We measured ER as a latent variable on a 9-statement behavioural 'Employee Resilience Scale' by Näswall *et al.* (Näswall *et al.*, 2015; Näswall *et al.*, 2019). We selected this scale because it focuses on interactions with the work environment and includes references to work-related challenges. As used in our study, a sample statement from this scale was: 'I effectively collaborated with others to handle challenges at work.'

We measured CU using the 10-statement scale by Bernardis (2023), covering all three dimensions of CU (goal, role, and task). Regarding role uncertainty, the questions in the Bernardis scale were inspired by a survey of employee willingness to participate in organisational change by Miller *et al.* (1994). As used in our study, a sample statement from this scale was 'In my role as a team member, I knew exactly what was expected of me.'

To obtain the CE variable, we developed the 4-statement scale based on the concept by Bansal and King (2022). It covered four dimensions of CE, *i.e.*, content, accuracy, usefulness, and timeliness. As used in our study, a sample statement from this scale was 'The content of the communication was sufficient.'

For the VL variable, we adapted the 5-statement scale proposed by Bernardis (2023), based on a scale developed by Jensen *et al.* (2019). In some studies, including Jensen *et al.* (2019), the authors refer to transformational leadership, limiting it only to its visionary component. As used in our study, a sample statement from this scale was: 'My manager communicated a clear vision of the team's future.'

To measure the OI variable, we used a 5-statement scale by Mael and Ashforth (1992). Other studies also applied it in order to analyse behaviour during PMI, *e.g.*, Kroon *et al.* (2009) and Kroon and Noorderhaven (2018). As used in our study, a sample statement from this scale was 'The new company's successes were my successes.'

We translated the questionnaire into Polish. To maintain the scales' validity, the translation process involved two independent forward translations and two independent back translations, expert review, pre-testing, and adjustment.

We defined our target population as office workers employed in an acquired or merged company in Poland in the last 10 years before the data collection. Regarding previous studies, we assumed that respondents could accurately recall their emotions during important events that happened within the last 10 years. Organisational change presents significant challenges for employees, eliciting a wide range of emotions and behaviours. Previous studies demonstrate that emotions enhance memory retention, with emotion-processing regions, particularly the amygdala and orbitofrontal cortex, facilitating the encoding and retrieval of details associated with negative events (Kensinger, 2007). Emotional memories play a crucial role in structuring autobiographical narratives (Cantó-Milà *et al.*, 2023). However, prior studies also indicate that individuals often experience difficulties in recalling numerical information in autobiographical surveys (Bradburn *et al.*, 1987). This finding is consistent with the telescoping effect, a cognitive bias where respondents tend to remember recent events as older than they actually are (backward effect) or distant events as newer (forward effect) (Bokati & Kreinovich, 2019). Consequently, we decided to omit numerical questions, especially the specific date of the M&A in which respondents had participated.

The data was collected by a professional company using the computer-assisted web interviewing method (respondents were chosen from a panel). After the data quality control, we excluded 15 observations from the initial sample. These were cases where respondents reported involve-

ment in an M&A of an entity other than a private company (public school, public hospital, government administration unit, etc.).

The final sample consisted of 305 respondents. The sample constituted a diverse representation of the study population. Participants represented 295 different integration processes (a merger or an acquisition). In eight cases, there were two representatives from the same company that either merged or acquired another company, and in one case, there were three representatives. The geographic distribution of respondents by NUTS 2 regions (provinces) was approximately proportional to the size of the general population. Women comprised approximately two-thirds of the sample. Half of the respondents were 36 years old or younger, with the middle 50% of respondents falling between 31 and 45 years old. Table 1 presents the full frequency distributions of respondents' characteristics.

Table 1. Frequency distributions and descriptive statistics for the respondents' characteristics

Variable/Category		Count	Percent		
Gender					
Female		197	65%		
Male		108	35%		
Place of residence					
Rural area		39	13%		
A town with less than 50k inhabitants		43	14%		
Town with 50-100k inhabitants		38	12%		
City with 100-200k inhabitants		40	13%		
City with 200-500k inhabitants		49	16%		
A city with more than 500k inhabitants		96	31%		
Company size					
Small or medium-sized enterprise (1-249 employees)		119	39%		
Large enterprise (250 employees or more)		186	61%		
Age	Min.	Mean	Median	Std.	Max.
	18	38.6	36	10.8	75

Source: own study.

We analysed the data using structural equation modelling (SEM) methodology. It was the most commonly used method in previous studies (Johnson, 2016; Rafferty & Griffin, 2006). First, we tested the measurement model for the factors explained in the literature review, including reliability and validity testing. Then, we estimated the full latent variable model. As a robustness check, we estimated the model using two approaches: covariance-based SEM and partial least squares path modelling (PLS).

RESULTS AND DISCUSSION

As mentioned in the previous section, the statements used in the questionnaire were modified versions of scales used by other authors. We performed the reliability analysis and discriminant validity to check whether the employed scales produced consistent results and whether the constructs were distinct from one another. The analyses considered the ordinal nature of the observed items (*i.e.*, the answers 'strongly disagree,' 'disagree,' *etc.*, were treated as ordinal variables, not as numerical ones). We calculated two measures of reliability, *i.e.*, ordinal alpha (Zumbo *et al.*, 2007), which is a standard Cronbach's alpha formula applied to the polychoric correlation matrix, and composite reliability as proposed by Green and Yang (2009) for ordinal data. Table 2 presents the results of the reliability analysis. The higher the values of these measures, the more reliable a scale for the construct. All constructs had values of both measures close to 0.9. These results demonstrated very good reliability of the measurement model.

For discriminant validity, we used two criteria: the Fornell-Larcker criterion (Fornell & Larcker, 1981) and the Heterotrait-monotrait ratio (Henseler *et al.*, 2015; Voorhees *et al.*, 2016). The former states that the average variance extracted by a construct should be larger than its squared correlations with other constructs. The latter states that the heterotrait-monotrait ratio of correlations should be

no larger than 0.85. The results of these tests, presented in Table 3, indicated good discriminant validity of constructs under study.

Table 2. Reliability analysis for the constructs under study

Construct	Ordinal alpha ¹⁾	Composite reliability ²⁾
ER – Employee Resilience	0.88	0.86
CU – Cognitive Uncertainty	0.96	0.96
VL – Visionary Leadership	0.94	0.92
CE – Communication Effectiveness	0.93	0.92
OI – Organisational Identification	0.86	0.84

Notes: ¹⁾ Based on the polychoric correlations. ²⁾ Using the approach from Green and Yang (2009) for ordinal data.

Source: own study.

Table 3. Discriminant validity of the constructs under study

Fornell-Larcker criterion ¹⁾						Heterotrait-monotrait ratio					
Construct	ER	CU	VL	CE	OI	Construct	ER	CU	VL	CE	OI
ER	0.462					ER	1.000				
CU	0.295	0.729				CU	0.533	1.000			
VL	0.361	0.287	0.752			VL	0.596	0.515	1.000		
CE	0.320	0.334	0.550	0.782		CE	0.562	0.575	0.736	1.000	
OI	0.345	0.095	0.375	0.292	0.569	OI	0.559	0.295	0.622	0.543	1.000

Notes: 1) Average variance extracted (calculated from polychoric correlations) in the diagonal and squared correlations in the lower triangle.

Source: own study.

Having a reliable and valid measurement model, we calculated the full latent variable model. Since all items were ordinal variables, we estimated model parameters using the diagonally weighted least squares method. We computed standard errors and test statistics using full-weight measures (Finney & DiStefano, 2013). We determined the metric of each latent variable by the variance standardisation method (*i.e.*, by fixing their variances to 1). We present the results as a completely standardised solution. The means of each factor were set to zero. The control variables were all introduced into the model as dummy variables. The dichotomisation was apparent for gender and company size. Age was divided into groups according to median and place of residence: city below 200k vs. city over 200k inhabitants. We performed the analysis using the R package lavaan 0.6.17 (Rosseel, 2012). Figure 1 presents the structural part of the estimated model. Appendix A presents the full results of the SEM model.

The scaled (robust to nonnormality) fit measures for this model were as follows: comparative fit index (CFI) = 0.982, Tucker-Lewis index (TLI) = 0.984, root mean square error of approximation (RMSEA) = 0.042 (90% confidence interval for RMSEA was estimated as [0.037, 0.048]), standardised root mean square residual (SRMSR) = 0.055. All of these measures demonstrate that the model fit the data very well.

The regression coefficients presented in Figure 1, on the path lines from the exogenous factors to the mediator and the endogenous factor, represent the sign and strength of each factor's influence. They can take values from -1 to 1, with values close to 0 indicating no relationship at all and values closer to -1 or 1 showing an ever-stronger connection. The estimated relationship between OI and ER was statistically significant and positive, indicating that the more employees identified with the new organisation, the more resilient they became. The effects of VL and CE on CU were statistically significant and negative. Further along the causal path, the effect of CU on ER was also statistically significant and negative. This means that the indirect influence of VL and CE on ER was positive, the products of the coefficients on the respective indirect paths were positive and statistically significant. Meanwhile, the direct relationship proved to be insignificant for CE on ER and only slightly significant for VL on ER. This means that CU served as mediator for the relationship between CE and ER, as well as (partially) VL and ER. All control variables proved to be insignificant additions to the model, hence we did not show their estimated parameters on the diagram. The residual variance of ER was 0.480, indicating that all exogenous factors in the model collectively explained 52.0% of the variance in ER.

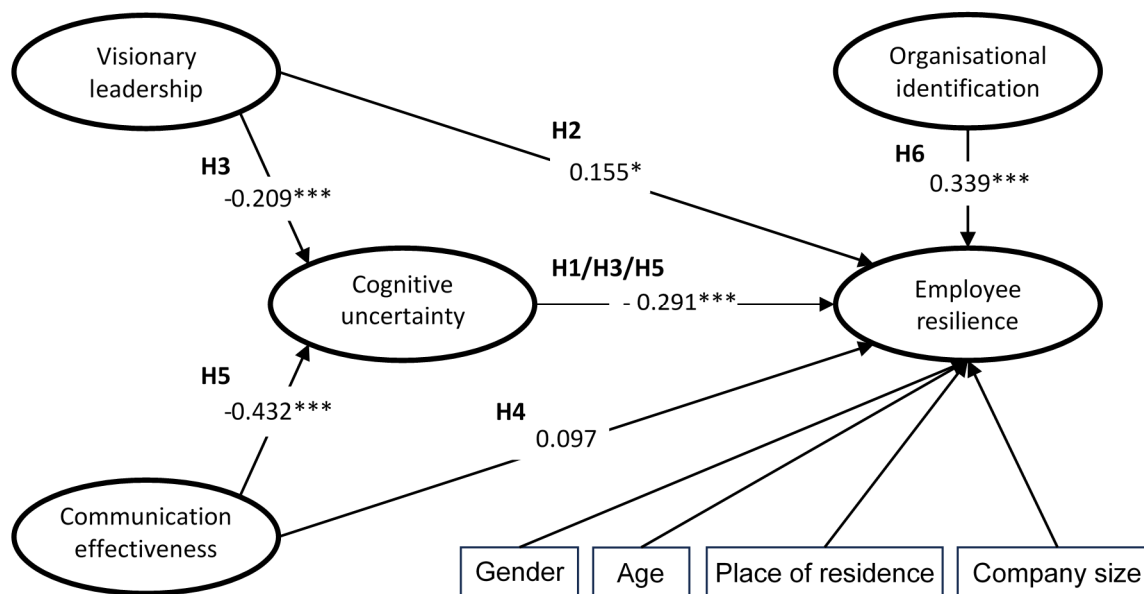


Figure 1. Estimated parameters of the SEM model (significance codes: * 0.05, ** 0.01, *** 0.005)

Source: own elaboration.

We performed the above analysis using a common factor-based approach (*i.e.*, covariance-based SEM) to estimate model parameters. The reason for that was twofold. First, our measurement model was reflective (observed indicators are functions of constructs, not the other way round). Second, our variables were ordinal in nature, which one should consider in the estimation procedure. Covariance-based SEM allowed for a polychoric correlation matrix in the estimation process. Nevertheless, we cannot exclusively categorise the phenomenon under study as either common factor or composite-based, and whether to use covariance-based SEM or partial least squares path modelling (Sarstedt *et al.*, 2016). This question becomes irrelevant when the results from the two methods align. This is the case of this study. As a robustness check, we estimated the model with PLS using SmartPLS software (Ringle *et al.*, 2024), treating the data as quasi-continuous. The coefficients for structural relationships were very similar: OI on ER (0.306), VL on ER (0.152), VL on CU (-0.238), CE on CU (-0.367), CE on ER (0.076), and CU on ER (-0.288); with the same respective coefficients being statistically significant based on bootstrap *p*-values and the control variables being equally insignificant. Likewise, the reliability measures and discriminant validity tests produced similar outcomes.

We treated the observations as independent since the vast majority of respondents represented different integration processes. Only ten mergers were represented by two or three employees. We did not analyse the consistency of the responses from different informants as the number of cases was too small for any meaningful analysis.

Our findings largely corroborate the existing literature and align with most of our hypotheses. Analysing the outcomes of this study, we found a negative relationship between CU and ER during PMI, which supports H1. This suggests that higher levels of CU, including uncertainty about goals, roles, and tasks, undermine employees' behavioural capabilities to adapt to changes, thereby reducing their resilience during PMI. This finding is consistent with previous studies, such as Plimmer *et al.* (2023), who found that role ambiguity, job insecurity, and unclear organisational goals are negatively correlated with ER.

Regarding the impact of VL on ER during the PMI, we found a significant positive direct effect and a complementary (partial) mediation of CU. The direct impact of VL on ER supports H2, indicating that VL directly fosters ER by providing direction, inspiration, and confidence, which strengthen employees' capacity to cope with the challenges of PMI. This result aligns with previous findings on leadership contributing to the development of ER (Breevaart & Woerkom, 2024; Nguyen *et al.*, 2016). The mediating effect of CU on the relationship between VL and ER supports H3. These results are consistent with studies suggesting that leadership influences ER, especially when employees face uncertainty (Breevaart &

Woerkom, 2024; Li & Tong, 2021). Specifically, when leaders articulate a clear and compelling vision, employees experience less uncertainty about their goals, roles, and tasks during organisational changes, enabling them to adapt more effectively and maintain higher levels of resilience during PMI. These findings also align with prior studies indicating that VL reduces employee CU (Bernards, 2023).

Initially, the effect of CE on ER was found to be significant. However, after including CU as a mediator in the model, the direct effect became insignificant, leading to the rejection of H4. Instead, we found a full mediation effect (indirect effect), indicating that CU mediated the relationship between CE and ER. This finding supports H5. By clarifying goals, roles, and tasks, effective communication minimises ambiguity, enabling employees to adjust more effectively and remain resilient throughout the PMI process. The negative association between CE and CU confirms previous studies, identifying CE as an essential factor in addressing change-related uncertainties (Allen *et al.*, 2007). Previous studies showed that CE builds trust and alleviates feelings of alienation among employees during the PMI phase (Al Hosani *et al.*, 2020; Allen *et al.*, 2007). As a factor strengthening employee coping abilities and productivity, CE plays a crucial role in the success of acquisitions (Appelbaum *et al.*, 2017).

The positive effect of OI on ER supports H6, confirming OI as a key factor in the post-M&A phase, shaping employees' emotional adjustment to the new organisation and influencing integration success. Our results align with those of Klok *et al.* (2022), who found that OI becomes a critical emotional factor as employees renegotiate their sense of belonging and attachment to the newly formed entity. Similarly, Trenerry *et al.* (2021) noted that fostering team and OI supports collective adaptation and alignment with new goals and norms. However, Trenerry *et al.* (2021) treated OI and resilience as separate constructs and found no direct causal link between them. Our findings underscore the importance of CU as a channel through which CE and VL impact ER. PMI is widely recognised as one of the most complex and failure-prone stages of the M&A process, shaped by a range of challenges (Steigenberger, 2017; Gomes *et al.*, 2013; Angwin *et al.*, 2016). Prior research has shown that overcoming these barriers requires not only effective strategic alignment but also targeted interventions at the employee level that foster clarity, engagement, and adaptation (Diduc, 2022). These studies emphasise that integration is not only a structural or procedural task but a deeply behavioural process in which employees' perceptions, emotions, and adaptive capacities are decisive for organisational outcomes. Our findings contribute to this discourse by showing how CU mediates the relationship between leadership, CE, and ER, which are factors identified as central to overcoming post-acquisition obstacles (Diduc, 2022). Moreover, the role of OI observed in our study aligns with prior research that emphasises the importance of fostering a sense of belonging and shared purpose to support successful integration (Klok *et al.*, 2022). Our results provide empirical support for the proposed dual-mechanism framework, confirming CU as the central mediating mechanism through which VL and CE influence ER during PMI. They also confirm the stabilising role of OI as an independent identity-based pathway that supports ER. In this way, our results align with but also extend previous research by identifying cognitive mechanisms that underpin employees' behavioural adaptation, thereby offering a deeper understanding of how individual-level processes contribute to resolving the persistent challenges of the PMI phase.

CONCLUSIONS

In this study, we empirically examine how ER during PMI develops through two complementary behavioural mechanisms: the reduction of CU driven by VL and CE, and OI as a source of adaptive capacity.

From a theoretical perspective, this study makes two primary contributions. First, it identifies CU as the central mediating mechanism through which VL and CE influence ER during PMI. Although prior research has established leadership and communication as important antecedents of employee attitudes and behaviours in M&A contexts, it has largely treated their effects on resilience as direct or outcome-based. What has been missing is a clear explanation of the cognitive process through which these organisational practices translate into resilient behaviour. By explicitly demonstrating that CU mediates the effects of VL and CE on ER, this study shifts the focus from antecedents alone to the underlying mechanism of resilience formation under conditions of heightened organisational uncertainty. Thus, rather

than merely confirming earlier findings, this study extends the literature by explaining the mechanism of resilience formation under conditions of profound organisational change.

In doing so, the study advances M&A integration research by reconceptualising uncertainty from a static individual trait to a manageable cognitive state that directly affects employees' capacity to adapt. It also contributes to the resilience literature by conceptualising ER not as a fixed individual trait, but as a behavioural capability that can be actively shaped through organisational practices that reduce uncertainty.

Second, the study identifies OI as an independent identity-based pathway to employee resilience. It complements the uncertainty-reduction mechanism and offers an original dual-mechanism framework that integrates cognitive and identity-based drivers of employee behavioural adaptation during PMI. This framework offers a more comprehensive theoretical explanation of how resilience emerges during organisational integration.

From a practical perspective, the findings have strong implications for business practice. They suggest that organisations involved in mergers and acquisitions can actively strengthen ER by systematically reducing CU during the PMI phase. First, managers should prioritise effective and structured communication, ensuring that information about goals, roles, and tasks is timely, sufficient, accurate, and useful. Such communication reduces employees' uncertainty and enables them to focus their cognitive resources on adaptation rather than sensemaking.

Second, the results highlight the importance of VL during PMI. Leaders who articulate a clear and compelling vision of the future provide employees with direction and meaning, reducing uncertainty and supporting resilient behaviour. Leadership development programmes that strengthen visionary capabilities may therefore play a crucial role in improving integration outcomes.

Third, the positive effect of OI on ER indicates that fostering a sense of belonging to the new organisation is essential. Practices such as inclusive culture-building initiatives, symbolic integration activities, and fair treatment of employees from legacy organisations can reinforce identification with the new entity and, in turn, enhance resilience. Taken together, these findings underscore that successful PMI requires not only structural and strategic alignment but also deliberate cognitive and behavioural interventions at the employee level.

Finally, the study contributes methodologically by drawing on data from employees involved in 295 distinct mergers and acquisitions, thereby reducing the risk of shared organisational context bias that characterises much of the existing literature. This design strengthens the external validity of the findings and supports the generalisability of the proposed cognitive-behavioural framework across diverse M&A contexts.

This study has several limitations that should be acknowledged. First, to obtain a diverse sample covering 295 M&A transactions, we conducted a retrospective study based on PMI experiences that occurred up to 10 years prior to data collection. Although prior research suggests that emotionally salient events can be reliably recalled (Kensinger, 2007; Cantó-Milà *et al.*, 2023), we cannot exclude some degree of recall bias. Second, the study focused exclusively on office workers, which ensured a consistent perspective but limited the finding's generalisability to other occupational groups, such as operational or blue-collar employees. Third, the sample was drawn from Polish organisations, which may constrain the results' cross-cultural applicability.

Our findings open new avenues for future studies, particularly regarding the interplay between the analysed factors in the context of the PMI phase. Further research should also investigate additional mediators and moderators, such as M&A type, integration approach, the share of employee layoffs following the M&A, psychological safety, trust, or other leadership styles, to deepen the understanding of behavioural adaptation processes. Comparative cross-cultural analyses could be employed to examine how national and organisational cultures shape the relationships between cognitive uncertainty and employee resilience. Moreover, extending the investigation beyond office workers to include operational employees could reveal occupation-specific patterns of ER formation.

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Appendix A:

Full results of the SEM model

Item loadings					
	Estimate	p-value		Estimate	p-value
Cognitive uncertainty			Employee resilience		
<i>CU1</i>	0.886	0.000	<i>ER1</i>	0.756	0.000
<i>CU2</i>	0.854	0.000	<i>ER2</i>	0.669	0.000
<i>CU3</i>	0.868	0.000	<i>ER3</i>	0.707	0.000
<i>CU4</i>	0.902	0.000	<i>ER4</i>	0.695	0.000
<i>CU5</i>	0.845	0.000	<i>ER5</i>	0.741	0.000
<i>CU6</i>	0.922	0.000	<i>ER6</i>	0.743	0.000
<i>CU7</i>	0.759	0.000	<i>ER7</i>	0.598	0.000
<i>CU8</i>	0.816	0.000	<i>ER8</i>	0.611	0.000
<i>CU9</i>	0.860	0.000	<i>ER9</i>	0.634	0.000
<i>CU10</i>	0.837	0.000	Organisational identification		
Communication effectiveness			<i>O11</i>	0.655	0.000
<i>CE1</i>	0.844	0.000	<i>O12</i>	0.708	0.000
<i>CE2</i>	0.907	0.000	<i>O13</i>	0.679	0.000
<i>CE3</i>	0.850	0.000	<i>O14</i>	0.839	0.000
<i>CE4</i>	0.938	0.000	<i>O15</i>	0.868	0.000
Visionary leadership					
<i>VL1</i>	0.902	0.000			
<i>VL2</i>	0.738	0.000			
<i>VL3</i>	0.867	0.000			
<i>VL4</i>	0.905	0.000			
<i>VL5</i>	0.920	0.000			
Regression coefficients					
Regressor for ER	Estimate	p-value	Regressor for CU	Estimate	p-value
Organisational Identification	0.339	0.000	Communication Effectiveness	-0.432	0.000
Communication Effectiveness	0.097	0.216	Visionary leadership	-0.209	0.002
Cognitive uncertainty	-0.291	0.000			
Visionary leadership	0.155	0.049			
Gender = <i>female</i>	0.049	0.435			
Age <= 36	0.100	0.111			
Place = <i>city over 200k inhabitants</i>	-0.053	0.407			
Company size = <i>Small or medium</i>	-0.043	0.509			

Source: own elaboration.


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The contribution share of authors is as follows: Anna Blajer-Gołębiowska (35%) – conceptualisation, methodology, investigation, writing, supervision, project administration, funding acquisition; Arkadiusz Kozłowski (30%) – formal analysis, data curation, writing, visualisation; Magdalena Markiewicz (20%) – conceptualisation, methodology, investigation, writing, supervision, funding acquisition; Florian Jais (15%) – conceptualisation, methodology, investigation, writing.

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Use of Artificial Intelligence

This text is free of AI/GAI usage.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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