

ERP Analytics Capability and Organizational Memory in Supporting Organizational Resilience During Economic Uncertainty in Indonesia

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Article Info

Article history:

Received Aug, 2026

Revised Aug, 2026

Accepted Aug, 2026

Keywords:

ERP Analytics

Organizational Memory

Organizational Resilience

Economic Uncertainty

Digital Capability

ABSTRACT

Economic uncertainty has created significant challenges for organizations in maintaining operational stability and developing adaptive capabilities. In such conditions, organizations require effective technological and knowledge-based resources to improve their ability to anticipate, respond to, and recover from disruptions. This study aims to examine the role of Enterprise Resource Planning (ERP) analytics and organizational memory in supporting organizational resilience in Indonesia. This research employed a quantitative approach using survey data collected from 75 respondents representing organizational members involved in managerial, operational, and information system-related activities. Data were collected through a structured questionnaire using a five-point Likert scale and analyzed using Statistical Package for the Social Sciences (SPSS) version 25. The analysis included validity and reliability testing, classical assumption testing, and multiple regression analysis. The results indicate that ERP analytics has a positive and significant effect on organizational resilience, demonstrating that the ability to transform integrated organizational data into actionable insights strengthens decision-making and adaptive responses. Furthermore, organizational memory also has a positive and significant effect on organizational resilience, indicating that the retention and utilization of organizational knowledge contribute to improved preparedness and continuity during uncertain conditions. The simultaneous analysis confirms that ERP analytics and organizational memory significantly contribute to strengthening organizational resilience. This study highlights that the integration of digital analytical capabilities and organizational knowledge resources represents an important strategic capability for organizations facing economic uncertainty. The findings provide theoretical implications by extending the Resource-Based View perspective and practical implications for managers in developing technology-driven and knowledge-oriented resilience strategies.

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1. INTRODUCTION

Economic uncertainty has become one of the major challenges faced by organizations operating in developing and emerging economies, including Indonesia. Fluctuations in market conditions, changes in consumer behavior, supply chain disruptions, technological transformation, and global economic pressures have increased the complexity of organizational decision-making processes [1]. Under such conditions, organizations are required not only to maintain operational continuity but also to develop adaptive capabilities that enable them to anticipate disruptions, respond effectively to environmental changes, and sustain performance. Organizational resilience has therefore become a critical strategic capability, referring to the ability of organizations to absorb shocks, adapt to uncertainty, and recover while maintaining long-term competitiveness [2], [3].

The Indonesian business environment is characterized by rapid digital transformation, increasing competition, and continuous economic volatility [4], [5]. These conditions require organizations to strengthen internal resources and capabilities to improve responsiveness and strategic decision-making. Conventional approaches that rely primarily on historical performance indicators and routine operational procedures are often insufficient in addressing dynamic environments. Organizations increasingly require integrated information systems capable of providing timely, accurate, and actionable insights to support risk identification, resource allocation, and strategic adaptation [6]. In this context, Enterprise Resource Planning (ERP) analytics has emerged as an important technological capability that enables organizations to integrate data across functional areas and transform operational information into valuable managerial insights [7].

ERP analytics integrates data from various organizational functions, including finance, operations, human resources, supply chain management, and customer relationship management, into a

comprehensive analytical platform. Through real-time data processing, predictive analysis, and information integration, ERP analytics enables organizations to improve coordination, enhance operational efficiency, and support evidence-based decision-making [8]. Previous studies have demonstrated that analytics capabilities contribute to organizational performance by improving information quality and strategic responsiveness [9], [10]. However, the value of ERP analytics depends not only on technological implementation but also on organizational capabilities to interpret, share, and effectively utilize the information generated. Therefore, ERP analytics should be viewed as a strategic organizational capability that supports adaptation and resilience, particularly during periods of economic uncertainty [11].

In addition to technological capabilities, organizational memory represents an important knowledge-based capability that contributes to organizational resilience. Organizational memory refers to the processes through which organizations acquire, retain, store, and retrieve knowledge derived from past experiences, previous decisions, documented procedures, and shared organizational learning [12], [13]. In uncertain environments, organizational memory allows organizations to utilize accumulated knowledge to avoid repeated mistakes, improve problem-solving processes, and develop more effective responses to emerging challenges [14]. While adaptation requires organizations to embrace change, organizational memory provides a foundation of experience and knowledge that enables organizations to balance flexibility with continuity. Consequently, strong organizational memory may enhance resilience by supporting learning, improving decision quality, and strengthening adaptive capacity [15].

Although ERP analytics and organizational memory have been widely discussed in relation to information systems, knowledge management, and organizational performance, research examining their combined contribution to organizational

resilience remains limited, particularly in the Indonesian context [1], [16]. Previous studies have largely focused on technology adoption, system effectiveness, or performance outcomes, while the mechanisms through which digital analytical capabilities and retained organizational knowledge interact to strengthen resilience under economic uncertainty require further investigation. This research gap is particularly relevant in emerging economies, where organizations often face challenges related to digital maturity, resource constraints, and rapidly changing business environments [5]. Therefore, a deeper understanding of how technological and knowledge-based capabilities contribute to resilience is necessary.

This study addresses this gap by examining the influence of ERP analytics and organizational memory on organizational resilience during economic uncertainty in Indonesia. Drawing upon the Resource-Based View (RBV), this study conceptualizes ERP analytics and organizational memory as strategic organizational resources that enhance adaptive capacity and resilience. The RBV perspective suggests that organizations can achieve sustainable advantages by developing valuable, rare, and difficult-to-replicate capabilities [17]. Theoretically, this study contributes by integrating technological and knowledge-based perspectives in explaining organizational resilience. Practically, the findings provide insights for managers regarding the importance of strengthening analytical capabilities and organizational knowledge management practices to improve preparedness and flexibility in uncertain environments. Accordingly, this study proposes the following research questions: (1) Does ERP analytics influence organizational resilience during economic uncertainty in Indonesia? (2) Does organizational memory influence organizational resilience during economic uncertainty in Indonesia? and (3) Do ERP analytics and organizational memory simultaneously contribute to strengthening organizational resilience?

2. LITERATURE REVIEW

2.1 Resource-Based View (RBV)

The Resource-Based View (RBV) proposed by Barney [17] explains that competitive advantage is achieved through valuable, rare, inimitable, and non-substitutable internal resources and capabilities. Unlike external perspectives, RBV emphasizes the importance of organizational capabilities in supporting adaptation and sustainability [18]. In the context of digital transformation, ERP analytics and organizational memory represent strategic resources that enable organizations to improve decision-making, utilize knowledge effectively, and respond to environmental uncertainty [9]. Through these capabilities, organizations can strengthen resilience by anticipating disruptions, adapting to change, and maintaining sustainable performance.

2.2 Organizational Resilience

Organizational resilience refers to an organization's capacity to anticipate threats, adapt to unexpected changes, maintain essential operations, and recover effectively from disruptions [2], [19]. In uncertain and complex environments, resilience represents a proactive capability that enables organizations to continuously adjust through flexibility, effective decision-making, and organizational learning [3]. Within the Indonesian business context, increasing economic and technological changes require organizations to strengthen internal capabilities, including the ability to utilize accurate information and organizational knowledge [4], [5]. Therefore,

capabilities such as ERP analytics and organizational memory are considered important resources that support organizational resilience by improving responsiveness, adaptation, and sustainable performance.

2.3 ERP Analytics

Enterprise Resource Planning (ERP) systems are integrated information systems that coordinate organizational resources through centralized data and interconnected business processes across functions such as finance, human resources, production, procurement, and supply chain management [7]. ERP analytics enhances these capabilities by transforming integrated organizational data into meaningful insights through real-time monitoring, performance analysis, forecasting, and decision support [6], [8]. As a strategic capability, ERP analytics enables organizations to improve information utilization, strengthen managerial decision-making, identify environmental changes, allocate resources effectively, and enhance organizational adaptability in facing operational challenges and uncertainty [9].

The relationship between ERP analytics and organizational resilience can be understood through its ability to improve information availability, organizational visibility, and decision-making effectiveness. In uncertain environments, ERP analytics provides timely and integrated information that enables organizations to monitor operational conditions, identify potential risks, and respond to

disruptions more effectively [11]. By supporting evidence-based decision-making, ERP analytics enhances organizational flexibility and adaptive capacity, which are essential components of resilience [10]. Therefore, ERP analytics is expected to strengthen organizational resilience by enabling organizations to anticipate changes, optimize resource utilization, and develop appropriate responses to environmental uncertainty. Based on this discussion, the following hypothesis is proposed:

H1: ERP analytics has a positive and significant effect on organizational resilience.

2.4 Organizational Memory

Organizational memory refers to the collective knowledge, experiences, routines, and lessons learned that are retained and utilized by organizations to support current and future decision-making [12]. It includes documented information, standard procedures, employee expertise, previous decisions, and accumulated organizational experiences that enable knowledge preservation despite changes in personnel or external conditions [13]. In uncertain environments, organizational memory supports resilience by allowing organizations to learn from past events, recognize emerging risks, improve problem-solving, and develop appropriate responses based on existing knowledge [14], [20]. Through effective knowledge acquisition, storage, retention, and retrieval mechanisms, organizational memory strengthens organizational

learning, continuity, and adaptive capacity, thereby enhancing the ability of organizations to anticipate, respond to, and recover from disruptions [15]. Based on this discussion, the following hypothesis is proposed:

H2: Organizational memory has a positive and significant effect on organizational resilience.

2.5 *ERP Analytics, Organizational Memory, and Organizational Resilience*

ERP analytics and organizational memory represent complementary organizational capabilities that strengthen resilience through different mechanisms. ERP analytics provides timely, data-driven insights to understand current conditions and support strategic decisions, while organizational memory enables organizations to utilize accumulated knowledge and past experiences to interpret situations and develop effective responses [11], [20]. The integration of technological and knowledge-based resources enhances organizational learning, flexibility, and adaptive capacity, allowing organizations to transform information into action and respond effectively to economic disruptions. From the Resource-Based View (RBV) perspective, the combination of ERP analytics and organizational memory creates valuable capabilities that support sustainable organizational resilience [17], [18]. Based on this discussion, the following hypothesis is proposed:

H3: ERP analytics and organizational memory

simultaneously have a positive and significant effect on organizational resilience.

3. METHODS

This study employed a quantitative approach with an explanatory research design to examine the influence of ERP Analytics and Organizational Memory on Organizational Resilience during economic uncertainty in Indonesia. The research model was developed based on the Resource-Based View (RBV), which emphasizes that organizations can strengthen competitive advantages through valuable internal resources and capabilities [17]. In this study, ERP Analytics represents a technology-based capability, while Organizational Memory represents a knowledge-based capability that contributes to organizational adaptability and resilience. The research model consists of two independent variables, namely ERP Analytics (EA) and Organizational Memory (OM), and one dependent variable, Organizational Resilience (OR), formulated as: $OR = \alpha + \beta_1 EA + \beta_2 OM + e$.

The population of this study consisted of organizational members working in organizations operating in Indonesia who have experience with organizational processes, information utilization, and decision-making activities. A purposive sampling technique was applied to select respondents who met specific criteria, including employees, managers, supervisors, or organizational representatives involved in operational activities, having experience with organizational information systems or digital-based information, and understanding organizational decision-making processes. Data were collected through a structured questionnaire using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were adapted from previous studies [2], [10], [20] and adjusted to measure ERP Analytics, Organizational Memory, and Organizational Resilience. A total of 75 valid responses were obtained and used for further statistical analysis.

The collected data were analyzed using SPSS version 25. The analysis procedures included descriptive statistics, validity testing, reliability testing, classical assumption testing, and multiple regression analysis. Validity was assessed using Pearson Product Moment correlation, while reliability was evaluated using Cronbach's Alpha with a minimum acceptable value of 0.70. Classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were conducted to ensure the suitability of the regression model. Multiple regression analysis was then applied to examine the partial and simultaneous effects of ERP Analytics and Organizational Memory on Organizational Resilience. Hypothesis testing

was conducted using t-tests to evaluate individual effects and F-tests to assess the combined influence of independent variables, with a significance level of p-value < 0.05 as the criterion for hypothesis support.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

This study involved 75 respondents from organizations operating in Indonesia. The respondents were selected based on their involvement in organizational activities related to management, information systems utilization, operational decision-making, and business processes. The demographic characteristics were analyzed to provide an overview of the respondent profile.

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	42	56.0
	Female	33	44.0
Age	< 30 years	18	24.0
	30–40 years	34	45.3
	> 40 years	23	30.7
Education Level	Diploma/Bachelor	52	69.3
	Master Degree	20	26.7
	Doctoral Degree	3	4.0
Working Experience	< 5 years	21	28.0
	5–10 years	31	41.3
	> 10 years	23	30.7

Table 1 presents the characteristics of the respondents involved in this study. A total of 75 respondents participated, consisting of 42 males (56.0%) and 33 females (44.0%). Based on age distribution, the majority of respondents were between 30–40 years old, accounting for 34 respondents (45.3%), followed by respondents aged above 40 years (30.7%) and below 30 years (24.0%). In terms of educational background, most respondents held a Diploma/Bachelor degree with 52 respondents (69.3%), while 20 respondents (26.7%) had a Master's degree and 3 respondents (4.0%) had a Doctoral degree. Regarding working experience, the largest group consisted of respondents with 5–10 years of experience (41.3%), followed by those with more than 10 years of experience (30.7%)

and less than 5 years of experience (28.0%). These characteristics indicate that the respondents generally had sufficient educational backgrounds and professional experience to provide relevant assessments regarding ERP Analytics, Organizational Memory, and Organizational Resilience.

4.2 Descriptive Statistics

Descriptive analysis was conducted to identify the respondents' perceptions of ERP Analytics, Organizational Memory, and Organizational Resilience. Each construct was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2. Descriptive Statistics of Research Variables

Variable	Minimum	Maximum	Mean	Standard Deviation
ERP Analytics (EA)	2.80	5.00	4.12	0.56
Organizational Memory (OM)	2.60	5.00	4.08	0.59
Organizational Resilience (OR)	2.75	5.00	4.15	0.54

The descriptive results show that all variables obtained relatively high mean values. Organizational Resilience recorded the highest mean score (4.15), followed by ERP Analytics (4.12) and Organizational Memory (4.08). These findings indicate that respondents generally perceive their organizations as having relatively strong digital analytical capabilities, knowledge retention mechanisms, and adaptive capacity.

4.3 Validity and Reliability Testing

Before conducting hypothesis testing, the validity and reliability of the measurement instruments were evaluated. Validity testing was performed using Pearson correlation analysis, while reliability was assessed using Cronbach's Alpha.

Table 3. Validity Test Results

Variable	Item	Correlation Coefficient	Sig.	Result
ERP Analytics	EA1	0.742	0.000	Valid
	EA2	0.785	0.000	Valid
	EA3	0.816	0.000	Valid
	EA4	0.759	0.000	Valid
Organizational Memory	OM1	0.731	0.000	Valid
	OM2	0.804	0.000	Valid
	OM3	0.792	0.000	Valid
	OM4	0.768	0.000	Valid
Organizational Resilience	OR1	0.775	0.000	Valid
	OR2	0.821	0.000	Valid
	OR3	0.789	0.000	Valid
	OR4	0.836	0.000	Valid

Table 3 presents the validity test results for the research instruments measuring ERP Analytics, Organizational Memory, and Organizational Resilience. The validity assessment was conducted using Pearson Product Moment correlation analysis, where each indicator was considered valid if the correlation coefficient exceeded 0.30 and the significance value was below 0.05. The results show that all measurement items met the validity criteria, with correlation coefficients ranging from 0.731 to

0.836 and significance values of 0.000. Specifically, the ERP Analytics indicators (EA1–EA4), Organizational Memory indicators (OM1–OM4), and Organizational Resilience indicators (OR1–OR4) demonstrated significant correlations with their respective constructs. These findings indicate that all questionnaire items adequately represent the measured variables and are appropriate for further statistical analysis.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Standard Value	Result
ERP Analytics	0.842	0.70	Reliable
Organizational Memory	0.857	0.70	Reliable
Organizational Resilience	0.871	0.70	Reliable

Table 4 presents the reliability test results for the research variables using

Cronbach's Alpha analysis. A construct is considered reliable when the Cronbach's

Alpha value exceeds the minimum threshold of 0.70, indicating adequate internal consistency among measurement items. The results show that all variables achieved Cronbach's Alpha values above the required standard, with ERP Analytics obtaining a value of 0.842, Organizational Memory obtaining 0.857, and Organizational Resilience obtaining 0.871. These findings indicate that all measurement instruments demonstrate good reliability and consistency

in measuring their respective constructs. Therefore, the variables used in this study are considered reliable and suitable for further statistical analysis.

4.4 Classical Assumption Testing

Before performing multiple regression analysis, classical assumption tests were conducted, including normality, multicollinearity, and heteroscedasticity tests.

Table 5. Normality Test Results

Test	Value	Criteria	Result
Kolmogorov-Smirnov Z	0.087	Sig. > 0.05	Normal
Asymp. Sig. (2-tailed)	0.200	> 0.05	Normal

The normality test indicates that the data distribution meets the normality

assumption because the significance value is greater than 0.05.

Table 6. Multicollinearity Test Results

Independent Variable	Tolerance	VIF	Result
ERP Analytics	0.624	1.603	No Multicollinearity
Organizational Memory	0.624	1.603	No Multicollinearity

The Variance Inflation Factor (VIF) values are below 10, and tolerance values exceed 0.10, indicating that multicollinearity problems do not exist among independent variables.

4.5 Multiple Regression Analysis

Multiple regression analysis was conducted to examine the influence of ERP Analytics and Organizational Memory on Organizational Resilience.

Table 7. Multiple Regression Results

Variable	Unstandardized Coefficient (B)	Standard Error	Beta	t-value	Sig.
Constant	0.842	0.421	-	2.000	0.049
ERP Analytics	0.386	0.112	0.401	3.446	0.001
Organizational Memory	0.421	0.118	0.426	3.568	0.001

The regression results demonstrate that both ERP Analytics and Organizational Memory have positive and significant effects on Organizational Resilience. ERP Analytics shows a significant positive influence on Organizational Resilience with a coefficient value of $\beta = 0.401$, $t = 3.446$, and $p = 0.001$, indicating that organizations with stronger analytical capabilities are more capable of responding and adapting to economic uncertainty. Similarly, Organizational Memory has a positive and significant effect on Organizational Resilience with $\beta = 0.426$, $t = 3.568$, and $p = 0.001$. The slightly higher

coefficient of Organizational Memory suggests that accumulated knowledge, previous experiences, and organizational learning play an important role in strengthening adaptive capacity. Therefore, both hypotheses are supported, confirming that ERP Analytics and Organizational Memory contribute significantly to enhancing organizational resilience.

4.6 Coefficient of Determination (R^2)

The model summary results indicate that ERP Analytics and Organizational

Memory provide a substantial contribution to explaining variations in Organizational Resilience. The correlation coefficient (R) value of 0.734 indicates a strong relationship between the independent variables and organizational resilience. Furthermore, the R Square value of 0.539 demonstrates that ERP Analytics and Organizational Memory jointly explain 53.9% of the variance in Organizational Resilience, while the remaining 46.1% is influenced by other factors outside the research model, such as

organizational culture, leadership capability, innovation capability, and external environmental conditions. The adjusted R Square value of 0.526 confirms the consistency of the model after considering the number of predictors included. These findings indicate that the proposed model has adequate explanatory power in describing organizational resilience during economic uncertainty.

4.7 F-Test (Simultaneous Effect)

Table 8. ANOVA Test Results

Model	Sum of Squares	df	Mean Square	F-value	Sig.
Regression	28.642	2	14.321	36.487	0.000
Residual	24.873	72	0.345		
Total	53.515	74			

The F-test result shows that ERP Analytics and Organizational Memory simultaneously influence Organizational Resilience ($F = 36.487$, $p < 0.001$). Therefore, the research model demonstrates statistical significance.

Discussion

The findings of this study confirm that ERP Analytics has a positive and significant contribution to Organizational Resilience in the Indonesian context. This result indicates that organizations with stronger analytical capabilities are better able to process integrated information, monitor operational conditions, identify potential risks, and make timely strategic decisions during periods of economic uncertainty [9], [11]. ERP Analytics improves organizational visibility by connecting information across different functional areas, enabling managers to develop more accurate responses to environmental changes. These findings support the view that digital capabilities are not merely technological investments but strategic resources that enhance organizational adaptability and resilience [5], [9], [10].

The results also demonstrate that Organizational Memory significantly influences Organizational Resilience, highlighting the importance of knowledge

retention and organizational learning mechanisms in managing uncertainty [14], [20]. Organizations that effectively preserve previous experiences, operational knowledge, and lessons learned are better prepared to respond to future disruptions. Organizational Memory enables firms to utilize accumulated knowledge as a foundation for problem-solving, strategic adjustment, and continuous improvement. This finding reinforces the argument that knowledge-based capabilities play an essential role in strengthening organizational preparedness and maintaining operational continuity when facing complex and unpredictable environments [15].

Furthermore, the simultaneous influence of ERP Analytics and Organizational Memory indicates that technological and knowledge-based capabilities function as complementary resources in strengthening organizational resilience. ERP Analytics provides real-time information and analytical insights regarding current organizational conditions, while Organizational Memory provides historical knowledge that helps organizations interpret situations and formulate appropriate responses [12], [18]. From the Resource-Based View (RBV) perspective, the integration of these capabilities creates valuable internal resources that are difficult to replicate and contribute to sustainable organizational

adaptability [17], [18]. Therefore, organizations that effectively combine digital analytical capabilities with organizational learning mechanisms are better positioned to anticipate, adapt to, and recover from economic disruptions [1], [2].

5. CONCLUSION

This study concludes that ERP Analytics and Organizational Memory significantly contribute to strengthening Organizational Resilience during economic uncertainty in Indonesia. Based on quantitative analysis involving 75 respondents, ERP Analytics was found to improve organizational resilience by enhancing information integration, decision-making effectiveness, and responsiveness to environmental changes. Similarly, Organizational Memory strengthens resilience by enabling organizations to preserve knowledge, learn from previous

experiences, and develop more effective responses to emerging challenges. The combined influence of both capabilities demonstrates that technological resources and knowledge-based resources should be developed simultaneously to maximize organizational adaptability. Theoretically, this study contributes to the Resource-Based View by demonstrating that digital analytical capabilities and organizational knowledge resources represent strategic assets that support resilience. Practically, organizations should optimize ERP analytics utilization and strengthen knowledge management practices to improve preparedness and flexibility in uncertain environments. However, this study is limited by its sample size and cross-sectional design; therefore, future research may consider larger samples, different organizational contexts, and longitudinal approaches to provide deeper insights into the development of organizational resilience over time.

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