

An Analysis of the Impact of an Enterprise Resource Planning (ERP)
System on Organizational Performance and Efficiency
An Applied Case Study of Libyana Mobile (Eastern Region Branch)
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An Analysis of the Impact of an Enterprise Resource Planning (ERP) System on Organizational Performance and Efficiency An Applied Case Study of Libyana Mobile (Eastern Region Branch)

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Abstract

The paper examines the effect of Enterprise Resource Planning (ERP) system implementation on organizational performance efficiency with respect to operational achievements and managerial decision-making in the Libyan administrative environment. The Eastern Region Branch of the Libyana Mobile Company was selected for this study due to the scale of operation and maturity of

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the technical base at the enterprise. For the research purposes an explanatory quantitative design was used and a field questionnaire applied to 56 employees and ERP users was performed. Six dimensions of ERP system were investigated: data centralization, process automation, decision support, cost reduction, customer services and human resource management. In order to corroborate employees' perceptions, several operational indicators were analyzed with respect to their changes before and after ERP implementation. Multiple regression analysis revealed that the ERP dimensions used in the model accounted for 64% of the variance in organizational performance ($R^2 = 0.64$). Data centralization was the highest predictor ($\beta = 0.47$), and process automation ($\beta = 0.41$) was the second predictor. Analysis of mediation effect found user satisfaction to be a partial mediator of the effect of ERP implementation on organizational performance. Analysis of objective operational indicators indicated a 66.3% decrease in transaction processing time and a 64.6% decrease in operational errors. Also, productivity increased by 60.7%, and operational cost per transaction decreased by 20.0%. Conclusion drawn is that ERP implementation positively affects the organizational performance when technical possibilities are effectively supported by user involvement, change management, data management and training.

Key words: Enterprise Resource Planning (ERP); Organizational Performance; User Satisfaction; Libyana; Digital Transformation; Libyan Administrative Environment.

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تحليل تأثير نظام تخطيط موارد المؤسسات (ERP) على كفاءة الأداء التنظيمي

دراسة حالة تطبيقية على شركة ليبيا للهاتف المحمول (فرع المنطقة الشرقية)

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الملخص

تتناول هذه الورقة تأثير تطبيق نظام تخطيط موارد المؤسسات (ERP) على كفاءة الأداء التنظيمي من حيث الإنجازات التشغيلية وعملية اتخاذ القرارات الإدارية في البيئة الإدارية الليبية. وقد تم اختيار فرع المنطقة الشرقية لشركة «ليبiana» للهواتف المحمولة لإجراء هذه الدراسة نظراً لحجم عملياتها ونضج قاعدتها التقنية. ولأغراض البحث، تم استخدام تصميم كمي توضيحي، كما تم توزيع استبيان ميداني على 56 موظفاً ومستخدمًا لنظام تخطيط

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موارد المؤسسات. تم التحقيق في ستة أبعاد لنظام تخطيط موارد المؤسسات (ERP) مركزية البيانات، وأتمتة العمليات، ودعم اتخاذ القرار، وخفض التكاليف، وخدمة العملاء، وإدارة الموارد البشرية. ومن أجل تأكيد تصورات الموظفين، تم تحليل عدة مؤشرات تشغيلية فيما يتعلق بالتغيرات التي طرأت عليها قبل وبعد تطبيق نظام تخطيط موارد المؤسسات (ERP). وكشف تحليل الانحدار المتعدد أن أبعاد نظام تخطيط موارد المؤسسات (ERP) المستخدمة في النموذج تمثل 64% من التباين في الأداء التنظيمي ($R^2 = 0.64$). كانت مركزية البيانات هي المتغير التنبؤي الأعلى ($\beta = 0.47$)، بينما احتلت أتمتة العمليات ($\beta = 0.41$) المرتبة الثانية. وأظهر تحليل تأثير الوساطة أن رضا المستخدمين يمثل وسيطاً جزئياً لتأثير تطبيق نظام تخطيط موارد المؤسسات (ERP) على الأداء التنظيمي. وأشار تحليل المؤشرات التشغيلية الموضوعية إلى انخفاض بنسبة 66.3% في وقت معالجة المعاملات وانخفاض بنسبة 64.6% في الأخطاء التشغيلية. كما ارتفعت الإنتاجية بنسبة 60.7%، وانخفضت التكلفة التشغيلية لكل معاملة بنسبة 20.0%. والاستنتاج المستخلص هو أن تطبيق نظام تخطيط موارد المؤسسات (ERP) يؤثر إيجابياً على الأداء التنظيمي عندما يتم دعم الإمكانيات التقنية بشكل فعال من خلال مشاركة المستخدمين، وإدارة التغيير، وإدارة البيانات، والتدريب.

الكلمات المفتاحية: تخطيط موارد المؤسسات (ERP)؛ الأداء التنظيمي؛ رضا المستخدمين؛ ليبيا؛ التحول الرقمي؛ البيئة الإدارية الليبية.

1. Introduction

Enterprise Resource Planning (ERP) solutions are now part of digital transformation in today's enterprises. They are no longer mere replacements of administrative systems. ERP systems integrate the supply chain management, human resources, and customers' domains into a single integrated information system (Qutaishat et al. 2012). It is believed that this function helps to simplify and improve processes, facilitate decision-making and information management (Maguire et al., 2010).

However, the advantages of ERP systems are not purely technological. In those countries where ERP systems are applied,

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their effectiveness depends on issues such as disconnected systems, unshared information, lack of software, lack of skills and reluctance to change (Wynn et al. 2021). Thus, the effectiveness of ERP systems depends on both technological and organizational factors.

2. Research. Questions

The research problem arises from the discrepancy between large investments made in ERP solutions implementation in the telecommunication sector and low level of research on effectiveness of the latter. Although the studies about benefits of digital transformations are quite numerous, they are mostly general descriptions of the process. In particular, there are few attempts to evaluate relationships between components of ERP systems, user satisfaction, and performance. Therefore, the current research is designed to fill in this gap through examination of one telecommunications enterprise.

Main Research Question

"To what extent does the application of an ERP system influence performance of Libyana Mobile (Eastern Region Branch)?"

This paper is going to address the following research questions:

To what extent do the components of an ERP system (such as single data storage, task automation, etc.) contribute to decision making, cost savings, customer service and human resource management and hence increase the company's performance?

How important is user satisfaction factor in the relationship between components of the ERP system and the company's performance?

Are there any discrepancies between certain numerical characteristics (shorter task execution time, cost savings, reduced errors, increased productivity, etc.) before and after ERP system implementation?

3. Theoretical Framework and Conceptual Model

The cutting-edge observe is based on two theoretical frameworks that are very popular nowadays. Two fashions are used inside the

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studies look at that are the DeLone and McLean IS Success Model and the Technology Acceptance Model (TAM). The DeLone and McLean IS Success Model hyperlinks machine and information best to gadget use and user pleasure which in addition ends in organizational effect. Perceived usefulness and perceived ease of use are the two elements that make up the Technology Acceptance Model (TAM). This model indicates that those two elements affect the reputation of era with the aid of people and consequently their degree of pride (DeLone & McLean, 1992, 2003; Urbach & Müller, 2011). In the DeLone and McLean IS Success Model, facts gadget best is connected to information great with the aid of device utilization and person satisfaction which generates organizational consequences (DeLone & McLean, 1992, 2003; Urbach & Müller, 2011). There are perspectives in TAM where the person attitude of ERP implementation profits importance by way of the 2 crucial factors which might be perceived usefulness and perceived ease of use. It enables in assessing the ERP from one-of-a-kind perspectives which evaluate the generation issue and impact on human users. The studies examine will recognition on studying how the functioning of ERP influences organizational effects via tracking the extent of consumer contentment which suggests the affect of ERP on enterprise outcomes. Fig. 1. The studies have a look at makes use of the conceptual framework which demonstrates how ERP gadget additives affect consumer contentment and sooner or later organizational consequences by using affecting the organizational overall performance. The cutting-edge studies study will take a look at six special components of company useful resource planning (ERP) structures to discover how organizational performance can be advanced via the functioning of ERP systems. User pride might be the mediating component in this example. The conceptual framework used inside the studies is based at the concept of technology popularity in agency. The researchers made use of structural-equation modeling for testing their speculation which led to developing the conceptual framework displaying how ERP device additives have an effect on user contentment and business consequences.

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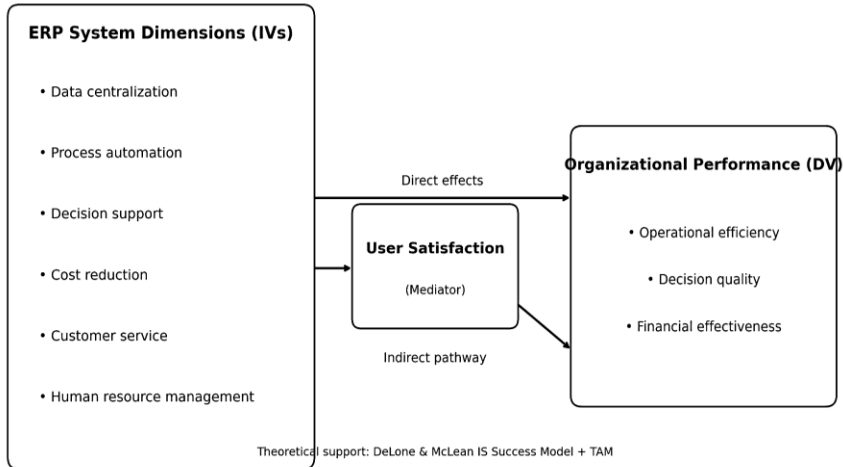


Fig. 1. Conceptual model of the relationship between ERP system dimensions, user satisfaction, and organizational performance.

Independent Variables (ERP Components): information centralization, manner automation, selection help, value reduction, progressed customer support, and human aid control
Mediating Variable: person pleasure

Dependent Variable (Organizational performance): operational efficiency, choice exceptional, and economic effectiveness

This textual content looks like writ Research Hypotheses

H1: There is a statistically large strong correlation among the ERP tool dimensions and organizational operational efficiency.

H2: The desire-useful assist size of the ERP tool is statistically strongly correlated with managerial decision making.

H3: ERP implementation correlates with the decrease in the organisation's operating cost per transaction.

H4: User satisfaction partially mediates the relationship between ERP system implementation and organizational average performance.

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4. Previous Literature Review

The previous literature review is mostly based on Arab and local literature. In particular, four themes can be identified as especially relevant for the current research.

1. Operational efficiency and automation: Previous research had shown the link between the ERP adoption and transition from the paper-based and fragmented approach to the more protected digital one. Al-Zawi (2020) and Yahya (2021) drew attention to the decrease in wasted time and redundant activities, particularly in the port sector. Issa (2020) mentioned the link between the process re-engineering and automation and decreased bureaucratic burden and improved reporting for internal and external customers.

2. Information quality and support: A second line of studies had considered the importance of reliable and accessible data for managerial decision making. Ben Naser (2023) talked about the improvements in data access and governance, whereas Al-Taher (2021) proved that the data standardization and improved data accessibility will prevent strategic mistakes in the Libyan oil industry.

3. Integration and human resources: Some researches had examined ERP as a tool for integration of administrative functions and influence on employees' performance. From the point of view of employees, Al-Bahi (2023) mentioned the link between ERP usage, interest satisfaction and increased readiness to perform better average performance as compared to the traditional approach.

4. Challenges of digital transformation: The literature also pays attention to the organizational constraints which can affect the success of the digital transformation. For example, Ahmed (2021) identified the challenges in Libyan government organizations and underlined the importance of managing organizational resistance and maintaining the transparency of data monitoring.

Research Gap and Contribution of the Current Study

The literature presented shows the existence of ERP-related benefits in the particular Libyan sectors, but the evidence is inconsistent in

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terms of the sectoral example, depth of analysis and period. The current study fills the gaps within one implemented case study through the link between ERP dimensions and organizational average performance, evaluation of the user satisfaction as the possible explanation of the correlation and integration of the survey evidence and operational signs.

Recent international literature highlights the issues of ERP implementation success, organizational average performance, automation, information quality, post-implementation challenges, and public sector transformation (Ashar et al., 2025; Egdair et al., 2024; Goel, 2025; Hamdy et al., 2025; Law & Ngai, 2007; Mahmood et al., 2024; Pontoh et al., 2024; Putra et al., 2021; Seo, 2010; Suryanto & Tyas, 2024; Talo & Emanuel, 2025).

Sectoral gap: Most of the reviewed internet literature considers sectors including oil, ports, banking, and government services. The current study adds to the discussion of the ERP role in telecommunications through the study of Libyana Mobile's Eastern Region Branch where the cost of operations and the need for integrated information make ERP very appropriate.

Analytical gap: Most of the literature reviewed reveals descriptive findings. The current study contains inferential analysis using multiple regression and mediation analysis allowing testing the relative contribution of ERP dimensions and the role of user satisfaction.

Measurement gap: The study does not rely only on employees' perceptions. The questionnaire responses are combined with the operational signs before and after implementation. Ten with the source of a Human.

5. Methodology

1. Research Design and Population

An explanatory quantitative design was used in order to investigate the suggested relationships and test the research hypotheses. The

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population was composed of employees, engineers, and technical users of the ERP system in the Eastern Region Branch of Libyana Mobile. Due to the restrictions related to the direct access to the ERP users, the purposive sampling was used, which resulted in 56 valid cases for the statistical analysis. Having regard to the one-branch nature and survey-based component of the research, the obtained findings can be interpreted as evidence of the observed relationships in the given case, but not as causal effects.

Context of Methodology with Respect to the Sample Size

In particular, the sample of 56 employees is small enough. Nevertheless, having regard to the restricted context of one organizational unit and limited accessibility of direct ERP users, the sample is sufficient for a preliminary examination of the relationships in question. The study therefore considers the sample size as a significant limitation and suggests larger sample sizes for future research.

2. Research Instruments and Strategy of Statistical Analysis

The data were collected through the use of a validated questionnaire based on scientific scales which were used earlier. The questionnaire comprised 13 main questions that were measured on a five-point Likert scale. Reliability of the instrument was assessed with the help of Cronbach's alpha, and the reported scales exceeded the acceptable level of 0.70.

The statistical analysis was performed using the package SPSS version 26. It included the procedures of descriptive statistics, multiple regression analysis, mediation analysis, and comparative analysis of selected operational performance indicators before and after ERP implementation.

- Descriptive statistics were used to calculate means, standard deviations, and agreement percentages.
- Multiple regression analysis was used in order to estimate the relative relationships between the ERP dimensions and organizational performance.
- Mediation analysis was conducted according to the sequence suggested by Baron and Kenny (1986) to determine whether the

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user satisfaction helps to explain the relationship between ERP implementation and organizational performance.

- Comparative analysis was used for the selected operational performance indicators before and after ERP implementation; the reported analysis focuses on the aggregate values and percentage changes.

6. Results and Statistical Analysis

The results are composed of two types of evidence. Firstly, the questionnaire contains employees' opinions about ERP-related practices and results table (1). Secondly, operational data provide the selected quantitative indicators before and after ERP implementation. The percentages from the questionnaire are reported as the results of descriptive statistics in order to characterize the response patterns of the participating employees. Having regard to the applied nature of the research and relatively limited sample size, the interpretation of the results is focused on the main descriptive trends and statistical relationships within the study context.

TABLE 1. Detailed Questionnaire Results

Item / Statement	Total Agreement (%)	Brief Interpretation
The necessity of using ERP applications for companies of all sizes	96.49%	Very strong agreement.
The role of ERP systems in expanding into new markets, increasing productivity, negotiating supplier contracts, or identifying new sources of income	97.12%	Very strong agreement.
Completing manual and repetitive tasks across the supply chain, such as order processing, invoicing, and inventory updates	91.22%	Very strong agreement.

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Item / Statement	Total Agreement (%)	Brief Interpretation
Improving customer service and easily accessing all customer information when needed	96.49%	Very strong agreement.
Managing workforce and human resources and increasing efficiency within the organization	85.96%	Strong agreement.
Collecting, storing, and analyzing data in one central location, providing a single source of information	70.18%	Moderate-to-high agreement.
ERP systems allow organizations to scale operations and adapt to changing market conditions with ease	77.24%	Moderate-to-high agreement.
Reducing organizational costs and the additional employees, software licenses, and administrative resources required for traditional data consolidation	79.44%	Moderate-to-high agreement.
The potential for ERP systems to bring about progress and development within companies in Libya	77.19%	Moderate-to-high agreement.
Increasing efficiency and reducing the organizational workload compared with traditional systems	82.84%	Strong agreement.
Making decisions by collecting company data and making it available to managers as usable information	84.21%	Strong agreement.
Standardizing important business procedures within the organization	84.21%	Strong agreement.

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Item / Statement	Total Agreement (%)	Brief Interpretation
Reducing redundant and unnecessary tasks within the organization	68.42%	Lower agreement relative to the other items.

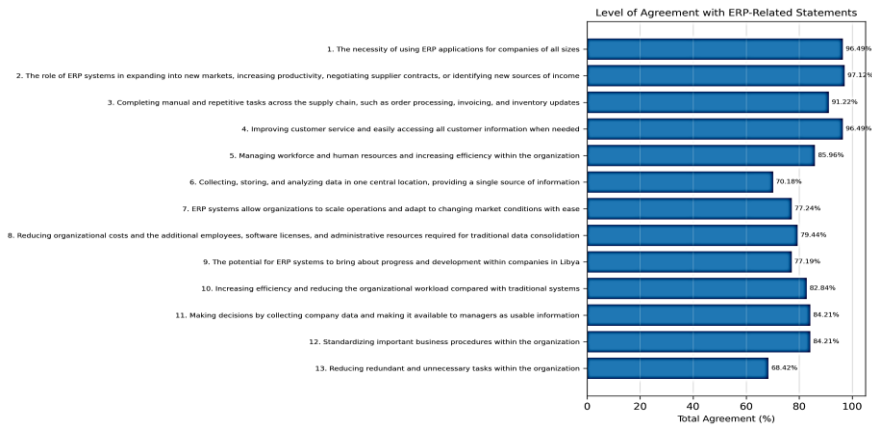


Fig. 2. Level of agreement among participants on the ERP-related questionnaire statements.

6.1 Multiple Regression Analysis

Before thinking about the man or woman coefficients, the overall regression model modified into tested. The manuscript critiques $R^2 = 0.64$, indicating considerable explanatory energy within the look at setting. The character standardized coefficients are also mentioned for six ERP dimensions. The interpretation of the coefficients focuses on their direction, relative value, and pronounced statistical importance, while spotting the contextual scope of the examine and its especially restricted pattern length. F-test fee: $F = 18.73$ ($p < 0.05$).

Coefficient of Determination: $R^2 = 0.64$.

Overall Significance: $p < 0.05$.

The regression consequences suggest that the ERP dimensions blanketed inside the evaluation are meaningfully associated with organizational overall performance at Libyana's Eastern Region

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Branch. The power of the individual coefficients isn't always uniform, which makes it possible to distinguish the dimensions that contributed maximum strongly from folks that did now not achieve statistical importance.

TABLE 2. Results of the Multiple Regression Analysis of the Dimensions Affecting Organizational Performance

Variable	Reported Beta (β)	Reported Std. Error	Reported t-value	Reported p-value	Result
Data centralization	0.47	0.08	5.62	0.000	Statistically significant
Process automation	0.41	0.09	4.55	0.002	Statistically significant
Decision support	0.36	0.10	3.89	0.005	Statistically significant
Cost reduction	0.33	0.11	3.21	0.009	Statistically significant
Customer service	0.29	0.12	2.67	0.018	Statistically significant
Human resource management	0.12	0.13	1.25	0.210	Not statistically significant

Data centralization produced the most powerful referred to coefficient ($\beta = 0.47$), observed with the aid of technique automation ($\beta = 0.41$). Decision help ($\beta = 0.36$), value cut price ($\beta = 0.33$), and customer support ($\beta = 0.29$) had been moreover suggested as statistically considerable. Human aid control had a nice but non-tremendous coefficient ($\beta = 0.12$, $p = 0.210$).

6.2 Mediation Analysis of User Satisfaction

Mediation became examined in sequential stages following Baron and Kenny's (1986) method. The purpose emerge as to decide whether or no longer purchaser delight enables provide an explanation for the connection amongst ERP implementation and organizational performance. Because the survey issue is go-sectional, the mediation findings are interpreted as evidence of a

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statistical oblique pathway as opposed to evidence of a causal mechanism.

TABLE 3. Steps in the Mediation Analysis for the User Satisfaction Variable

Stage	Direct Path	Beta (β)	p-value / Sig	Result and Interpretation
Stage 1	ERP → Performance	0.64	0.000	Statistically significant (main effect present)
Stage 2	ERP → User Satisfaction	0.58	0.001	Statistically significant (ERP predicts satisfaction)
Stage 3a	ERP → Performance (with Satisfaction)	0.41	0.012	Coefficient decreased but remained significant
Stage 3b	User Satisfaction → Performance	0.37	0.018	Statistically significant direct impact

The direct ERP–ordinary performance coefficient decreased from $\beta = 0.64$ to $\beta = 0.41$ after purchaser satisfaction emerge as added, whilst the relevant paths remained statistically big consistent with the referred to outcomes. This sample is ordinary with partial mediation below the analytical method used. The mediation outcomes are interpreted as stated statistical relationships in the look at pattern and aren't prolonged past the take a look at context.

6.3 Objective Performance Indicators Before and After Implementation

To complement the questionnaire findings, the manuscript reviews operational information masking a three-month length in advance than and a 3-month duration after ERP implementation. The decided on indicators have been transaction processing time, operational mistakes, value in line with transaction, and each day productivity. The mixture earlier than-and-after values are furnished as

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descriptive operational signs for comparing modifications related to ERP implementation.

TABLE 4. Comparison of Actual and Objective Performance Indicators Before and After ERP Implementation

Indicator	Reported Before	Reported After	Reported Change
Transaction processing time	178 minutes	60 minutes	↓ 66.3%
Error rate	48 errors/month	17 errors/month	↓ 64.6%
Operational cost	250 LYD/transaction	200 LYD/transaction	↓ 20.0%
Productivity	28 transactions/day	45 transactions/day	↑ 60.7%

The pronounced objective signs display a clear descriptive improvement after implementation: transaction processing time declined from 178 to 60 mins, errors declined from 48 to 17 in step with month, charge in line with transaction declined from 250 to 200 LYD, and productiveness improved from 28 to 45 transactions in step with day. These adjustments are regular with the path of the questionnaire results. The before-and-after indicators therefore provide complementary descriptive proof of enhancements in operational overall performance following ERP implementation.

TABLE 5. Summary of Hypothesis Testing

Hypothesis	Operational test	Conclusion based on reported evidence
H1	ERP dimensions → organizational operational efficiency	Supported by the reported regression results and the direction of the operational indicators.
H2	Decision support → managerial decision-making quality	Supported by the reported statistically significant decision-support coefficient.
H3	ERP implementation → operating cost per transaction	Supported by the reported cost-reduction coefficient and the reported 20.0% decrease in cost per transaction.

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Hypothesis	Operational test	Conclusion based on reported evidence
H4	User satisfaction as a mediator of the ERP–performance relationship	Partially supported by the reported mediation analysis.

7. Discussion and Interpretation of the Results

1. Data centralization and organizational integration

Data centralization modified into the strongest predictor inside the regression model ($\beta = 0.47$). Within the examine placing, this locating suggests that get right of entry to to a commonplace and more consistent statistics base is an essential a part of ERP-associated performance. Where departments previously relied on separate or fragmented statistics resources, centralized ERP surroundings can facilitate facts sharing and decrease duplication. This interpretation is like minded with the DeLone and McLean mind-set, which emphasizes information amazing and integration as members to records-device fulfillment, and it's also constant with Al-Taher's (2021) findings concerning centralized records and selection assist within the Libyan oil sector.

2. Process automation and reduction of routine work

Process automation have become the second one maximum powerful ERP length within the regression version ($\beta = 0.41$). The stop end result suggests that the machine's contribution extends past storing statistics. By reducing repetitive manual activities, together with routine invoicing and associated techniques, ERP can assist a extra green allocation of personnel' time. This interpretation is extensively constant with Issa's (2020) findings regarding automation and way redecorate in Libyan industrial banks. The suggested discount in transaction-processing time offers more descriptive evidence within the equal route.

3. Human resource management as a non-significant dimension

The human useful resource management dimension did not gain statistical significance ($\beta = 0.12$, $p = 0.210$). This cease result should now not be interpreted as proof that ERP is irrelevant to human

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sources. Rather, it indicates that changes in areas including promoting tactics, overall performance evaluation, and interest systems can also moreover depend on elements past the software program application itself. Existing policies, institutional approaches, and organizational way of life can shape those strategies. Consequently, measurable HR-related upgrades may require broader technique redecorate and organizational change alongside ERP implementation.

4. User satisfaction and the human side of ERP effectiveness

The mediation evaluation suggests that consumer delight has a partial role inside the ERP–overall performance dating. The pleasure-to-usual performance direction have become statistically outstanding ($\beta = 0.37$, $p = 0.018$), and the direct ERP impact declined after pride end up delivered. This end result gives sensible significance to the human size emphasised by using the use of TAM. An ERP tool can offer technical abilities, however the organizational charge of those talents is also associated with whether or now not personnel understand, get hold of, and use the device efficiently. The reported character satisfaction degree of 80.3 % therefore offers proof of typically effective user revel in within the look at placing, while assisting the want for persevered training and exchange-control interest.

8. Study Limitations and Remaining Research Gaps

Several obstacles want to be considered while deciphering the findings. They do now not negate the positioned results, however they outline the strength and scope of the conclusions that can moderately be drawn from this case look at.

Methodological gap: The worker survey is move-sectional, while the operational evidence covers decided on 3-month periods in advance than and after implementation. This layout gives beneficial case-level evidence but does not installation how the relationships evolve over longer durations. Future longitudinal research should study whether or not the found enhancements are sustained.

Statistical and sample-length gap: The evaluation is based on fifty-six respondents from one organizational unit. This pattern becomes

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decided through get admission to constraints and limits the statistical complexity and generalizability of the findings. Larger samples may permit extra strong multivariate strategies, which includes Structural Equation Modeling (SEM), and could allow more complex mediating or moderating relationships to be tested.

Measurement hole: The contemporary intention signs popularity on processing time, mistakes, productivity, and transaction price. A broader evaluation of ERP fee needs to moreover remember monetary measures which incorporates pass returned on investment and ability reduct Population and generalizability gap: The evidence comes from the Eastern Region Branch of Libyana Mobile. The findings should therefore be understood within this organizational and regional context. Studies involving other Libyana branches and organizations from different sectors would help determine which ERP effects are context-specific and which are more general.

Organizational-readiness gap: The study did not directly measure organizational readiness or resistance to change before implementation. Future research should examine these factors as explanatory or moderating variables because they may help account for differences in ERP outcomes across organizations.

9. Conclusion and Recommendations

In conclusion, the results of the research suggest that ERP implementation in Libyana Mobile's Eastern Region Branch contributed significantly to increased organizational performance. The regression model has shown that ERP accounts for 64% of the variance in organizational performance, while the operational measures reveal 66.3% decrease in transaction-processing time, 64.6% decrease in errors, 20.0% decrease in cost per transaction, and 60.7% increase in productivity. Finally, the mediation analysis suggests that user satisfaction constitutes part of the statistical path connecting ERP implementation with organizational performance. All in all, the results prove that ERP effectiveness depends on interaction between system properties and the organizational conditions of its implementation.

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Recommendations for Decision-Makers and Senior Management

- Think of ERP as a whole organization transformation project: senior management should not consider ERP implementation as a pure IT project. The system should be related to improvement of business processes, defined managerial responsibility, enough resources, and continuous organizational supervision.
- Introduce change management and employee training: Since user satisfaction contributes to ERP effectiveness, organizations should provide employee training and support. This training has to be related both to usage of the system and to motivation for changes in work routines.
- Adapt ERP applications to local regulation requirements: if there is implementation of international ERP platform, implementation team has to make sure that all modules comply with Libyan regulation, financial and taxation requirements. The adaptation of the system can help ensure compliance and practical implementation.
- Implement regular assessment of organizational performance: organizations should make periodic comparison of operational indicators rather than evaluate ERP implementation only at the moment of its completion. Regular assessment can help detect any technical problems, process bottlenecks and further areas for improvement.

Recommendations for Future Researchers and Academics

- Analyze resistance to change qualitatively: future researches should use interviews or other qualitative method in order to understand how employees and middle managers perceive ERP implementation as organizational change and what factors influence it.

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- Study readiness to implement emerging technologies along with ERP: future research should estimate the readiness of Libyan organizations to introduce ERP together with such technologies as artificial intelligence and predictive analytics, especially in the area of strategic planning and decision quality.
- Increase samples and compare sectors: future research should implement the integrated TAM and DeLone & McLean model in larger samples of organizations from different sectors including public services and banking. Such comparisons could clarify how organizational and sectoral conditions shape ERP adoption and outcomes.

10. References

- يحيى، خليفة. (2021). العلاقة بين تبني الأنظمة الرقمية المتكاملة والقدرة التنافسية للمؤسسات الخدمية. مجلة العلوم الاقتصادية والسياسية، جامعة طرابلس، (2) 19، 88-104.
- وزارة الاتصالات والمعلوماتية ليبيا. (2023). التقرير السنوي للأداء المؤسسي واستراتيجيات التحول الرقمي: قطاع الاتصالات. طرابلس، ليبيا.
- عيسى، فاطمة. (2020). دور إعادة هندسة العمليات باستخدام التقنيات الحديثة في تقليص العبء البيروقراطي: دراسة حالة على المصارف التجارية الليبية. مجلة البحوث المالية والمصرفية، (3) 8، 112-135.
- الطاهر، أسماء. (2021). نظام ERP كأداة استراتيجية لدعم القرار القائم على البيانات: تحليل ميداني في قطاع النفط الليبي. مجلة دراسات تقنية إدارية، (2) 6، 140-156.
- الشريف، عبد الرحمن. (2025). سوسيولوجيا الإدارة والتغير التكنولوجي في المجتمع الليبي. مركز دراسات الوحدة العربية، بيروت.
- الزاوي، هشام. (2020). مفهوم أنظمة ERP وفوائدها الديناميكية في تحسين الكفاءة المؤسسية لقطاع الموانئ. المجلة الليبية لتقنية المعلومات، (1) 5، 75-90.

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System on Organizational Performance and Efficiency
An Applied Case Study of Libyana Mobile (Eastern Region Branch)
<http://www.doi.org/10.62341/istj-vol39-1-E159>

- بننصر، عبد السلام. (2023). أخلاقيات الإدارة والتحول الرقمي في البيئة الليبية: الفرص والتحديات. منشورات جامعة بنغازي، بنغازي، ليبيا.
- الباهي، أحمد. (2023). قياس أثر أنظمة تخطيط موارد المؤسسات (ERP) على تحسين إنتاجية الموظف والرضا الوظيفي: دراسة حالة في القطاع العام الليبي. المجلة الليبية للتنمية الإدارية، 11(1)، 33-52.
- أحمد، ليلي. (2021). تحديات التحول الرقمي في المؤسسات الحكومية من خلال أنظمة ERP: دراسة حالة استكشافية على وزارة التعليم الليبية. مجلة الإدارة والاقتصاد، 14(2)، 45-68.
- Ashar, M., Haliah, H., & Nirwana, N. (2025). ERP in public sector reform: A systematic literature review of technological, organizational, and institutional factors. *Journal Research of Social Science, Economics, and Management*, 4(10). <https://doi.org/10.59141/jrssem.v4i10.810>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, 3(1), 60–95. <https://doi.org/10.1287/isre.3.1.60>
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
- Egdair, I., Hachicha, M., Samed, A. A., & Rajemi, M. F. (2024). Enterprise resource planning adoption and organizational performance: An investigated study in Libyan public organizations using structural equation modeling. *Open Journal of Business and Management*, 12, 2927–2948. <https://doi.org/10.4236/ojbm.2024.125150>



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System on Organizational Performance and Efficiency
An Applied Case Study of Libyana Mobile (Eastern Region Branch)
<http://www.doi.org/10.62341/istj-vol39-1-EI59>

- Goel, V. (2025). Adoption and effectiveness of enterprise resource planning (ERP) systems: A comparative analysis of key performance indicators (KPIs) and the perceived value from automation. *International Journal on Science and Technology*, 16(2). <https://doi.org/10.71097/ijst.v16.i2.6009>
- Hamdy, A., Diab, A., & Eissa, A. M. (2025). Digital transformation and the quality of accounting information systems in the public sector: Evidence from developing countries. *International Journal of Financial Studies*, 13(1), 30. <https://doi.org/10.3390/ijfs13010030>
- Law, C. C. H., & Ngai, E. W. T. (2007). ERP systems adoption: An exploratory study of the organizational factors and impacts of ERP success. *Information & Management*, 44(4), 418–432. <https://doi.org/10.1016/j.im.2007.03.004>
- Maguire, S., Ojiako, U., & Al Said, A. (2010). ERP implementation in Omantel: A case study. *Industrial Management & Data Systems*, 110(8), 1004–1021. <https://doi.org/10.1108/02635571011008416>
- Mahmood, F., Khan, A. Z., Shah, S. A., & Adil, M. (2024). Post ERP implementation issues and challenges: Exploratory case studies in the context of Saudi Arabia. *Kybernetes*, 53(12), 5749–5774. <https://doi.org/10.1108/k-06-2022-0914>
- Pontoh, G., Indrijawati, A., Handayanto, A. B., Tahang, R. A., & Supardi, T. S. (2024). Transforming public sector operations with enterprise resource planning: Opportunities, challenges, and best practices. *Corporate Law and Governance Review*, 6(2). <https://doi.org/10.22495/clgrv6i2p1>
- Putra, D. G., Rahayu, R., & Putri, A. (2021). The influence of enterprise resource planning (ERP) implementation system on company performance mediated by organizational capabilities. *Journal of Accounting and Investment*, 22(2), 221–241. <https://doi.org/10.18196/jai.v22i2.10196>
- Qutaishat, F. T., Khattab, S. A., Abu Zaid, M. K., & Al-Manasra, E. (2012). The effect of ERP successful implementation on employees' productivity, service quality and innovation: An empirical study in telecommunication sector in Jordan.

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System on Organizational Performance and Efficiency
An Applied Case Study of Libyana Mobile (Eastern Region Branch)
<http://www.doi.org/10.62341/istj-vol39-1-EI59>

- International Journal of Business and Management, 7(19), 45–54. <https://doi.org/10.5539/ijbm.v7n19p45>
- Seo, D. G. (2010). Testing mediator and moderator effects in counseling psychology research: Conceptual distinction and statistical considerations. *Korean Journal of Counseling and Psychotherapy*, 22(4), 1157–1193.
- Suryanto, S., & Tyas, A. A. W. P. (2024). Enterprise resource planning implementation towards improving company performance. *Jurnal Ilmiah Manajemen Kesatuan*, 12(3), 797–804. <https://doi.org/10.37641/jimkes.v12i3.2608>
- Talo, M. C., & Emanuel, A. W. R. (2025). Systematic review of enterprise planning (ERP) system implementation in organizations: Challenges and successes to company performance. *Bitnet: Jurnal Pendidikan Teknologi Informasi*, 10(2), 1–11.
- Urbach, N., & Müller, B. (2011). The updated DeLone and McLean model of information systems success. *Information Systems Theory*, 1–18. https://doi.org/10.1007/978-1-4419-6108-2_1
- Wynn, M. G., Bakeer, A., & Forti, Y. (2021). E-government and digital transformation in Libyan local authorities. *International Journal of Teaching and Case Studies*, 12(2), 119–139. <https://doi.org/10.1504/IJTCS.2021.116139>.