Investigating Enterprise Resource Planning (ERP) Effect on Work Environment

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Abstract. This study aims to identify the effect of ERP system on the work environment of end users, in regarding of problem-solving support, job discretion, management visibility and cross-functionality, authority and decision rights and overall impact on the organization. This research used the survey methodology to collect data from the end-users who work for enterprises with an ERP system in Ho Chi Minh City, Vietnam. SPSS and Amos were used to test hypotheses through the Structural Equation Modeling (SEM). The study reports the impact of ERP system product performance in term of problem-solving support, job discretion, management visibility and cross-functionality, authority and decision rights and overall impact on the organization in the period of post-ERP implementation in the viewpoint of end-user in Vietnam. Based on this result, some managerial implications have been suggested.

Keywords: ERP · Work performance · Problem-solving · Job discretion · Product performance · Cross-functionality · Vietnam

1 Introduction

Overall observation the demand of an organization to implement an Enterprise Resources Planning (ERP) has been extensively recognized to reduce the errors caused by users manually input, promptitude the flow of streamline of information, and expectantly improve the comprehended decision making during of the whole process in organizations. As current, the ERP system is not required anymore in the introduction phase. For business, heretofore the beginning of startup stage, the consideration looking for a good operating system is the once necessity investment. This system has been an element of the information system which will be maintained and running during the whole business life of an organization.

Even this is an expensive and extremely a complicated system as the cost of ERP is not only for licensing fee or an implementation fee but also for training, development of customization, process redesign, maintenance, upgrade and support [13] and ERP

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will be the core system, this means no permissive for failure thus high expectation for the guarantee reliability and security required. Moreover, the business process that should be coded or configured which are incredibly complex base on per business operation or per location for customization follow their practice or local regulation [9]. But being the reason behind these investments is the firm looking for the enables to reduce the transaction costs of the business and improve organizational efficiency, effectiveness which basically help for its productivity and profitability [2]. Once it is the way to help users who are increased process efficiency, can connect easily with cross function and possibly assess data without any affair of its accuracy. And the ERP is defined as the developing common system which applying in business operation process and data integrated from all users from all functions areas. Follow the finding from Fryer [10] that the list of ERP implementation's tangible benefits is the optimization of inventory, reduction of personnel, enhancement of productivity. It's also given other intangible benefit to the organization are the perceptibility of information, process improvement, the quickest to react of customer and reduction of cost.

In the early 2000s, ERP solutions were the first to enter into Vietnam market, which can be considered is a proof for confirmation that ERP solution is the prospecting way in helping their business more efficiency and effectiveness. However, reported from the Vietnam Chamber of Commerce and Industry in the middle of 2006 that the successful implementation of the ERP of the Vietnam enterprise is only 1.1%. In 2013, the local vendor reported that the sales of business software such as ERP were rumbustious increases in demand in various industries and likely to be expansion area and account for a large portion of software budgets in data analysis and database software. But only 17% is the rate of the enterprise using the ERP packages [24]. This is the lowest rate when doing the comparative to many developing countries since most enterprises is still not aware of the importance of the ERP solution. Besides, the barrier from the limitation of their technical and financial resource, and the low of the number expert who has to fulfill experience and practices in the ERP implementation solution field in Vietnam.

Notwithstanding with the fact was shared above for situation in Vietnam context, the of huge of investment required for implementation and maintenance an ERP system, but the success rate is quite low which means the benefit is not highly guaranteed for an organization even the ERP system performance as an effective tool that enhances the performance and extended complete advantage. Additional the limitation of number research which studies the application ERP in Vietnam while an early testing focus on identifying which determinants of ERP system impact on the firms' performance in case of Small and Medium Enterprises [19, 20]. And current no investigation has been found to have examined on the impact of ERP usage on the end users level of Vietnam's companies to acquire an exceeding insight of this area.

For current the understanding of how the individual and organization are affected in post-implementation and how the benefit is significant and critical which have received very little consideration [1, 12].

With the novelty of this system applied to Vietnam, in which different employee culture, education level, the management need more information to understand the user perspective of usage the ERP post-implementation in Vietnam to develop and perfect ERP and improve processes for an organization which lead improve performance for an

individual as well as an organization. And how the organization utilizes of these applications for contributing to their user performance efficiency and effectiveness. For that reason, this study aims to provide an investigation on how the impact of ERP system usage on end-user levels in Vietnam specifically at Ho Chi Minh City.

This research has the focal point on the impact of ERP usage to end-user level and starting for these purposes: (1) Measuring the impact of ERP implementation on user performance; (2) Suggesting the managerial implications to leverage and promote the positive impact of ERP on user performance for finding the way to leverage its benefit in improving the performance for end users and for the organization.

The structure of this paper is organized as follows: (2) concepts & literature review, (3) hypotheses and research model, (4) research process, (5) analysis results, (6) discussion and implications, and finally (7) conclusion.

2 Concepts and Literature Review

2.1 ERP System Performance

There are many ways of presenting and there are many different interpretations of Enterprise Resource Planning (ERP) concepts. In this context, ERP is a software solution which can install on the computer or using via a cloud platform. It can be used in different functions and department (Finance, Production, Supply Chain, Human Resource…). ERP data were stored centralize in the data pool, that support all information in the enterprise is managed by the ERP. From theory, ERP system has been one of the most significant systems in recent times and play a large supporting role in the most of major industries including airline, telecommunication, transportation, education, etc. [11].

There are several available methods for measuring ERP system performance. Some of the methods are played in the financial return on investment calculation. Wei, Liou and Lee [26] identified that has three performance measurements, including the performance indicator (PI) structure construction, fuzzy group ERP performance measurement and result from analysis and system improvement.

Since the ERP system is an enterprise level system so that the performance will be a complexity of measurement. Another approach based on the flow network model is used by Chen and Lin [4]. It mentions an ERP system performance depending upon the result of the ERP examination of the user involved.

However, difference researcher refers to different dimensions to assess the IS system which leads the comparison becomes more challenging. To overwhelm this barrier, DeLone [5] updated the successful model to the combination of three dimensions “information quality”, “system quality”, and “service quality” for identifying the IS system. Measurement the system quality via some characteristics such as usability, adaptability, reliability, the response time (e.g. downtime), easy for use, easy for learning are examples of qualities that valued by users. For information, quality characteristics are captured via completeness, easy for understanding, personalization, relevance, security or conciseness. Some characteristics of service quality are quality of roles in supporting users in term of the empathy, accuracy, technical competency and

responsiveness of staffs [5, 6, 21]. These researches also provided extensive other elements to measure user satisfaction via time-saving, accuracy, precision, and format. In this study, the most focusing will under the "ERP system performance".

2.2 Work and Work-Life in an Organization

Correlation end-user satisfaction and their constructive perception about a new ERP are commonly used to measure of system success [6]. And Calisir [3] found that user's perception of usefulness is a significant determinant of end-user satisfaction, which assists in the maximum utilization of the ERP system while following the critical success factor of the studies from Zhang, Lee and Banerjee [27], user involvement was determined the ERP system implementation. For this study, "work and work-life in an organization" refers to the post-implementation impact of an ERP system for end users in term of problem-solving support, job discretion, and management visibility and cross-functionality, authority and decision rights, and overall impact on the organization which was summarized by Wickramasinghe [25].

2.3 ERP Adoption

ERP implementation issues are not only just technical but also compound wider behaviors factors. The management needs to realize the system adoption from the user's point of view to ready arrange for their employee to overcome the new challenge to learn how to make better utilization of the technology to bring in intangible benefits. Moreover, the implementation of an ERP system provides for extending to the point of change in the organization and its processes. Hence, the management of the organization must understand that the support from an organization is significant for the successful adoption of an ERP system. The installment may require short term and more focus on designation, but the post implements of the system required more change in execution, structure, working process and coordination across functions.

3 Hypotheses and Research Model

3.1 Research Hypothesis

Impact of ERP on Problem-Solving

DeLone and McLean [6] used the level of the individual impact term to clarify the effect of information on the receiver. At the level of an end user, the system provided richness information that was unknown in previous, but it is relevant to solving problems and making decisions [7]. Overall, the last studied literature review above suggests that ERP product performance positively impacts on problem-solving support. Therefore, hypothesis 1 could be stated as follows:

H1. ERP system performance positively impact on problem-solving.

Impact of ERP on Job Discretion, Management Visibility, and Cross-Functionality

With ERP systems, the firms can form a specific resource that guides both internal and external collaboration. According to Ruivo and Neto [23], ERP system helps users to collaborate, up, down and cross their department, company, and industry. On the other hand, the process of the software will be integrated for cross functions. This design of ERP support gives more job discretion. Besides, the integrated information from front end to back end givens for the expansion opportunity for the user can access the information easily with greater support for flexibility in doing their jobs and in exchanges their work priorities. Therefore, hypothesis 2 could be stated as follows:

H2. ERP system performance positively impact on job discretions, management visibility, and cross-functionality.

Impact of ERP on Authority and Decision Rights

Due to the visibility of information provided by the ERP, there is an increase in both control and empower through the usage of ERP. The greater visibility of information makes employees more visible to others in the organization, who can then easily exercise process and outcome control [8]. Additionally, in studies of Ellis [7] and Jasperson et al. [16], an enterprise system leads to greater equality of participation in decision making for low-status participants. Hence, the end-user enjoys the reduction of power, authority and decision rights. Therefore, it is hypothesized:

H3. ERP system performance negatively impact on authority and decision right.

Impact of ERP on the Organizational Performance

In the studies of DeLone [5], the organizational impact is used to explain the effect of IS on organization performance. In other research of Mason [18], the hierarchy of influence levels in an organization was proposed. However, Petter, Delone and McLean [21] have used another term that is "net benefits" for explaining the extent to which the system is contributing to the success of individuals, groups, organizations, industries, and nations. All of the above researches fully supports that ERP performance positively impacts on the organizational performance. Therefore, it is hypothesized:

H4. ERP system performance positively impact on organizational performance.

3.2 Research Model

From the above discussion, the research model could be summarized as follows (See Fig. 1):

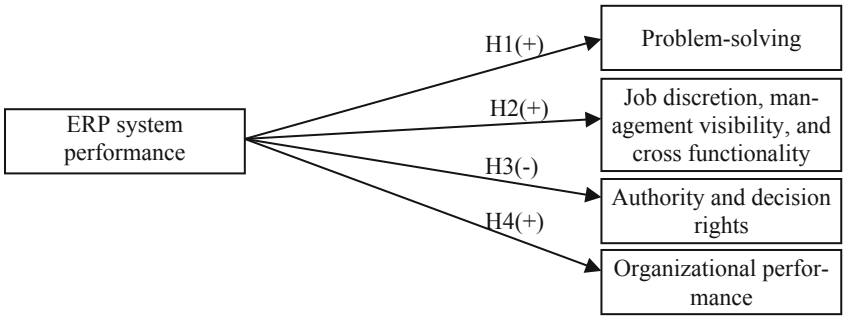


Fig. 1. The proposed research model

4 Research Process

The scales will support measurement the impact on work and work life of ERP and the Likert scales with five points where from 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly agree. There are 5 items measure for ERP system product performance and 17 items measure for impacts of ERP on the work environment. Besides that, some demographic factors were added to the survey questionnaire such as company size, type, year of experience, position… for more detail findings.

This research was conducted in 2 steps: primary qualitative research for finalizing the questionnaire, and quantitative research for evaluating the research model. The primary qualitative research was used to adjust and to supplement of measurement scales. The interviews were arranged to involve 20 respondents. The questionnaire was translated into Vietnamese for support interviewer easy to understand. The quantitative research was used to evaluate measurement scales and model. In this phase, the survey was implemented by directly send to respondents who are currently using ERP for their work or work for the company which has completed an ERP project.

The sample size for this research base on experience principal, number of items is 22, but the minimum sample size should be 5×1 for each observed variable follow the conduct of Hair et al. [14]. So that minimum sample size should be $5 \times 22 = 110$. In order to support the hypothesis test, this research tries to collect ≥ 150 samples. And data was collected by convenience sampling which is non-probability sampling type for simply. And data will be consolidation from the online source and manual typing from hardcopy after gathering the return of hardcopy survey result.

Then, the collected data will be tested by SPSS & AMOS software. Some techniques for data analysis include Descriptive statistics, Cronbach's Alpha, Exploratory factor analysis (EFA), Confirmatory factor analysis (CFA), Structural equation model (SEM) analysis for the hypothesis test, etc.

5 Analysis Results

5.1 Sample Description

The main research was conduct by a survey of the ERP end user from all departments who are working at any company that is using ERP for their operation. The industrial is

no limitation but the boundary of selection only within Ho Chi Minh city. To have a correct result, the respondent should have to confirm they are using an ERP. Detail of total survey collected for the pilot was not be used for main research due to the changes in the questionnaire. In the main phase, the detailed survey was collected by off-line hardcopy and online via google form as detail given in Table 1:

Table 1. Description of data collection

Sample	Received	Valid verify	Rate
Online	89	70	79%
Offline	150	112	75%
Total	239	182	76%

The 182 samples were coded for prepared input data for analysis with using the SPSS version 24.0. The analysis result was delivered via the list in Table 2. The matching criteria and no missing and duplicate to drive the reliability result, the first input was removed all duplicate and missing the required information.

Table 2. Descriptive statistics of sample data

	Frequency	Percentage
Respondent level		
Professional	112	61.5
Manager	55	30.2
Senior manager	10	5.5
Non-declare and other	5	2.7
Respondent year of using ERP experience		
Less than 03 years	60	33.0
From 03 years to 05 years	36	19.8
Above 05 years	83	45.6
Non-declare	3	1.6
ERP use duration by the firm		
Less than 03 years	15	8.2
From 03 years to 05 years	13	7.1
Above 05 years	151	83.0
Non-declare	3	1.6
Total employee (Company size)		
Less than 500 employees	34	18.7
From 500 to 1,000 employees	12	6.6
Above 1,000 employees	131	72.0
Non-declare	5	2.7
Industrial		
Consumers	123	67.6
Services	23	12.6
Financial	14	7.7
Other and non-declare	22	12.1

The above sample description expressed the sample characteristics are usable and appropriate for the study of ERP impact on work and work-life of end users.

5.2 Descriptive Statistics on Main Variables

Table 3 summarized the descriptive statistics of all variables.

Table 3. Descriptive statistics of main variables

Item		Minimum	Maximum	Mean	Stdev.
ERP1	ERP system performance	2	5	4.27	.706
ERP2		2	5	3.90	.787
ERP3		2	5	3.95	.707
ERP4		2	5	3.97	.837
ERP5		2	5	4.05	.741
ERP6		2	5	4.22	.755
PRS7	Problem-solving	2	5	3.87	.713
PRS8		2	5	3.69	.784
PRS9		2	5	3.63	.775
PRS10		1	5	3.84	.797
JMC11	Job discretion, Management visibility, and Cross-functionality	2	5	3.76	.784
JMC12		2	5	3.75	.816
JMC13		2	5	3.88	.775
JMC14		2	5	3.85	.786
JMC15		2	5	3.85	.797
ADR16	Authority and Decision rights	1	5	2.85	.937
ADR17		1	4	2.37	.855
ADR18		1	5	3.14	1.078
ADR19		1	5	2.87	1.041
ORG20	Organizational performance	1	5	4.09	.738
ORG21		1	5	4.15	.701
ORG22		1	5	3.90	.804

5.3 Reliability Analysis Cronbach's Alpha Test for Each of Scales

The reliability of the scale was figured out by the internal consistency method using the Cronbach's Alpha coefficient. Using Cronbach's Alpha coefficient of dependence method to testing and remove the dummy factors. Purpose of using the calculation of corrected item-total correlation will help to exclude those variables that do not contribute much to the description of the concept for measurement investigation [15]. The result is summaries in Table 4.

Table 4. Cronbach Alpha analysis results

Scales/Item	Factors	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's Alpha if item deleted
ERP1	ERP system performance	20.10	7.427	.551	.755
ERP2		20.47	6.880	.617	.738
ERP3		20.42	7.439	.546	.756
ERP4		20.40	7.048	.517	.764
ERP5		20.32	7.544	.480	.771
ERP6		20.15	7.291	.536	.758
Cronbach's Alpha		.789			
PRS7	Problem-solving	11.15	3.873	.671	.784
PRS8		11.34	3.683	.654	.789
PRS9		11.40	3.655	.679	.778
PRS10		11.19	3.678	.638	.797
Cronbach's Alpha		.831			
JMC11	Job discretion, Management visibility, and Cross-functionality	15.33	6.653	.632	.829
JMC12		15.34	6.104	.759	.794
JMC13		15.20	6.594	.662	.821
JMC14		15.24	6.626	.639	.827
JMC15		15.24	6.634	.623	.831
Cronbach's Alpha		.852			
ADR16	Authority and Decision rights	8.38	4.824	.616	.574
ADR17		8.87	5.728	.434	.682
ADR18		8.09	4.726	.501	.645
ADR19		8.36	5.050	.450	.677
Cronbach's Alpha		.709			
ORG20	Organizational performance	8.04	1.954	.789	.835
ORG21		7.98	1.961	.852	.785
ORG22		8.24	1.894	.716	.906
Cronbach's Alpha		.888			

In summary, all 22 observed variables are accepted and will be used in the next running steps of discriminant validity.

5.4 Uni-Dimensionality Analysis Test for Each of Scales

Follow Hair et al. [14], the uni-dimensional test is to evaluate even if items, on each scale, which have significantly correlated with each other and illustrated that a single concept. Hence, the high loading item on a single factor of every scales should be contained. When analysis, the researcher normally will focus on some of the

standardization scores (0.5 < Kaiser-Meyer-Olkin (MKO) < 1; Bartlett's Test of Sphericity with Sig. < 0.05; Cumulative factor loading > 50%).

All the factors were run only 1 time and the result was matched with the requirement, however only the factor ERP system performance which takes two times in running for refinement. Because of the result of the first run with KMO lower than 50% which was reached 48.9% for the first run even Sig.: .000. The refinement result of this factor which has one change with eliminating ERP6 which contribute only 0.473 in extraction, lead the percentage of cumulative increased to 52.7% (>50%).

And the result for all factor after running the uni-dimensional analysis could be summarized as follows: 5 factors were extracted with explained above 50% (the lowest at 52.722% and the highest at 82.322%) of total variance after refinement. The KMO result was from the lowest at 0.677 to highest at 0.784 which were match with condition requirements of for KMO index 0.5 < KMO < 1. Besides that, the factor loadings of 21 items were various from 0.643 to 0.941 and which were satisfied with the threshold criteria 0.5. So that we can conclude that factor analysis is suitable with research data (KMO > 0.5), moreover, this data is adequate for factor analysis and can explain more than 50% of the variations.

5.5 Confirmatory Factor Analysis (CFA)

After tested the reliability Cronbach's Alpha scales and dimensionality, researchers can use the Confirmatory Factor Analysis (CFA) to clear hypotheses about the number of factors and dimension contain it items and additional present the links between specific items and specific elements or between the elements. The CFA method also helps analyze to confirm whether the measurement model is satisfied with research data or not, if the measurement model is appropriated with the research data, CFA also assess the theoretical value of measurement model [14]. And the result of CFA can provide compulsory evidence of the convergent and discriminant validity of theoretical constructs. The CFA approach allows analysts to determine the convergent validity of each observation variable of the concept of the measure and the discriminant validity between concepts in the research model.

Moreover, according to Hair et al. [14], the researcher confirmed that it could not show the validity and reliability of the standard input data, the research will able to utilize SEM's outcome unstandardized characteristics. Current there are having distinct kind of useful measuring for building the validity and reliability which such as Composite Reliability (CR) and Average Variance Extract (AVE).

5.6 Composite Reliability (CR) Testing

According to Hair et al. [14], the latent variable's composite reliability evaluation was recommended should be greater than the default limit of 0.70 to have better reliability and internal consistency. The CR is calculated for each factor which like the Cronbach's Alpha implementation, that will run separately for each factor.

Follow Hair et al. [14], with the Standardized Regression Weights of all observed variable were above 0.5 (from 0.518 to 0.94), the Average Variances Extracted (AVE) were from 0.5 to 0.7, combined with the Composite Reliability (CR) were higher than 0.7, all scales could be confirmed to be unidimensional and convergent (Table 5).

Table 5. Summary of CR and AVE values

Code	Factor	CR	AVE	Assessment
ERP_F	ERP system product performance	76%	51%	Accepted
PRS_F	Problem-solving support	80%	57%	
JMC_F	Job discretion, management visibility & cross-functionality	82%	61%	
ADR_F	Authority and decision rights	72%	49%	
ORG_F	Impact on organization	90%	75%	

5.7 Discriminant Validity Testing

Correlation coefficients between factors show that all correlation coefficients are <1 statistically significant. Thus, the above concepts achieve distinct values. Can be able to verify the discriminant validity of the concepts in the Saturate model, in that model, the concepts can be able to be correlated together. That could be processed to test correlation in the total range of all concept whether having the different or not. If it is different, the scales are reached the discriminant validity. In the analysis result, the P is 0.000, <0.05, the scales are valuable for discriminant.

5.8 Test the Model Fit

To test the suitability of the model with data, analysts often depend on multiple indicators. Follow Hair et al. [14], the indicator of the model fit is specific default threshold can be summarized in Table 6.

Table 6. Indicators of the model fit of CFA

Indicator	Threshold
Absolute Fit Indices	
Chi-Square/degree of freedom (df): X2/df	<2 (In some cases, ~3 is acceptable)
The goodness of Fit Index (GFI)	≥ 0.9
Root Mean Square Error Approximation (RMSEA)	≤ 0.08
Incremental Fit Indices	
Tucker Lewis Index (TLI)	≥ 0.9
Comparative Fit Index (CFI)	≥ 0.9

The CFA analysis result could be summarized in Fig. 2.

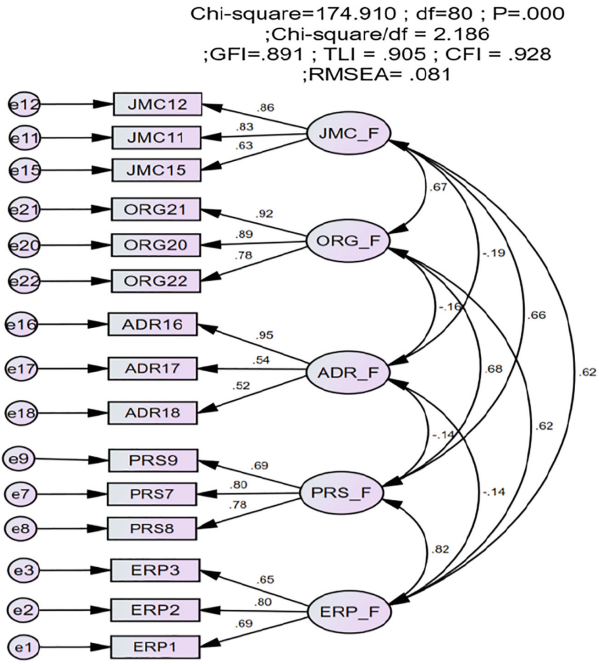


Fig. 2. The analysis result of the CFA model

Follow more than 4 round time to run the analysis, 06 more items (ERP4, ERP6, PRS10, JMC13, JMC14, ADR19) were deleted due to not achieving the standard criteria. After complete last time with 15 observation variable, the result after calculating CFA from AMOS tool, the CFA result showed that the model achieved high rate in market data compatibility TLI = 0.905 and CFI = 0.928 matching the arrange of the better rate from 0.9 to 1. The above data shows that the survey data is quite consistent with market data in the case study. At the same, Chi-square/df adjusted to 2.186 (less than 3), combine with RMSEA approximation 0.08 presented that the data matched the case study. Conclusion: the measurement model is a good fit.

5.9 Structural Equation Modeling Hypothesis Testing

Structural equation modeling hypothesis-testing measurement indicated an adequate fit between the observed covariance matrix and theoretic covariance matrix. Similarly, to the CFA model, the SEM used to estimate the parameter of the model. SEM analysis will continue to develop base on the result of refined scales measurement that had been done in the CFA analysis step. In the CFA step, the analysis starting by evaluation the proposal structure model via scan through the indicator of the Model fit, this support to

ensure that the collected data is based on the model fit. And the SEM step, these indicators were used to assess the model's reliability for the actual data. Here is the SEM analysis result in detail (Fig. 3):

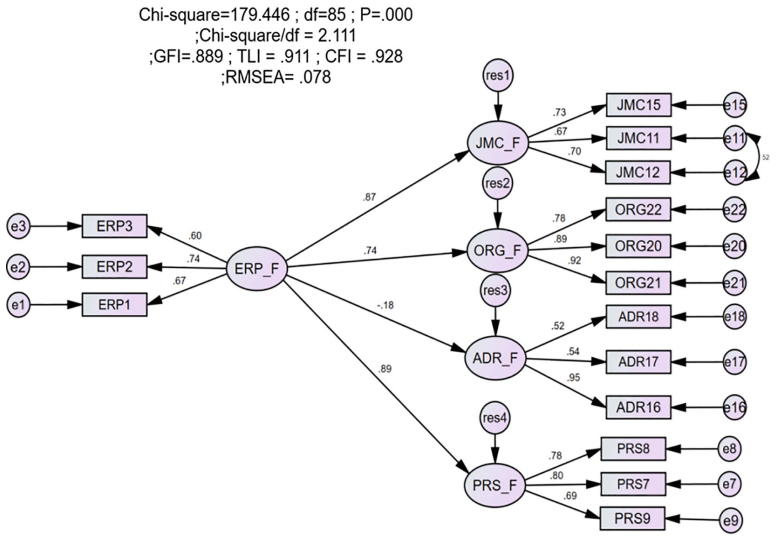


Fig. 3. The analysis result of the SEM model

All these outcome indicators were satisfying the standard requirement follow Hair et al. [14] and meet with the Goodness of Fit Indices. Thus, it can be concluded that the theoretical model is suitable and can be used to test the expected and hypothesized relationship in the hypothesis model. The detail result shown in Table 7.

Table 7. Summary result of the SEM model

Indicator	Result	Assessment
Absolute Fit Indices		Accepted
Chi-Square/degree of freedom (df): X2/df	2.111	
The goodness of Fit Index (GFI)	Approximal 0.9	
Root Mean Square Error Approximation (RMSEA)	0.078	
Incremental Fit Indices		Accepted
Tucker Lewis Index (TLI)	0.911	
Comparative Fit Index (CFI)	0.928	

Thus, it can be concluded that the theoretical model is suitable and can be used to test the research model. The result of the estimate of parameters in the linear model (SEM) to test the relationship in the model are shown in the table. The hypotheses H1,

H2, H3, H4 in the research model, through Table 8 of normalized regression coefficients are determined to be accepted.

Table 8. Summary of the hypothesis test result

Regression weights			Estimate	S.E.	C.R.	P	Hypothesis	Concluded
JMC_F	←	ERP_F	1.165	0.177	6.595	***	H2	Accepted
ORG_F	←	ERP_F	1.132	0.156	7.259	***	H4	Accepted
ADR_F	←	ERP_F	−0.368	0.178	−2.068	0.039	H3	Accepted
PRS_F	←	ERP_F	1.128	0.166	6.796	***	H1	Accepted

6 Discussion and Implications

6.1 Discussion

First, based on the above result, the relationship between ERP system performance and job discretion, management capabilities, and cross-functionality indicated that the management can assign the work with a team, follow their progress, and self-tracking their performance. In the other hand, the best control is the way can optimize the organization performance using ERP. With the system, it treated the same for all users, no matter who manager or staff is. So that required manager should consider using a clear task with clear responsibility for each user to support smoothly in the long run and may increase user performance with frequently keep track subordinate closely.

Second, there is a significant link between ERP system performance and problem-solving support. In practice, ERP can provide their solution for operational issues by supporting automatic processes and integrating separate functional information system. The integration data center is the key feature of an ERP. When all information is in one place and they are updated automatically, they will be used for decision-making process and to increase the quality of managerial decisions. Finally, it will help the managers and employees to solve their problems more effectively.

Third, the negative impact of ERP performance on authority and decision rights implies that individual authorization seems recognition reduces in decision making by the ERP system. Usage ERP, the system utilizes systematic in setting up the power into the system, was not required more involvement from the user after implementation. Besides that, the challenge of control resource by ERP usage that also one term in the data controller. Data is the outcome of ERP, with eliminating the separate owner mean more security. And there is no motivation for an employee must own the data without contribution to business development. Follow the current trend of data insight which indicated that for keeping the raw data without the insight that data is usefulness action. So, management should share the ton of the top refreshment for the end user understand that better ERP, support reduce their daily task for more time focal in business insight rather than keep data.

Finally, the positive impact of ERP system performance on organizational performance implies that using the ERP has improved the organization working process.

This has consistence researcher acknowledge that the benefit that ERP has given to organizations that can be precise at the improvement of the business process level. The better of organization process lead business process is also improved which should gain more benefit for business performance measurement such improve productivity as well. And it is interesting to agree that invested that have significant links between ERP and user performance, and user performance will be indicated for organizational performance. Besides that, the user performance has a relationship with user satisfaction. In summary, the ERP system is also impacting operate effectively and manager should focus improve the working process and user satisfaction.

6.2 Managerial Implications

In summary, the finding of this research would extend to improve the understanding of the ERP end-user approached for the practitioners regarding ERP system performance and its impact on work and work-life of employees, such as problem-solving, job discretion, management visibility, and cross-functionality, authority and decision rights, and organizational performance. This study becomes important and empirically important to address the human problems in these areas that are still lacking. Therefore, the managers should improve the positive impact of ERP system, such as problem-solving, job discretion, management visibility, cross-functionality, and organizational performance, and they should reduce the negative effect of ERP system, such as: authority and decision rights. Besides, sharing the change communication to all user about the benefit from ERP and which change needs to adapt will be helpful.

Designation the progress of changing, make them understand that the reducing their authority in routing work, which reduces their spending on work lead support in their work have more time on other tasks to improve other functional skill, and balance work and life with maximizing productivities. Another the benefit of pre-design approval workflow for operation transaction which not only supports for user reduce time as above but also creates the consistent business process which ensures high compliance follow every time in huge transactions. Moreover, it also supports eliminating the errors, time spending for chasing approval or getting their signature.

Some detail recommendations for managers could be summarized as follows:

- Working with ERP, the people may change the ways of doing things because the core of ERP is once data source and this required the cross-functional data integrated. Because of that changing, working together with other people will apply to modify their working practices to adjust to different conditions of using ERP. So that the teamwork has become much essential in the role and skill of users and it became more critical and complexity as the role of leader or manager.
- As the management role, who in charge of change communication and change agents to support for user understand the benefit of ERP usage. The level of control the subordinate or peers must be a balance between the management and operational users. This revealed that managers should start to dialog away control which is used and anticipated. For example, a significant amount of autonomy should be accepted so that users feel reliant on and trust by the organization that leads to more

empowerment, while weekly inspection or report from the ERP system. That could be sufficient controllable but also engage in the self-discipline of users [22].
– At different levels of management, the concern and focus are not the same. Nowadays, the trend for digital industry 4.0 development under the management visibility base, such as by knowing what is occurring on your production real-time, issues can be resolved much faster. With the level of the middle manager and supervisor – who involve much more in detail of the daily operation, the benefits of visibility management can go further simple improvement via the ERP support, it can enhance and output better for employees and better service for your customer. Additional, with the job of a rider in daily business, visibility management is also important and can be productive in identifying the problem before they erupt into larger issues.

7 Conclusion and Future Research

The study found the link of significant predicts from "ERP system performance" positive impact to "problem-solving support", "job discretion, management visibility and cross-functionality", "organizational performance", but the negative impact to "authority and decision rights" for end users.

It was found the positive effect between ERP system product performance on organizational performance, this finding was consistent with results from previous studies from [5, 17].

Follow the finding, the managerial still consideration the action plan, whether the support for the user to understand the benefit of ERP which applies the standard business rules for approval hierarchy through the system which reduce human mistake and release time-consuming for other development opportunities of end users. That is also support business can adapt to digital trend with the competitor.

There are a few limitations of this study which need to highlight for future research continue investigating as follows:

– Cross-sectional study and convenience sampling method limit the possibility to generalize the findings. Hence, longitudinal study and other sampling methods should be used in future research.
– The sample size is small and limited in Ho Chi Minh City. It should be a future investigation to respond from other locations to access a fair insight picture.
– This study does not address the character of the user in the current framework. So, future research should evaluate the effect of users' demographic factors.

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