Developing ERP Post Implementation Success Framework through Group Decision Support Systems

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Abstract

Enterprise Resource Planning (ERP) success research is extensive and most approach models to measure the success of its implementation fall short of measuring post-implementation success. Instead of depending on previous frameworks that declare an ERP a failure if framework restrictions are not met, this study suggests a novel methodology for assessing the implementation of any ERP method and its subsequent success via a Group Decision Support System (GDSS). A total of 263 respondents participated online in the research all being employees in local corporate institutions, having interacted with the ERP systems directly, and joined the company before the ERP system went live, making up the study's target group. The study showed improved ERP system success when implemented with organizational culture improvement through GDSS but success was better when combined with access to more IT resources. There was an improvement in Post ERP implementation success (system quality, information quality, organizational impact, workgroup impact, and individual impact) of the organization. Also, implementing ERP without GDSS does not reduce success when it has access to IT resources. For ERP system post-implementation impact, the IT resources capacity of the organization be improved and GDSS engaged to give users opinions.

Index Terms: Enterprise Resource Planning, Proposed Framework, Group Decision Support System, Organizations, Individual Impacts.

I. INTRODUCTION

Enterprise Resource Planning (ERP) systems are corporate applications created to make it easier to share standard data and procedures in a real-time setting [1]. ERP system implementations differ from those of other IT systems [2], and [3]. This is because the deployment of ERP contains organizationally designed, managerial, operational, and strategic components, as a result, ERP systems may not be adequately evaluated using success assessment methodologies utilized for other common IT systems [4], and [5]. ERP aims to fully integrate information flow in enterprises or organizations from all functional areas using a solo databank; such methods have a standardized message line for access [6]. Additionally, an ERP system may manage various aspects of operations, from the planning of the organization's product to its corresponding marketing and sales with just one database [7].

Perhaps the fastest-growing system area in operations today is ERP which has been adopted by thousands of businesses or is currently being done so [8]. Successful installation of ERP systems can result in significant advantages for example, improved customer service, more efficient production planning, and lower manufacturing costs [7-10]. On the other hand, management should assess if ERP systems are successful afterward they have been introduced because they are expensive and time-consuming. Previous studies concerning what elements or

dimensions are necessary for execution success or accountability for the failure of ERP were varying. There are no established metrics for measuring the successful implementation of ERP methods [8]. In the year 1984, White developed an ABCD list that categorized ERP implementations into four groups. Another tool for evaluating the performance of ERP implementations is customer consummation [11]. Improvements in performance and user satisfaction were two dimensions that were included in the definition of ERP deployment [12]. Recent ERP implementation successes were also evaluated using predetermined company goals [8], and [11].

A. Problem Statement

ERP consultants and implementing firms face difficulties with ERP adoption. According to Parr and Shanks, ERP is essential to achieving the overall corporate objectives, thus its implementation concerns, roll-out problems, and successes have all been studied in the past [13]. Since this is when the errors of the earlier phases appear and become actual, the issues with ERP deployments are most common during the post-implementation phase [14]. According to Michael Donavan, it is typical for businesses to invest a significant amount in ERP systems; nevertheless, more than 90% of businesses that adopt these systems fail the first time around. Others have proposed concepts that are difficult to verify and validate empirically (e.g., Markus and Tanis) [4]. This study is aimed at developing an

inclusive model that will also allow verification and validation empirically.

B. Research Questions

The study focuses on the following main research questions:

1. What are the user-centric determining factors for ERP post-implementation success?
2. Which post-implementation elements, and to what extent, affect an ERP system's post-implementation success?
3. What connection exists between the organizational context and the success of ERPs after implementation?

II. LITERATURE REVIEW

A. Enterprise Resource Planning Overview

A type of bundled application software called an ERP system can fully automate and integrate business activities in all functional areas [15]. The information processing method of a business is taken care of by the ERP system, which offers integrated solutions [7], and [16]. To promote quick decision-making, cost savings, and greater managerial control, ERP techniques can also concentrate operational data so that it can be shared by the main operating systems of a business. These systems also provide mobility at any time, anywhere access to an organization's resources as well as integration with advanced enterprise systems [15], and [17].

The technology enables businesses to enhance their operational procedures, reduce redundant information, and enhance information integrity [18-20]. ERP systems have established keen on one of the best important and costly IT investments in businesses during the past 20 years. The advantages and significance of ERP systems have recently been highlighted by the ongoing technological advancements supporting the application of Industry ideas. According to the researchers, the next generations of ERP systems, which are intelligent and autonomous, have been developed in part thanks to ideas like the Internet of Things, visualization, and data analytics [2], and [8].

There have been both successes and failures as a result of the adoption and application of ERP structures across numerous industries and organizations. Different researchers created various models to evaluate the success of the ERP after adoption [21].

Some researchers used as a guide DeLone and McLean model and have offered insightful information about the implementation of ERP [9], and [12] while others have recognized a range of crucial elements influencing the system's achievement or failure [8]. Additionally, several models were put out by researchers to measure the ERP system's effectiveness. However, some of the proposed models require extensive numerical computation and are not user-friendly. They also pay little attention to the different opinions of various authorities [1], [2], [8], [22-24]. Previously, many ERP post-implementation success activities weren't well-thought-out and are possible nominees for additional exploration.

An alternate model for post-implementation success via Group Decision Support Systems (GDSS) is put out in this study. The framework will be developed while taking into consideration the post-implementation-success features, which are modified from the model of Ifnedo and his associates [1]. Since the proposed model uses GDSS, it can be inferred that the model can consider different opinions of various authorities in assessing ERP systems' implementation success. The Structural Equation Modeling (SEM) method will be used to confirm the study framework proposed.

B. Enterprise Resource Planning System Implementation and Success Models

Numerous studies have been done to pinpoint the elements that increase Information System (IS) effectiveness throughout the past 20 years. Usability is one of the most important quality factors when evaluating the effectiveness, acceptability, and user experience of interactive applications such as ERP [25]. Additionally, establishing the DV of IS achievement, however, and coming up with cumulative research might be difficult. The ABCD checklist, developed by White and associates, in 1982, served as the first methodology for measuring ERP success. They categorized ERP employment into four sets [26]. And amended performance and user satisfaction were the two characteristics. Oliver White's ABCD grouping isn't appropriate for today's ERP system installation because most businesses that the aforementioned tests of the efficiency of ERP-system application, accepted ERP systems could only manage average integration between ERP system modules [8], and [27]. Over the past two decades, studies have been done to determine the elements that lead to the success of IS [9], [12], and [23].

The D and M's framework, which's been employed in numerous cases during the ten years after its original publication, is perhaps the most well-known model to arise from IS attainment research [24]. The framework takes DeLone and McLean ten years to identify the dependent variable, IS success, which has now been widely accepted as an acceptable basis for subsequent empirical and theoretical research [8]. The 'IS Success Model' is available in two iterations from DeLone and McLean. The first one was introduced in 1992 before the business world had become dominated by computers and the Internet. There are two levels in this original model, these are organizational and individual see figure I. They challenge that the system affects organizations and individuals [27].
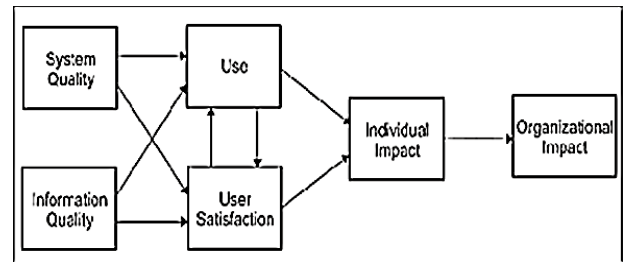

Figure I: DeLone and McLean, (1992) IS-Success Model

The principal framework was reviewed by DeLone and McLean in 2003, adding several new variables, and proposing a new research methodology as seen in figure II.

Now that they have had 10 more years of IT/IS experience, they have a better understanding of IS [4], [6], and [22]. Service quality was supplemental to the framework as the first level in addition to the quality of information and system. The thought use was separated into twofold measures, purpose to use and use, for the reason that it is assumed that IS usage will allow users to firstly have the purposely use the system but eventually use it and this gives user-satisfaction that will affect users' purpose to use the IS after the first use. As a result, the relationship with user satisfaction becomes circular, and this circle will eventually have an impact on the organization's net benefits [27].
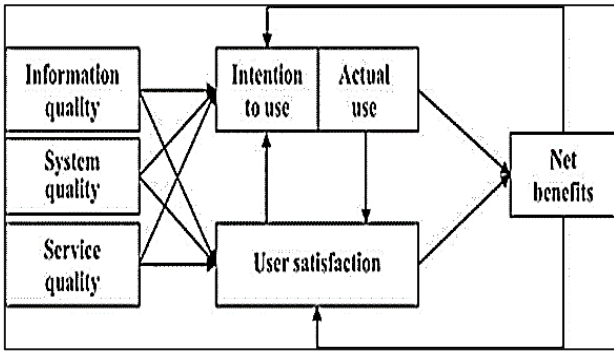

Figure II: Delone and McLean, (2003) Amended Framework

To maintain the D-M's framework implementation, Iivari (2005) reported a practical study to affirm the framework in a field study [28]. Additionally, there is not much ERP research on the effectiveness of the system [22], and [29]. The Gable and associate's (2003) framework [30], which has been confirmed and is frequently employed in research, is another significant study in this field [2]. This new framework is based on the work of D-and M's (1992) framework, they claimed that numerous of its metrics were redundant and unsuitable for gauging the effectiveness of ERP systems. They concluded that user satisfaction wasn't a different surrogate, and they took it out of their ultimate design. They also noted that business process improvement and organizational transformation are not included in Delone and McLean's metrics of corporate influences, which concentrate on business influences [30]. The Gable, (2003) framework suggested different components; organizational, individual, system, and information components. The framework by Gable et al. (2003) also takes into account a framework for subsequent frameworks in order to address inadequacies in the earlier works [30]. Ifinedo and Nahar in 2007, work endeavored to design a model based on the framework developed by Gable and colleagues. They continued to ask about their work. If not, can the model be expanded to include other pertinent success surrogates? In this sense, the Gable model gained workgroup influence from Ifinedo and Nahar's research. They believed that the goal of ERP is to raise organizational subunit performance, after which it should be taken into account when determining success. To support this development, they cited earlier studies in which information technology investments had a major impact at the organizational operational level. For evaluating the effects of workgroups, they identified increased worker participation, enhanced organizational-wide

communication, the development of a sense of responsibility, increased sub-unit efficiency, and the effectiveness of solutions. Vendor and consultant quality was a further surrogate that was included in the Gable framework.

The success of ERP was also significantly influenced by the standard of outside providers like vendors and consultants [2]. As criteria for evaluating the quality of vendors and consultants, they presented adequate procedural support, consistency and responsibility, better associations, know-how, and effective communication. In its place of the above-mentioned vendor and consultant quality proxy operationalized service quality is measured by dependability, expertise quality, and other aspects by Ifinedo and fellow researchers, (2010). In order to emphasize the significance of taking into account the nonlinear associations between surrogates and successive components in addition to specific corporate objectives in ERP assessment, Moalagh, and Zare Ravasan 2012 presented their method [23]. For weighing the substitutes and related factors in the Ifinedo and Nahar model, they used the fuzzy ANP technique. The terms managerial, organizational, and individual successes were used to break down the idea of ERP success into its three key parts.

A recently proposed comprehensive and practical approach for evaluating a company's ERP post-implementation success was made by Zare and Zareravasan, in 2014 [31]. The original Ifnedo model has been modified to include criteria for the post-implementation success assessment. Furthermore, a new alternative for inter-organizational impact was put forth in research by Zare and Zareravasan [31]. Company's ERP-system success might be assessed using this model, and necessary development projects can be recommended to increase the achievement level, see figure III. The Group Decision Support Systems (GDSS), which have been effectively employed for planning and executing technology transfer initiatives, were also not taken into account by this approach.
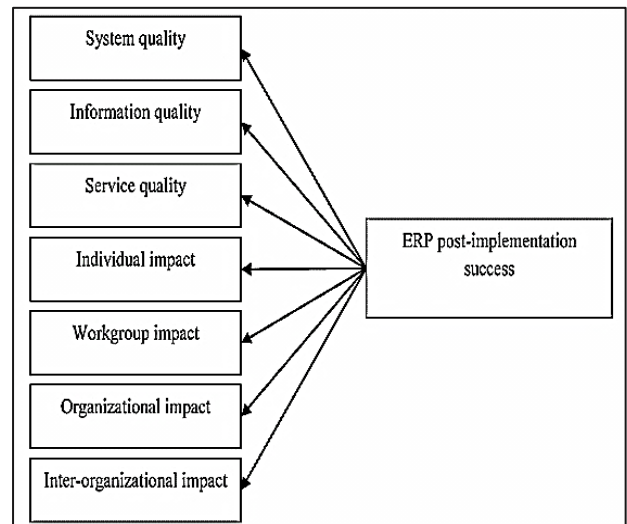

Figure III: Zare and Zareravasan, (2014) ERP-Success Assessment Framework

C. *Group Decision Support System*

Scholars have over the past two decades been researching the effectiveness and performance of GDSS in supporting

synchronized and asynchronous organizations operating across laboratory and field situations [32], and [33]. Utilizing GDSS integrates technology for communication, computation, and decision support to make it easier for a group of people to formulate and solve unstructured problems [31]. It consists of a collection of methods, tools, and technologies made to improve group communication, discussion, and decision-making [33], and [34]. Numerous studies have reported that using GDSS efficiently develops efficacy, trustworthiness, plus collective decision-effectiveness making [32-34].

According to research by Dennis and associates (1996) using GDSS often leads to better decision quality, more ideas being created, longer task completion times, and no difference in participant satisfaction. However, whether the group uses only electronic messages or a mixture of oral and electronic communication depends significantly on the task and the group size (idea generation or decision-making) [35]. Since the 1980s, numerous GDSS programs have been developed by various colleges and companies, and several GDSS software, including Group Systems plus Decision-Explorer, are presently on the marketplace.

To encourage debate and decision-making, they typically include a limited number of measurement tools, such as electronic brainstorming, concept appraisal, and polling [33]. Since the model is capable of taking into account different perspectives from various authorities in analyzing, incorporating elements of GDSS into the ERP systems' implementation success may better analyze the post-implementation success. Four mechanisms are identified by GDSS as contributing to the adoption of ERP, see figure IV. First of all, process support refers to the infrastructure for communication that makes it easier for members to communicate. Additionally, this refers to procedural strategies or rules that regulate the manner, timing, or substance of the communication. The information and computational infrastructure for task-related activities are referred to as task support in the third place. Last but not least, task structure denotes methods, regulations, or models for analyzing task-related data [36].
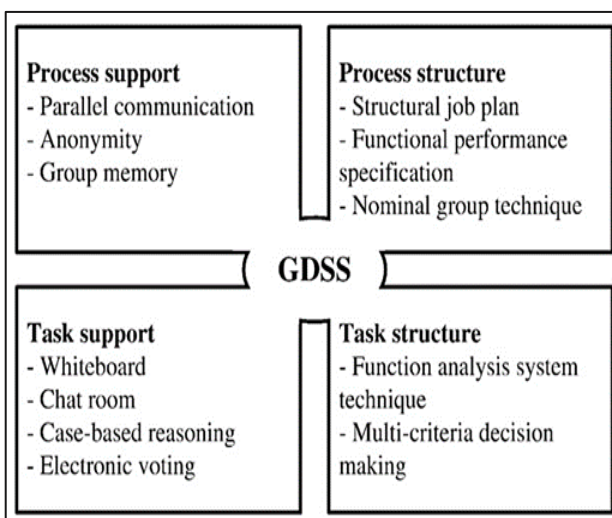

Figure IV: GDSS Contributions Adapted from Luo et al. [36]

D. Proposed Conceptual Model

Enterprise Resource Planning (ERP) system implementation is a challenging, expensive, and time-consuming procedure that frequently fails miserably. Therefore, a success assessment must be carried out at the post-implementation stage of an ERP project to identify how well the system has succeeded in fulfilling its set goals. This study suggests an extended model which draws inspiration from the original D and M framework of Ifnedo and associates. The proposed conceptual model is a practical framework that employs the fuzzy ANP procedure in evaluating the business intelligence competencies of the systems of an enterprise. The five essential components of ERP success are system quality, information quality, personal impact, workgroup impact, and organizational effect. The firm's ERP system success may be assessed using this framework, and the necessary improvement projects can be suggested to raise the success level.

The proposed paradigm has been used to assess the success of an ERP implementation at a real, multinational company that manufactures and supplies turbines. This framework appears to be credible because the widely used DeLone and McLean (1992) IS success model, also known as the D&M IS success model, served as the foundation for this concept. Additionally, empirical testing and validation of the suggested framework are easily possible. In this proposed model, the researcher believes that ERP success following adoption ought to be measured via all surrogates developed by the D&M model and amended by Ifinedo, considering organizational culture and IT resources through GDSS. Figure V shows the proposed model for Post-Implementation Assessment.
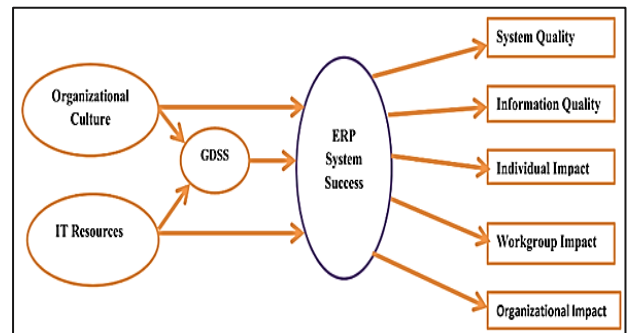

Figure V: Proposed Model for Post-Implementation Assessment

III. HYPOTHESIS FORMULATION

To put the proposed conceptual model to the test, the researcher has proposed the following hypotheses given that it is crucial to investigate the relationships between or take into account those characteristics since IS success is a complex and interrelated entity according to DeLone & McLean [37].

As a result, the following three hypotheses will be tested:

1. **H1:** Organizational culture of an ERP-implementing company through GDSS might have greater success with the system.
2. **H2:** The success of the system may increase if an ERP implementation organization has access to more IT resources through GDSS.
3. **H3:** Organizational culture and more IT resources of an ERP-adopting firm are less effective without GDSS within the system.

IV. RESEARCH METHODOLOGY

A. Overview

The research approach is described in this chapter. This covers the research design, the target audience, the sampling strategy, the data gathering procedures, and the data processing and presentation procedures.

The case study methodology involved choosing a local corporation. Therefore, the corporation is required to satisfy the following requirements: have implemented and are currently utilizing an ERP system, be in the post-implementation phase of the ERP system they use, and have as many departments inside the firm using the ERP system as possible, see table I.

B. Research Design

To address the various study objectives, a mixed-mode strategy was adopted in the research study. A mixed-mode research methodology is created by combining quantitative and qualitative research approaches. While quantitative research included statistical data, qualitative research allowed for in-depth explanations, user experiences, personal perspectives, and knowledge.

C. Target Population

A total of 263 respondents participated online in the research all being employees in local corporate institutions, having interacted with the ERP systems directly. and joined the company before the ERP system went live. made up the study's target group. These workers were from the organization's information systems, finance, HR, ground services & cargo, flight operations, commercial & marketing, and technical divisions. They also included senior managers, supervisors, and non-management staff.

D. Sample Size

The ERP project managers, ERP super users for the various departments and modules, the ERP support team, ERP consultants, selected users of the ERP system from various departments, and management personnel were all interviewed for the study using purposive sampling. Due to the presence of the majority of the ERP project and implementation team members, the IS, Finance, and HR departments received more responses. These divisions were also recognized as the divisions that use the ERP system the most.

Additionally, the data collected was screened to make it fit for analysis and later subjected to Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) on AMOS SPSS 26. Also, a causal hypothesis was done.

Table I: The Research Methodology Statistics of a Corporation in Post-Implementation Phase of ERP System

Area	Target Population	Sample
Information Systems	70	50
HR	80	43
Finance	20	10
Technical	100	35
Flight Operations	100	40
Ground Services & Cargo	50	30
Marketing Personnel	60	35

V. DATA ANALYSIS RESULTS AND DISCUSSION

The results of the analyzed data are presented below i.e., table II. The sample size was 263. Nine research constructs were used, these include; namely organizational impact, Organizational culture, system quality, information quality, individual impact, workgroup impact, ERP system success, IT resources, and GDSS evaluation feedback. Non-violation of the assumption of the Likert scale variables was tested using multi-collinearity, skewness, and kurtosis tests. The proposed constructs model was validated by confirmatory factor analysis and hypotheses were tested using structural equation modeling with IBM SPSS AMOS v26 software. The results are detailed below:

A. Skewness and Kurtosis:

A normal multivariate test is conducted to determine if the data collected fulfill the assumption that underlies the SEM model. Cleaning of data must be done so that all response falls within the normal distribution. To show the data was abnormal, skewness was measured and positively skewed is valued as +1 while negatively skewed is valued as -1. This shows that participants have used ERP and its impact. Kurtosis shows the focal pinnacle of data which is represented by the height and sharpness and it ranges between -2 and +2 and is accepted as a simple univariate appropriation.

Skewness and Kurtosis and their ratio are used to test for multivariate normal assumptions which are calculated by using AMOS 24.0. Concerning skewness, the majority of statistics were negative with exception of 3 (Information quality, workgroup impact, and GDSS Evaluation feedback). ERP system success, individual impact, organizational culture, and organizational impact are within the 0 to -0.50 range, and these showed that they are approximately symmetric, system quality, information quality, workgroup impact, and GDSS evaluation feedback are moderately symmetric [38], and [39]. Also, all constructs have their kurtosis within the ±1.96 limit except individual impact.

Table II: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness	Kurtosis	CR
System Quality	263	5.3356	.85622	-.506	1.600	-0.31625
Information Quality	263	5.1513	.86672	.272	.291	0.93471
Individual Impact	263	5.3741	.83361	-.333	2.131	-0.15626
Workgroup Impact	263	4.7506	.95685	.302	-.295	-1.02373
Organizational Impact	263	5.1878	.82804	-.225	1.184	-0.19003
ERP System Success	263	4.9176	.92440	-.138	.069	-0.2
Organizational Culture	263	4.7110	1.12846	-.335	.255	-1.31373
IT Resources	263	4.2915	1.46211	-.552	-.437	-1.26316
GDSS Evaluation Feedback	263	4.9626	.82117	.581	-.435	-1.33563

Therefore, with these results, the deviation from the normality of these constructs can be ignored (Imran, 2021) [40].

Lastly, according to the author Imran and associates, in 2021, the assumption that a distribution is normal when the CR value is not more than 2.58 and all constructs of this study satisfied this and it confirmed that all distributions are multivariate normally distributed [41].

B. Multicollinearity Test

This test explains the inter-correlation between the independent variables of a construct and two or more independent variables show multi-collinearity when there is a higher correlation between them in the research model. According to Byrne (2010), this is determined by the covariance matrix value which is close to zero, why zero is high collinearity [42]. Variables of the study and their respective multi-collinearity test scores are shown in table III. The tolerance value, condition index, and Value Inflated Factor (VIF) were considered. The acceptable value for tolerance must be greater than 0.2, the condition index maximum tolerable threshold is 30, while 5.0 is for VIF [39], and [43]. All of the measures of independent variables fulfilled acceptable tolerance, condition index, and VIF and this further confirmed that the data is suitable for the study because no multi-collinearity was found among the independent variables. Therefore, there is no multi-collinearity problem between the dependent (ERP System Success) and the independent variables (Organizational culture, IT Resources, GDSS Evaluation Feedback).

Table III: Multi-collinearity of Independent Variable

	Eigenvalue	Condition Index	Tolerance	VIF
(Constant)	3.919	1.000		
Organizational Culture	.056	8.342	.372	2.688
IT Resources	.016	15.432	.419	2.389
GDSS Evaluation Feedback	.009	21.403	.455	2.198

C. Construct Reliability

Data must have high reliability before it can be used and that is what construct reliability measure and this was done through Cronbach's coefficient alpha.

Table IV: Construct Reliability

| Construct Variable	Cronbach's Alpha	Result
System Quality	0.782	Reliable
Information Quality	0.789	Reliable
Individual Impact	0.825	Reliable
Workgroup Impact	0.765	Reliable
Organizational Impact	0.737	Reliable
ERP System Success	0.796	Reliable
Organizational Culture	0.812	Reliable
IT Resources	0.813	Reliable
GDSS Evaluation Feedback	0.882	Reliable

According to Hair et al., (2010), the value for any distribution to be reliable must have an alpha value greater than 0.7 as shown in table IV [44].

D. Convergent Validity

This is to show how the construct indicators close together to form the latent variable and use confirmatory factor analysis.

Table V: Convergent Validity

Construct	Convergent Validity
IT Resources	0.611969
Organizational Culture	0.506156
Workgroup Impact	0.361648
Information Quality	0.448889
System Impact	0.480165
Individual Impact	0.487552
ERP System Success	0.377935
GDSS	0.391127
Organizational Impact	0.347092
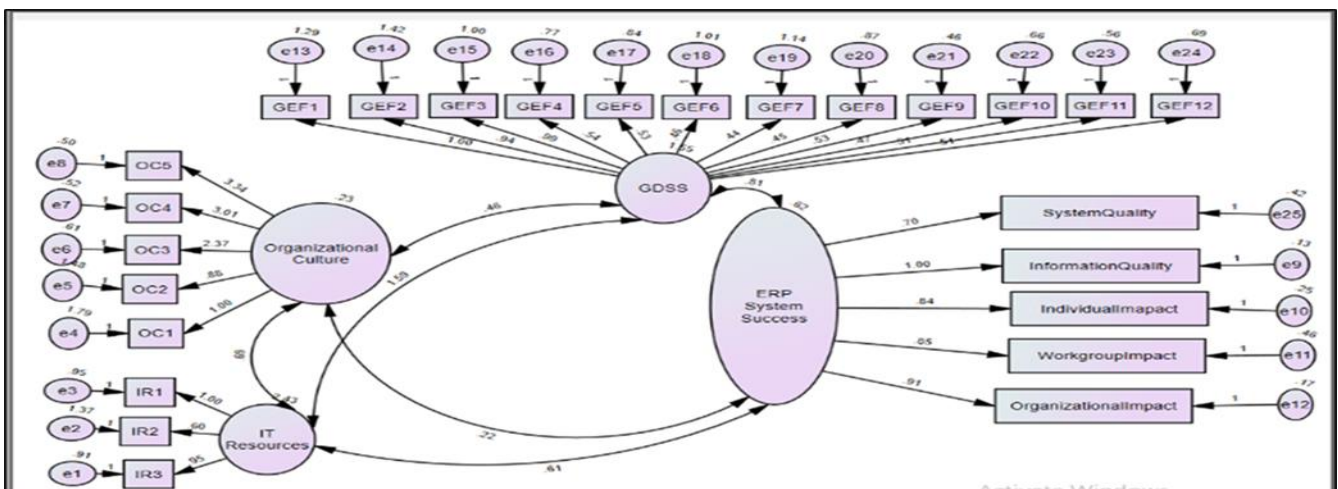
Figure VI: Loading Factor Model after Evaluation

According to Hair, indicators with a loading factor greater than 0.5 are said to have good convergent validity. Table V shows the Average Variance Extracted (AVE) which is the same as the convergent validity of each construct. From the results, only IT resources, and organizational culture have loading values greater than 0.5 and that means their indicators have close together to produce them (latent variable) while others do not show convergent validity.

E. Discriminant Validity

It is assessed by comparing the square root of the Average Variance Extracted (AVE) of the construct variable with correlation with other constructs in the structural model. A good discriminant validity of a latent construct to another is when the square root of the Average Variance Extracted (AVE) of construct variable is greater than the construct correlation with other constructs in the structural model by Hair, and this shows that the two latent variables are far apart.

Table VI showed the values that indicated the result and not all constructs satisfied the condition of discriminant validity having some square root AVE values less than their correlation with other construct variables. This result shows that ERP system success, GDSS, and organizational impact have worse discriminant validity with only one of the correlations to other constructs less than the square root of AVE.

Table VI: Discriminant Validity

	IR	OC	WI	IQ	SI	II	ESS	GDSS	OI
IT RESOURCES (IR)	0.782284								
ORGANIZATIONAL CULTURE (OC)	0.914	0.711446							
WORKGROUP IMPACT (WI)	0.503	0.567	0.601371						
INFORMATION QUALITY (IQ)	0.514	0.62	0.958	0.669992					
SYSTEM IMPACT (SI)	0.028	0.096	0.638	0.742	0.692939				
INDIVIDUAL IMPACT (II)	0.431	0.48	0.771	0.869	0.772	0.698249			
ERP SYSTEM SUCCESS (ESS)	0.824	0.794	0.782	0.815	0.45	0.752	0.614764		
GDSS	0.831	0.789	0.846	0.833	0.468	0.701	0.85	0.625401	
ORGANIZATIONAL IMPACT (OI)	0.789	0.832	0.738	0.854	0.358	0.783	1.039	0.838	0.589145

F. Goodness of Fit Model (Confirmatory Factory Analysis)

The model proposed must be supported empirically and this is done by the goodness of fit testing which has 8 main criteria.

According to Hair, one of these criteria must meet the cut-off to be fit for usage and this was fulfilled by GFI which is greater than the cut-off of 0.9, therefore the model is fit and suitable for hypothesis testing as seen in table VII [44].

Table VII: Goodness of Fit Score

Index	Cut-Off Value	Result	Goodness of Fit
Probability	≥ 0.05	0.000	Not Met
RMSEA	≤ 0.08	0.133	Not Met
GFI	≥ 0.90	0.936	Met
AGFI	≥ 0.90	0.689	Not Met
CMIND/DF	≤ 2.00	5.616	Not Met
TLI	≥ 0.95	0.800	Not Met
CFI	≥ 0.95	0.836	Not Met

G. Confirmatory Factor Analysis/ Structural Equation Modeling (SEM)

After evaluating the model and after determining whether it meets the criteria of construct validity and composite reliability, a structural model was done. The impact of the independent variables on dependent variables was studied by evaluating structural models to determine the path parameter coefficients and their level of significance. The relationship between the exogenous variables and the endogenous variables was also explained by the structural model evaluation and this was done through the path coefficient for effect (direct and indirect) in the structural model.

a) Direct Effects:

The direct effect shows the path coefficient of an independent variable on the dependent variable in the SEM and it is subsequently used to test the hypothesis. From the confirmatory model for this study, there was 5 direct effect. Testing of the hypothesis is done through the p-value of each direct effect and when the p-value is smaller than the level of significance, it is said to be significant and the hypothesis is accepted and vice versa [45]. The most commonly used level of significance is 0.05 according to literature and confirmed by Lavrakas and is also used in this study. Figure III presented the pathway of the direct effect of each independent variable on each dependent variable. Organizational culture has no significant effect on GDSS with a p-value of 0.409 and coefficient = 0.500. The coefficient is positive but not significant, this implies that a change in organizational culture will not affect the GDSS. IT Resources has a significant effect on GDSS with a p-value of 0.007 and coefficient = 0.509. The coefficient is positive but significant, this implies that a change in organizational culture will affect the GDSS. An increase in IT resources will bring an increase or improvement of the same magnitude in GDSS, and the ERP implementation will be successful, while a reduction will make GDSS negatively affected.

The effect of organizational culture on ERP system success is significant at a p-value of 0.014 and a coefficient of 1.421. Therefore, as there is improvement in organizational culture this leads to the success of the ERP system, and the less improvement in organizational culture, the less the ERP system success. IT resources have a positive and significant effect on ERP system success with a p-value of 0.000, and a coefficient of 0.651, more top IT resources will increase ERP system success, and vice versa. GDSS showed a positive significant effect on ERP system success with the effect having a p-value = 0.000 and coefficient of 0.762 and the result of the GDSS has a significant impact on the success of the ERP system in an organization.

Also, the success of the ERP system has caused ERP to have a positive effect on Post ERP implementation success (information quality, individual impact, workgroup impact, and organizational Impact and system quality) of the organization. The impact of organizational culture through GDSS with more IT resources has caused this to happen.

b) Indirect Effects:

The coefficient of indirect effect is calculated by multiplying the path coefficient of the independent variable with the mediating variable on the dependent variable and this is shown if the mediating variable has a contributive effect on the dependent variable by the independent variable and this is confirmed also through the p-value where significant or not. The indirect effect between organizational culture on ERP system success through GDSS is obtained from the product of the direct effect between organization culture on GDSS and the direct effect between GDSS on ERP system success, therefore an indirect effect has a coefficient of 0.381 with a p-value of 0.000.

This is used to test the hypothesis:

1. **H1:** Organizational culture of an ERP-implementing company through GDSS might have greater success with the system.

From the results, it was discovered that there was a greater success with the system when an organizational culture of an ERP was implemented through GDSS. Therefore, it is confirmed that implementing ERP through GDSS yields greater success. The hypothesis is accepted. Therefore, the indirect effect of organizational culture on ERP system success through GDSS is significant and positive.

2. **H2:** The success of the system may increase if an ERP-implementation organization has access to more IT resources through GDSS.

From the results, it was discovered that there was greater success with the system when the organizational culture of an ERP implementation has access to more IT resources through GDSS which increase from 0.027 to 0.571. Therefore, it is confirmed that implementing ERP has access to more IT resources through GDSS will give greater success. The hypothesis is accepted.

3. **H3**: Organizational culture and more IT resources of an ERP-adopting firm without GDSS might have less success with the system.

From the results, it was discovered that there was a greater success with the system when an organizational culture of an ERP implementation has access to more IT resources without the GDSS.
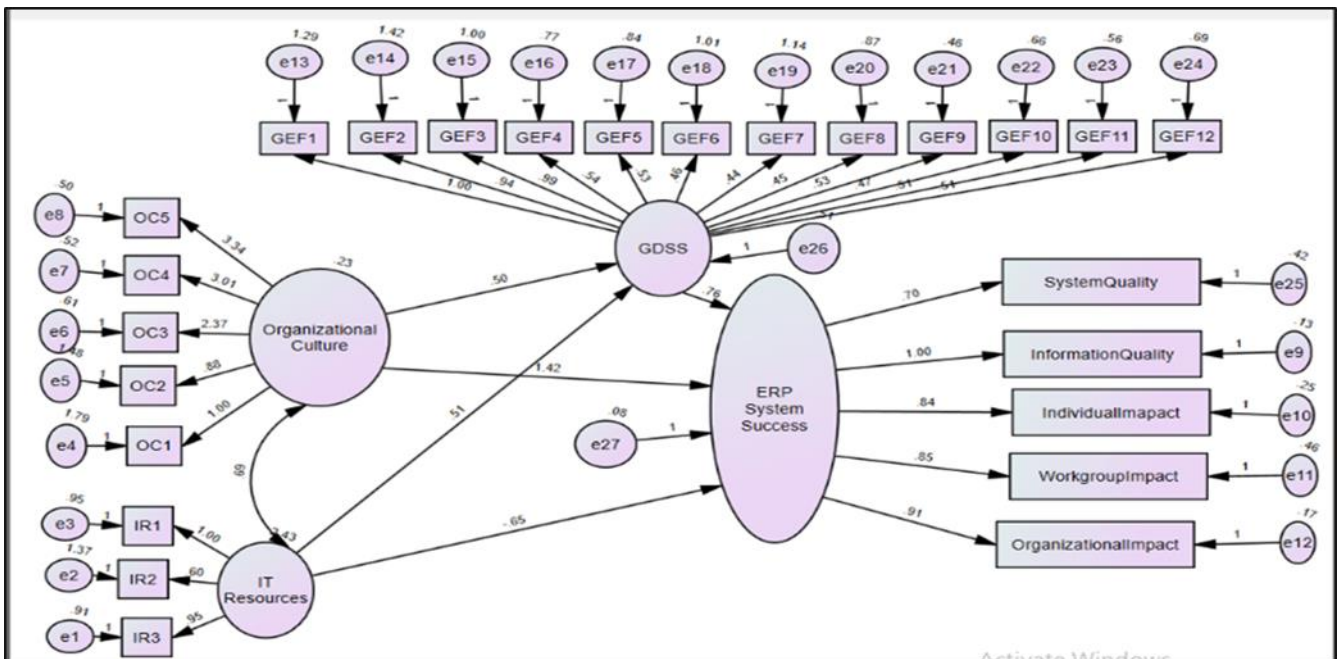

Figure VII: Structural Equational Model

The ERP system success estimate increased from 0.571 (with GDSS) to 0.624 (without GDSS). Therefore, it is confirmed that implementing an ERP that has access to

more IT resources without GDSS will give greater success. The hypothesis is rejected.

c) Total Effect:

Total effects are the total of both direct and indirect effects among the constructs in the model. In the study, there are three dependent factors: Organizational Culture (OC), IT Resources (IT), and Group Development Support Success (mediating factor), that had an effect on the ERP System Success (dependent variables).

VI. CONCLUSION AND RECOMMENDATION

From all indications, the result shows positive and acceptable. The study measured the ERP system's success through GDSS with access to IT resources. A positive correlation was found among the variables of this research work. The study explored the correlation of its independent variables (organization culture and IT Resources) and dependent variables (GDSS and ERP System Success) and total impacts on five variables (System quality, information quality, individual impact, workgroup impact, and organization impact). The result of the research showed that organizational culture does not correlate with GDSS. The organizational culture showed an impact on ERP system success but a better result with GDSS. This means the organizational culture of an ERP-implementing company through GDSS will have greater success with the system.

As per the results the more IT resources with organizational culture through GDSS, the better the ERP system success.

Also, discovered that, despite the mediating effect of GDSS on ERP system success, its ERP system can still be successful without it when there is an increase in IT resources in the organization.

Finally, with all these development, ERP system success eventually contributed to the improvement of the Post ERP implementation success (organizational impact, workgroup impact, individual impact, and information impact and system quality) of any organization.

This paper recommended that for the success of ERP system implementation with positive post-implementation impact, much value should be put on the IT resources capacity of the organization and also, GDSS will also help because it gives the organization user opinion and contribution to the ERP post-implementations success.

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Authors Contributions

The author Imran Batada took sole responsibility of this research work.

Conflict of Interest

The author declares no conflict of interest and confirm that this work is original and not plagiarized from any other source, i.e., electronic or print media. The information obtained from all of the sources is properly recognized and cited below.

Data Availability Statement

The testing data is available in this paper.

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