

# ERP Implementation Success through Effective Management of Roles and Responsibilities among Stakeholders

## *A Holistic Framework Adopted from Two Case Studies*

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**Abstract:** This paper describes a case study of Enterprise Resource Planning (ERP) implementation in a public-private partnership organisation. The primary focus of the study is to explore, from a holistic view, how Return On Investment (ROI) can be achieved through effective management of roles and responsibilities in an ERP implementation context. The paper starts with an introduction, which includes highlights from the literature indicating the significance of roles and responsibilities management among various ERP stakeholders. The introduction is followed by a brief description of the research methodology used, and then followed by a description of the chosen case study for this paper. The case is then analysed with more focus on how roles and responsibilities among ERP stakeholders interrelate with the implementation outcomes. A separate section is dedicated to extracting appropriate lessons that improve ROI from ERP investment. The findings from the case are assessed through the literature and a published case study that is addressed to ERP stakeholders. The result of discussing the case findings will be presented in a new version of the management framework for the stakeholder's roles and responsibilities in the context of ERP.

## 1 INTRODUCTION

ERP is a system that consists of an integrated commercial software solution which fulfils the function of uniting the different functions of an organisation (Ifinedo & Nahar, 2009). One of the key benefits which are perceived to be associated with the implementation of an ERP system is the fact that it enables managers to have a holistic perception of the workings of the organisation and, as a consequence, the popularity of such system implementations has grown rapidly. Indeed, the benefits which are associated with ERP systems are perceived to be so strong that ERP systems have been widely heralded as one of the most significant developments to have taken place in the field of organisational information systems within the last decade (Grabski, Leech and Schmidt, 2011).

Al.Rashid, Al.Shawi and Al.Mashari (2009)

review relevant literature and found ERP stakeholder perspective is a wide research area where authors suggested studying relationships amongst stakeholders at all implementation levels as well as the success of the implementation.

Research which has been conducted by Arlbjorn and Haug (2010) suggests that the key reason for the failure of ERP implementations is due to the fact that the methods used to manage the human issues which arising from the ERP implementation are ineffective.

According to research which has been conducted by Madhani (2012), the implementation of a new ERP system can result in significant changes in the management processes, culture and structure of an organisation and the success of the implementation of a system therefore requires a holistic view of such changes to be adopted. Murphy, Chang and Unsworth (2012) has conducted a series of case studies to argue that an insufficient amount of

attention has been dedicated to managing the effects that the new ERP system is likely to have on the culture of the organisation. This work has given rise to recommendations that a more cohesive and more comprehensive approach is adopted, which acknowledges and manages the changes that the ERP system has on the entire range of stakeholders which exist within the organisation.

However, despite the array of advantages which are associated with the implementation of ERP systems, this is belied by the large number of high profile ERP failures which have been discussed within the media. For example, in a survey which was conducted by Murphy et al (2012) of 250 companies, it was found that the proportion of companies who stated that they were ‘very satisfied’ with their ERP system was just 10 per cent in 2010, while the number of companies who claimed that they were ‘very dissatisfied’ with the outcome of their ERP system rose significantly from 2 per cent in 2006 to 31 per cent in 2010 (Tiwana & Klei, 2010).

There appear to be a number of reasons why the reputed benefits which are associated with ERP systems fail to materialise for many companies.

A study by Burns (2008), that sought to discover the ten most frequent selection and implementation mistakes of 2007, found that clearly defined roles and responsibilities were amongst the key factors vital to the success of ERP implementation.

A recent survey study of ERP implementation in the retail sector in India, conducted by Garg and Garg (2013) found evidence that the management of stakeholders’ roles and responsibilities was crucial to success.

In fact a review of the literature regarding critical success factors (CSF) in ERP implementation, conducted by Finney and Corbett (2007), resulted in a key finding being made, namely that there was a huge gap in the literature regarding what key stakeholders perceived as the CSF that resulted in implementation success, which suggests that their views are not considered valuable nor is the effective management of their roles and responsibilities.

Al.Rashid et al (2012) attempted to study ERP implementation from a stakeholder’s management through a case study of an agricultural organisation. The study is concluded by producing a framework (Figure 1).



Figure 1: Framework for the first revision of the roles and responsibilities among stakeholders. Source: Al.Rashid et al (2012) pp 70.

This framework is based on a single case study and limited to the preoperational stage of ERP implementation only. It did not address the two stages of the core and post implementation. Therefore, this paper aims to test the framework using another ERP implementation case study and to expand the framework to cover part of the issues needed for the other two implementation stages; i.e. implementation and post implementation. A new version of a holistic framework is then developed that can assist in improving ROI from ERP investment through effective management of stakeholders.

## 2 RESEARCH APPROACH

This paper has chosen another exploratory study of ERP implementation from a stakeholder’s perspective, through qualitative data collection, to verify the applicability of the existing framework (Figure 1) and suggest how the framework can be enhanced.

ServCo is a given name for a public-private partnership organisation to manage water supply services. ServCo’s experience in implementing ERP is studied in the context of effective identification

and management of the roles and responsibilities of various stakeholders involved or affected by the implementation. The data collection followed a qualitative approach through a number of interviews with key personnel involved in the implementation at different stages. Other sources of data collection are used to complement and assess the data collected from interviews including various documents such as implementers' proposals, status reports, power-point presentations, minutes of meetings, etc. The data is then analysed and discussed through supporting related literature and the case study by Al.Rashid et al (2012). The discussion of findings from this case is concluded with a holistic framework of effective management of roles and responsibilities which can be considered as an enhanced and upgraded version of the framework (Figure1) that is suggested by Al.Rashid et al (2012).

### 3 CASE DESCRIPTION

A government decree is announced in a developing country requesting Ministry of Water to privatise water services. To prepare a new company for business, the Ministry started the development of support finance, HR and logistic policies and procedures for the new organisation including the initiation of supporting information systems.

The CEO decided to adopt the same ERP solution that has been just implemented in the Sewage organisation (another entity governed by the Ministry).

The purchasing department in the Ministry of Water produced a public Request For Proposal (RFP) for an ERP service, where a number of IT consulting companies applied. The technical committee awarded one implementor (I-a), who had just completed ERP implementation in the water desalination organisation. The contract, also developed by the Ministry contracting department, states that 'I-a' should complete the implementation in eight months in the centralised region only before adding a second region that has recently fallen under ServCo's responsibility.

A month later, ServCo announces that it has signed an operations and maintenance (O&M) agreement with the technical partner to manage the operations of the second region. Gradually, I-a became more and more frustrated because the requirements for changes never stopped, and they were unable to complete the remaining implementation activities.

### 3.1 Operations & Maintenance (O&M) Partnership

The ERP team was not aware of the contract signed between ServCo and the O&M partner. Six months from the O&M signing date, the ERP teams received several enquiries about the ERP implementation status. The ERP team discovered that ServCo appointed the O&M partner to manage the operations and maintenance by which they need an ERP system to facilitate their activities. ERP project manager explained clearly that ERP plans did not include any consideration of the new requirements of the O&M partner. A formal report by the O&M partner submitted to ServCo stating clearly that the ERP implementation is significantly delaying the O&M handover plans. The report includes specific rectifications and a road map that includes several alternatives for ServCo to recover the situation by aligning ERP with the O&M plans. One week later, the ERP project manager circulates a memo that sets out clearly a fast-tracked ERP release to fulfil the partnership agreement with the O&M partner.

During the ERP fast-track implementation process, a new CIO is hired to manage all information systems requirements. The first priority assigned to him is to assure all O&M information systems requirements are fulfilled including consistency and integration with ERP implementation. The CIO takes the lead in capturing all necessary tasks needed to meet this mission and starts a new discussion with the implementor 'I-a'. The implementor responds that these requirements are new and require a new implementation assignment. The CIO takes a firm stand and decides to black list 'I-a' and refuses to release their remaining payments. This conflict with the existing implementor urges the CIO to find an alternative implementation partner. The implemented modules are self-explained in table 1.

Table 1: Implemented modules in Phase I.

Areas	AS IS Modules
Finance	<i>G-Ledger &amp; Account Payable</i>
Supply Chain	<i>Inventory &amp; Purchasing</i>
Human Resources	<i>HR &amp; Payroll</i>

A new implementor 'I-b' is hired for a six month contract to provide post-implementation maintenance and support services for selected ERP modules.

### 3.2 The Emergence of the Third ERP Implementor

In parallel to the assignment of ‘I-b’, the CIO is developing a long-term plan that can assure fulfilment of O&M ERP requirements. An International implementor is hired to conduct a total assessment review of the existing implementation gaps. The process starts by stating a number of objectives that include evaluating the actual modules/functionalities installed in ServCo to assess of the current usage of the system, functions activated but not used, functions not used and recurring issues. The assessment includes also evaluating the completeness of current implementation for the implementation of the new module requested for phase II.

The assessment is concluded by a detailed report that includes gap analysis for all implementation areas. Those gaps were categorised based on the severity level (Table 2).

Table 2: Analysis of the Implementation Gap Categories Distribution.

Area	Severity			
	H	M	L	Total
All		1	1	2
Finance	2	34	10	46
HR	1	9	47	57
SCM	4	4	2	10
Finance & SCM	2			2
Total	9	48	60	117

Two months after ServCo reviews and discusses the assessment review the ‘I-c’ is awarded to implement the third cycle. ServCo & ‘I-c’, who are announced as the strategic partner in information technology, celebrate the new project, which will significantly contribute towards raising the efficiency and the quality of the services offered by ServCo. The new project is introduced as a global initiative that seeks to transform and enhance the way ServCo operates its business and delivers its service to customers. More specifically, the transformation is claimed to arrive through unified, lean and robust business processes and state-of-the-art technology. Customers are expected to benefit from the project, through a Customer Care & Billing system. Also employees have been promised that they will benefit from the project, thanks to the new maintenance processes and the implementation of the enterprise asset management system. The

implementation starts with close coordination between the two project managers i.e. from ServCo and from ‘I-c’ where each project manager facilitates the resources and services required by the implementation. In parallel with the normal implementation process, the change management team sets up a ServCo college to take care of all the required training. The college trains nearly twenty five trainers who take on the training of the end users. The implementation is completed on-time and ‘I-c’ advertised the perceived implementation benefits are achieved.

## 4 ANALYSIS

The analysis of the case suggests implementation is to be divided into three phases (Table 3).

Table 3: Implementation phases.

No	Implementation Description
1 <sup>st</sup> Phase (I-a)	Preparation activities that include the development of the policies & Procedures, selection process and contract development. Core implementation of the As-Is of ERP modules based on the policies & procedures developed in the first phase.
2 <sup>nd</sup> Phase (I-b)	A new implementor hired to provide support and to renovate the existing Implementation
3 <sup>rd</sup> Phase (I-C)	The advance implementation that covers all user requirements and the operations and maintenance partner considerations.

### 4.1 High Level Stakeholders Identification

The high level stakeholders involved at the initiating ERP implementation process are the Ministry of Water, the Ministry of Finance and the Operations and Maintenance partner (Figure 2).



Figure 2: High level stakeholders of the first Implementation Cycle.

The Ministry of Water at the time of adopting ERP is the sponsor of water services in the whole country. Therefore, ServCo business practices are dominated by inherited government culture and practices. The Ministry of Finance governs all financial transactions across ministries. Its mandates include the management of the expenses and revenues of all ministries. This includes the unified government purchasing system that is used to award the first implementor 'I-a'.

For newly set up companies purchasing sophisticated systems like ERP, government purchasing systems can be seen as inappropriate since the stakeholders involved in the purchasing process lack adequate knowledge to make ERP purchasing and contract decisions.

This can justify why the contract and the scope of the first implementation can be seen as inappropriate to the nature of ERP implementation. It is obvious that stakeholders involved from both ministries including purchasing and contracting departments have dealt with ERP as an off-the-shelf software type of product. No considerations are made towards the need to review and improve the business process for ERP to succeed. For example, the process of managing and organising fragmented warehouses is underestimated and hinders several ERP functionalities from being used due to the huge amount of data that needs to be prepared and the processes that need changes.

Besides the knowledge gap within different stakeholders involved from the two ministries, there is a clear roles and responsibilities gap at that stage. A clear example is why the ERP team disengaged from the O&M partnership agreement.

In fact, the ERP implementation team may be shocked with the magnitude and un-criticality of the operations and maintenance partner's requirements that should have been thoroughly considered at early implementation phases. The proposal by the O&M partner indicates clearly before the contract is signed that ERP is expected to be ready before operations are started. However, the purchasing and contracting stakeholders who prepared the contract never communicated this to ERP team in a timely manner. All stakeholders drift from bearing the responsibility of such a mistake Figure 2 demonstrates that ERP is centred on three stakeholders who lack consistency and integrity in their requirements.

That poor management of roles and responsibilities has cascaded down through lower levels to line managers and end users who become part of the dilemma because of the lack of clarity in the definition of their roles and responsibilities.

During the requirements definition, the response from end users was slow and incomplete. This behaviour by end users increased the frustration of 'I-a' as this is expected to delay the implementation. End users stated that they received conflicting directions from two parties.

The first party is their line managers who tried to comply with ERP implementation instructions and guidelines, while the second party is the operating and maintenance partner who used their power from the mandate obtained from the contract.

This scenario that first started from poor management of roles and responsibilities resulted into ERP failure during first implementation cycle (Figure 3).

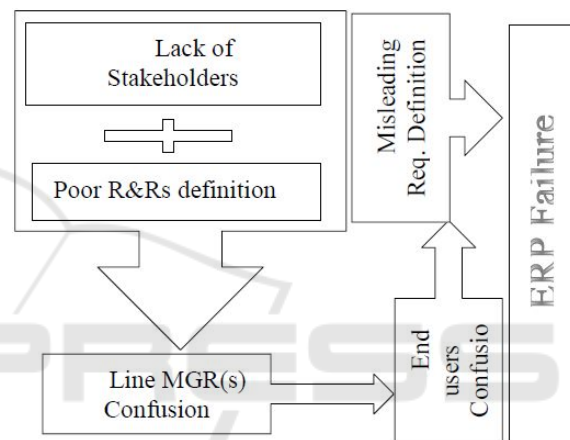


Figure 3: Relationship between R&Rs & ERP failures.

## 4.2 Policies & Procedures Focus

The attempt at gaining a head start by developing policies and procedures for ServCo through the use of management consultants has heavily affected the implementation.

Those policies and procedures become the primary source for the definition of ERP requirements. When functional managers are hired by ServCo at a later stage they found that large requirements gaps are missing from the current configuration. End users found HR modules inflexible to cope with real business practices. This finding can be seen in the tendency by several end users to manage core business operations outside the system as much as they could, which defeated the point of adopting such advanced systems like ERP.

The driving forces of expediting and developing policies and procedures before hiring line managers are understood. However, the complete ignorance of key stakeholders in the requirements definition by relying only on policies and procedures can be seen

as an explicit mistake. Policies and procedures are as good as business owners understand and use them in practice. However, in ServCo’s case not only were business owners disengaged from the development process of those policies and procedures but also it had never been used in the company. ERP modules, therefore, are designed on a very weak base as regards defining the requirements. As a result, the outcome of the first implementation cycle is poor in terms of assisting HR practices, most of the issues are resolved outside the system and ultimately another implementation is initiated. The ROI from ERP investment is then significantly decreased since the return has to cover double of the cost.

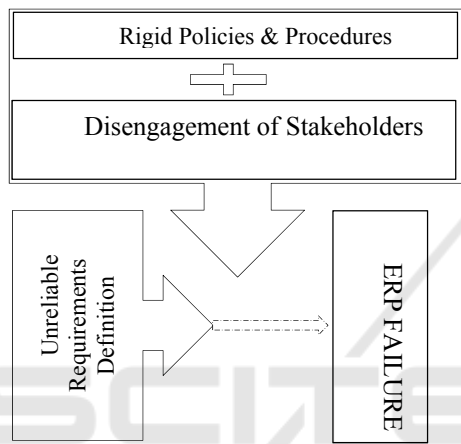


Figure 4: Relationship between disengagement of Stakeholders & ERP failures.

### 4.3 Can the Case Considered Successful or Failure?

The holistic review of the implementation process including the various implementation cycles leads to the conclusion that deciding whether the implementation is successful is problematic.

The second and the third implementation cycles can be considered successful. Both projects are completed on time, according to budget and the objectives are achieved. On the other hand, the experience of the first implementation cycle was one of failure. The project was not completed, the cost and the time is over run. The combination of three cycles indicates that ultimately ERP achieved most of its target benefits however ROI is significantly less than what it should be as ServeCo invested in two extra unplanned projects to achieve the same objectives.

Despite these implementation deficits, ERP implementation produced side-gains. First, the hard lessons from the first implementation cycles

motivated the company to focus significant attention on change management. Second, the organisation learned the significance and the importance of managing roles and responsibilities to ERP success; which can be demonstrated by the examples of table 4 & 5.

## 5 LESSONS LEARNED

A number of lessons which fall under the category of the management of roles and responsibilities among stakeholders are discussed in the following sections

### 5.1 R&Rs Lesson from the Second Cycle

While analysing the project plan start-up activities the conclusion can clearly be drawn that the implementer has suggested a very clear, realistic and fair roles and responsibilities definition. The ServCo project manager demonstrated excellent leadership in assuring a full commitment to the definition of those roles and responsibilities. The second implementation cycle project manager offered the following description:

“The second implementor has successfully absorbed the legacy implementation issues, rectified all pending problems, implemented needed additions and produced excellent support services. The roles and responsibilities definition provided by the implementor has proven to be a prime success factor that paved the route for the third implementation phase success”

Table 4: Roles & responsibilities examples from 2nd phase adopted from ServCo project documents.

Role/Responsibility	Activities for the Role
ServCo Project Sponsor	<ol style="list-style-type: none"> <li>1. Provide management sponsorship and direction to the project</li> <li>2. Provide limited time for executive interview and review project progress</li> <li>3. Chair the steering committee meeting</li> </ol>
ServCo Project Manager	<ol style="list-style-type: none"> <li>1. Conduct reviews and weekly status meeting</li> <li>2. Engage with I-b support manager in decision making process around – support processes</li> <li>3. Facilitate management decision and approvals.</li> <li>4. Single point of contact for I-b team from communication perspective</li> </ol>

## 5.2 R&Rs Lesson from the Third Cycle

The third implementation cycle can be seen as the most successful project. The roles and responsibility management have been developed and improved exponentially during this implementation cycle. Table 5 demonstrates how roles and responsibilities of the core implementation members have been defined.

Table 5: Roles & responsibilities examples from third phase adopted from ServCo project documents.

Team	Role	Time	Description
PMO	P/D	20%	Project Director will be involved also in planning and mobilising Finalisation (leverage Compass resource)
PMO	PM	60%	SERVCO PM in Plan phase is assumed high level of involvement based on the nature of the phase
PMO	PMO/A	40%	Support of PMO (leverage Compass resource)
Functional	BL	30%	Usually he is a selected and trusted representative of Business Users Functions, with corporate visibility and authority – He will act as gateway with BU for Planning of Workshop to be held in Analyse phase. He will act as the gateway for the user’s community, facilitating communication and decision making.
Techno Team	IT	30%	Specific Skills in current IT capabilities supporting such processes. Able to discuss/ report/ communicate on current practices, and act as a catalyst/ change agent on to-be practices. In this phase just one at HQ level
Change Team	CM	20%	Representative of HR department - To cover also the Change Management part – He will be assumed to be the gateway with Business Users for Training needs and schedule finalization and for the Communication Plan (leverage Compass resource)
Change Team	BA/C	40%	Assist the Change Manager in his daily work

PD: Project Director CM: Change Manager BA/Change: Business Analyst Change PM: Project Manager

## 6 DISCUSSION OF FINDINGS

The holistic review of the lessons learned indicates the significance of proper identification of stakeholders in the implementation at initiation stage of the project. ROI would have substantially increased if the proper stakeholder’s identification had been made at the initiation ERP stage. The three implementation projects could have been reduced into one project with two phases. These ROI improvements would have been derived from shortening implementation cycles, reducing consultants’ involvements and optimising the internal resources that had to be dedicated for ERP implementation for a long time.

This finding is in line with the study by Alrashid el at (2012) for an ERP implementation case in the agricultural field. In that case the implementation only achieved most of its targets in the third implementation cycle as a direct result of poor management and identification of the roles and responsibilities among ERP stakeholders. This is exactly the scenario in ServCo’s case as the implementation achieved most of its benefits in the third implementation cycles. Both cases indicate that failure to follow the existing framework recommendations (Figure 1) in terms of proper identification of stakeholders and the roles and responsibilities agreement before deciding to start the implementation resulted in several implementation difficulties that adversely affect the ROI.

However, the case of ServCo provides additional contribution to the framework; which relates to the need to audit and review the application of roles and responsibilities among ERP stakeholders during the implementation process. More specifically, such an audit process needs to be conducted before the decision to go-live. Figure 4 shows how the two assessment reviews by qualified consulting firms assist in identifying ERP implementation deficits; consequently, ServCo amends the roles and responsibilities matrix among stakeholders in line with ROI targets. Such audit process needs to be included in the ERP project master plan. This is will assist ERP sponsors to use the audit outcomes to assess implementation outcomes and to take necessary rectification actions. Proper identification of implementation issues in a timely manner enables ERP sponsors to preserve ROI by freezing implementation costs and expediting ERP benefits.

## 7 DERIVING THE FRAMEWORK

The discussion of analysis of the three implementation cycles can be better represented by a framework of how effective management of roles and responsibilities among various ERP stakeholders can improve implementation outcomes. The derived model can leverage and be integrated with the framework (Figure 1) by Al.Rashid et al (2012) that covered the first part of the ERP initiation stage only. It can also combine the necessity of including the audit process before the go-live as explained in Figure 4.

The result of the audit process can either be positive findings where implementation can progress further to the go-live and lead to ERP success. A second probability, that the audit process indicates improvement opportunities where a rework process is needed and further rectifications are required before the next audit process can be conducted Figure 6. The integration between the prior research findings framework (Figure 1) and the extracted lessons of conducting an audit process (Figure 4) can be combined to produce an advance version of the framework (Figure 6). The framework can be divided into a number of groups.

Firstly, it suggests that ERP implementation should be divided into three phases, preparation, implementation and go-live & post implementation. Through the three phases approach ERP sponsors can intervene wisely to define and review the ROI and the roles and responsibilities. Two main points for their intervention are suggested between the three phases. The first point is at the time of signing the contract with the ERP vendors and announces the starting of ERP. The second review point is before the go-live where the audit process includes a full review of the ROI status and the management of the roles and responsibilities.

Secondly, the framework recommends a proper understanding of driving forces that brought ERP as a business case into the organisation. This is expected to pave the way for setting and defining the project scope and objectives before stakeholders can be assigned and made accountable for achieving the target ROI.

Thirdly, there are the preparation activities before the implementation starts, including proper planning centred on effective stakeholder's identification and concluded by producing the first roles and responsibilities agreement among various ERP stakeholders.

Fourthly, there is the core implementation activities process in which the framework is suggesting a comprehensive audit of the roles and

responsibilities among all stakeholders before committing to the go-live, unless the audit confirms a successful roles and responsibilities review go-live should not be approved.

Finally, the implementation can safely progress to the go-live and post implementation plans where roles and responsibilities among ERP stakeholders by that stage are to be seen as an embedded part of the organisational culture. Once this is achieved; this can ensure optimal ERP ROI is always achieved during the continuous ERP improvements.

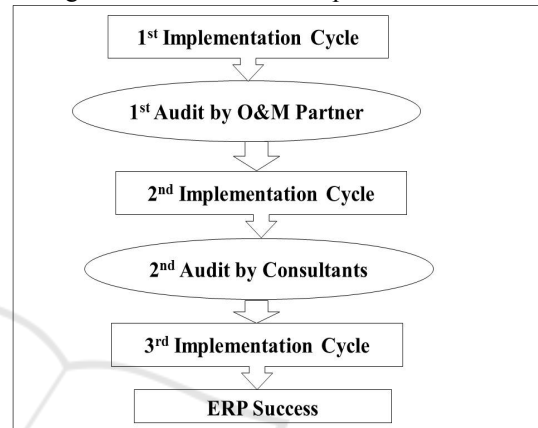


Figure 5: The audit process Vs. implementation cycles.

## 8 CONCLUSIONS

The paper has explored the research and conclusions from ERP literature that the management of roles and responsibilities among various ERP stakeholders is significant. Prior research suggests a framework centred on the management of stakeholders to improve ROI (Figure 1). That framework covers only the initiation stages of the implementation. A case study of a public-private partnership organisation is studied to verify the applicability of that framework and to extend it to cover the implementation and post implementation stages. The case has been described; analysed in a qualitative manner and related lessons have been extracted. The analysis shows, through examples from the case, how ROI is adversely affected as a direct result from the absence of the management of effective roles and responsibilities and the failure to implement the existing model at the initiation implementation stage. The findings of the analysis have been discussed using the existing framework from the previous case by Al.Rashid et al (2012). The paper found that ERP sponsors are urged to prioritise and carefully plan for a comprehensive audit process of



the roles and responsibilities before deciding has to move to the go-live stage and discard legacy systems. The audit results assist ERP sponsors to take the necessary actions that rectify implementation mistakes and assure optimal results are achieved from the go-live and post implementation. The results of the findings and discussions have then been integrated with the existing framework in the form of a framework (Figure 6).

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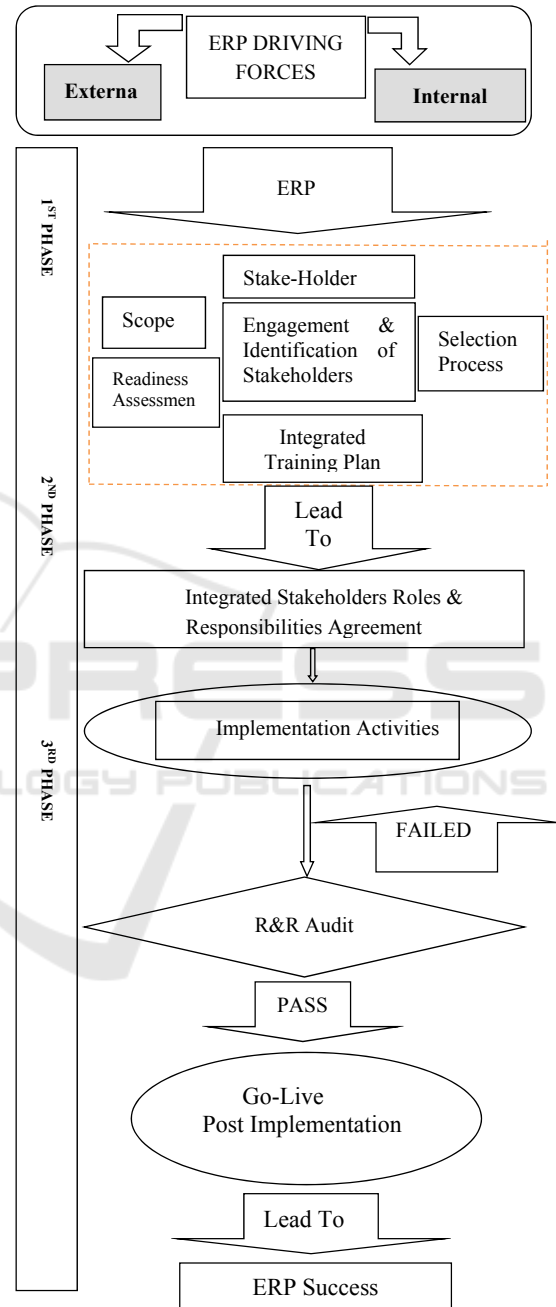


Figure 6: The framework for effective management of roles and responsibilities among stakeholders adopted from the case.