

Minimization of Risks and Enhancing Success Possibilities in ERP Projects: Few Ideas

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Abstract: *The success or failure of an ERP project is dependent on many a number of factors which come across during its entire life cycle. Almost each and every ERP projects are some way or the other prone to some Risks. The risks are sometimes very much predictable and sometimes they are uncertain and we cannot foresee them in advance. As the time goes and the phases of the project come, new risks may creep into the project. These risks could be due to any sudden changes in the project requirements at any phase of a project or lack of planning in advance from project management side while starting the project. ERP projects themselves are very complex in nature involving a large numbers of modules to be implemented in good number of sites of an organization. It would encapsulate the entire supply chain, manufacturing, finance and HR side of a company involving different processes in different departments to be done by different persons. There could be involvement of good number of manufacturing sites and warehouse locations and corporate offices of a company geographically located at different locations of the world. An early and wise decision on best ERP package selection and implementation strategy followed by a robust project management plan can minimize the risks of a project and subsequently can enhance the possibility of its success.*

Keywords: *ERP (Enterprise Resource Planning), Risk Factor, Success Factor, SCM(Supply Chain Management), HR(Human Resource), CRP(Conference Room Pilot), UAT(User Acceptance Test), ROI(Return on Investment), TCO (Total Cost of Ownership), RFQ (Request for Quotation), PO (Purchase Order), SOW (Statement of Works)*

I. Introduction

In recent times, many a number of medium and large scale industries are adopting ERP as a software package for the support of their day to day operations. In pre-ERP era there was no integrated system which had a common database platform containing the entire supply chain, Financial, HR data. There were multiple and distinct legacy software which supported for the different activities and operations at different departments of an organization like Marketing, Sales, Purchasing, Manufacturing, Planning, Finance, HR etc. This would have created disjoint communication channels, records, reports etc. from different departments of the company. When ERP came, it brings all the operations and records of the organizations in a single data base with integration between each operation to other. This in turn enhanced the productivity of the organization as a whole and reduces the lead time of each operation. The organizations became lean in nature, which means there were reduction in waste and improvement in cycle time and hence the operating profit of the organizations increased in a nut shell. Although, the ERP as a project to any organization is very complex in nature, as it involves a series of phases with challenges, before it can be implemented and used by any organization. It starts from initiation of the requirement of ERP. The organization needs to first of all decide that their current legacy system has to be replaced by an ERP package. Once the initiation of the requirement is done, there is a phase of selection of proper ERP package from the number of ERP packages available in market. It requires some Cost-Benefit analysis by the top management on which package to choose. Once the package is chosen, there is a process of selecting the proper Consulting vendors who can help in implementing the package in their organization. The consulting company along with the business and IT persons from the implementing company have some kick off meeting and requirement gathering sessions. The AS-IS processes is being studied and TO-BE processes are being designed by the consultants with some FIT-GAP analysis report. Subsequently there are few testing sessions like CRP1, CRP2, UAT etc. These sessions would come out with some defects from the system which are fixed at each and every test phases. Once the testing and development cycles of the ERP package is almost done, the static data and open dynamic transactions are converted (loaded) into the new ERP system from the old legacy systems. All setup related activities are completed in cut over phase. There are a number of training sessions to the business users on the ERP package in order to make them conversant with the processes in ERP. At this moment the system is ready for Go-Live with its new ERP system in place.

Although the entire ERP project life cycle appears to be very simple and straight forward from the processes depicted as above, but each and every phases not only require the involvement of people across the organization but also they require a robust planning and proper communication as well. There are a lot of risks

involved in each and every phase. In order to make the project successful, it requires a proper plan in every phase to mitigate those risks and to make the project a success.

II. Methodology

In this article mostly the practical experience backed up by some case studies from different medium and large scale ERP implementation projects from real life experience has been considered as the core information and knowledge base. The practical knowledge base has been backed up by other relevant literature reviews on this field on Critical success factors and barriers of ERP implementation projects. The case studies are mostly taken from the big enterprises doing their businesses across the world specifically from Europe, US, Asia Pacific and Middle East regions. Few relevant books written on ERP Life cycle and its success factors is also another source of knowledge base for this paper. All these information and knowledge was systematically studied and reviewed.

III. ERP Life Cycle Overview

The different phases of An ERP project can be depicted as below:

Requirement Initiation Phase: In this phase of an ERP projects, the top management along with the middle level managers decide if the organization really need to replace their current legacy system with an ERP system or not. This phase is very vital and the decision taken in this phase will have enormous impact subsequently on future. Managers need to see the present process that the organization is currently following and what are the problems and challenges faced by the business users in those processes. They need to also see the processes where the improvement is required in order to enhance the productivity of the entire operation and make each process a lean one. They need to also see if any ERP package will be able to cater the drawbacks of their existing processes. This will in turn increase the operating profit of the company.

Acquisition Phase: In this phase the suitable ERP package is being selected that best fits the organizational requirement at an optimum cost. The chosen ERP package should eliminate maximum number of drawbacks of the current processes of the organization. The new package should make the entire supply chain processes lean by reducing the cycle time of each steps. There should be some skilled ERP consultant who should analyze and compare organization's current business processes vis-a-vis the processes that are supported by the specific ERP package. Depending on the analysis report the top management from business can draw some conclusion on financial term on how much benefits the company can achieve out of replacing their old legacy system with the ERP product. Once business reach to a Return on Investment figure from this particular exercise, then it's business decision on which ERP package to choose out of multiple available products in market. One needs to consider the product's Total cost of ownership and the long term benefits in some stated currency.

Vendor Selection Phase: In this phase the customer generally floats the RFQ for getting technical and commercial proposals from different consulting companies for the specific ERP product. Once the Quotes come from different vendors, those are analyzed both from technical aspects and commercial and price aspects. This phase is called Quote Analysis phase. The best vendor having the required technical capability with the best price is being awarded the project for implementing the ERP product. There is some PO and SOW provided by the customer to the vendor party as a part of the legal contract which needs to be signed by both the parties.

Implementation Phase: This phase is the actual installation of the selected ERP package in the concerned organization. It has got a number of tasks involved and is the longest phase of an ERP project. The Implementation phase starts with the Kick Off meeting. In this kind of meeting the participants are the top management from the business side, knowledgeable users from each and every operations of the organizations who generally are called super users, the persons involved in day to day transactional activities in various departments and operations, IT people from the business side and some representatives from the consulting vendors having knowledge in the various modules of the ERP product like SCM, Finance, HR etc. The business generally explains their day to day operational processes and the ERP consultants show the capability of the particular ERP package against each operations. There are some analysis done against the business processes and the ERP process. Then there are some outputs coming up from there as FIT-GAP analysis report. The numbers of business processes which are directly mapped to the ERP process are the FITs and the business processes which could not be fully or partially mapped with the ERP process are the GAPs. At this stage the development or the project team from the consulting end in coordination with the IT team of the business try to develop some customized codes in order to map those gaps to ERP. There could be different customization like Report, Integration, Conversion, Extension, Workflow etc.

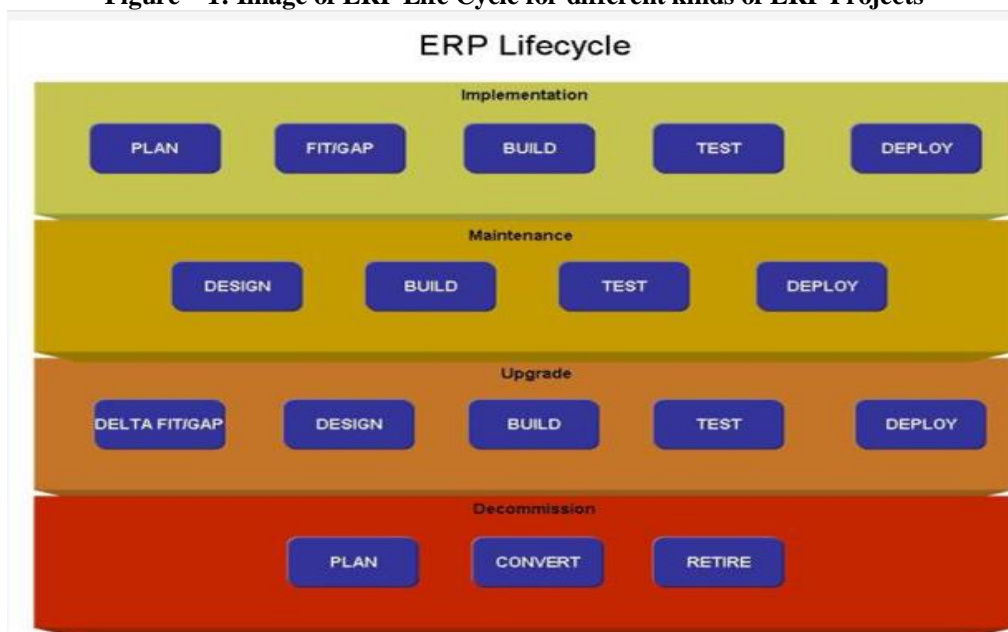
Once the FIT-GAP part is done, the testing phase gets started. The consulting firm builds up some development and testing instances for the same. In the testing cycles, the test scripts with test cases for different module and track wise processes are being prepared and loaded into some testing tool. The consulting firm generally tries to test all the business processes as gathered earlier in the ERP system and try to post their results against each step in the testing tool. Anywhere they see any gap in between the business process and the ERP process, the development activities is being done as a part of the customization in the development instance. It also requires relevant functional and technical documentation preparation before any kind of development is actually done in the system. Those documents are also being approved by some of the solution architect team from the IT people of business. There are different testing phases like CRP1, CRP2, UAT etc. In each phase the testing validation managers will set some exit criteria. Generally the business users are provided rigorous training on the ERP product before they can actually start testing on the system. Once most of the test cases are being passed in the testing tool and approved by the validation managers, there comes the phase of UAT where the business users are actually doing the testing in the testing environment of the ERP product. If the business gets satisfied with the set of tests they do against their operational processes, the top management from the business side gives the green signal to move into production environment. This is what is generally known as the Go-No Go decision in ERP. This decision is crucial and will have impact in the future financial factors of the organization as well.

If the top management from business decided to go further with the ERP product, then the consulting firm along with the IT people and the users and super users from the business side plan on Go Live activities. These activities consist of the Cut Over plan, Setups, Static and Transactional data conversion from the legacy system to the ERP system and ultimately reaching the Go-Live date. On the Go-Live date onwards, business users start transacting in the new ERP system and they stop working on their old system. The implementation phase in any ERP project may vary from three months for a very small implementation to few years for a large implementation projects based on the numbers of modules and sites under implementation.

Post Production Support and Maintenance Phase: Once the customer start using the ERP product, then comes the phase of the post production support and maintenance activities. Generally the business wants to continue with the contract for support with the consulting firm on the post production support and maintenance activities till the time the new system becomes stable and everyone in business side is at a comfortable zone in using the package. The time frame for post-production support may vary from weeks to years. Once there are no severe or business critical issues in the ERP system, which may stop the business transactions to flow, the IT persons from business generally take over on the post go live support part from the consulting firm.

Retirement Phase: This phase comes when a new technology may come in the market which might outfit the ERP product because of its added benefits. Sometimes the management from business decides that they will go with some other system which might be more relevant for their organization.

Figure – 1: Image of ERP Life Cycle for different kinds of ERP Projects



IV. Risks Associated With ERP Life Cycle And Their Remedies:

As we discussed the ERP life cycle overview and different phases in the life cycle, there are certainly Risk Factors associated with each and every phases. Each Risk is associated with the management decision on different attributes like

- Decision if really ERP required for the organization
- ERP package selection
- Consulting Vendor selection
- Project team selection
- Project management strategies and plans
- Changes in business goals during the project
- Commitment from Top Management
- Coordination and synchronization between the IT persons and top management from business
- Cooperation and communication between enterprise, consulting vendor, Product Vendor
- Product Training
- Organization's willingness to change

Each of the risk factors is associated with some or the other phases of ERP project life cycle. In the Requirement Initiation and Acquisition Phase, the enterprise generally tries to analyze their current processes and try to improve upon the challenges and problems they face. At this time generally they seek solution from an ERP product based company's consultancy which could help them in improve upon their current processes. This is very vital to have a knowledgeable IT person also from the business side who can also unbiasedly judge that particular ERP product and can try to map to that product's feature with that of their current processes and try to find out in synchronization with the other business users if really the ERP package will help them in improving their processes by eliminating the current challenges and making the organization Lean. There should be a very good coordination, cooperation and integration between the Product consultants and the business enterprise here. The knowledge sharing should be very transparent so as to minimize any risk upon choosing a wrong ERP product. If any wrong ERP package is chosen, or if the decision of changing the legacy system to an ERP system is taken by mistake getting influenced by some external biased factor, then the investment in that ERP project will not only make disaster, but it also will bring demotivation to the employee of the organization as a whole. Instead of enhancing the productivity by eliminating the challenges, it would add more challenge and burden to the system.

In Vendor selection phase, the Quote Analysis team should be competent enough to judge the technical capability of the Vendor concern. If the vendor does not have enough experience in handling such kind of ERP projects from past, then it is recommended not to award the contract to such vendors. Vendor's company should not be suppressing any information that could be harmful to the customer's organization in future. There should be adequate and competent functional and technical vendor consultants across different modules from Supply Chain, Finance, HR, CRM side with necessary experience supplemented by product certifications.

There should be a good ERP Project team from both business side and from consulting vendor side while starting the implementation phase. Information should flow on time from the top management like CIO, CEO down the line to the business users and workers on time. Improper information flow or the flow of information with a considerable time delay in the organization could cost a lot.

Case Study 1: As an example, one of the big reputed companies decided to go for an up-gradation of their ERP package from a lower version to a higher version. They floated tender and awarded the project to a big consulting firm of project value approximately 60 million dollars. The consulting firm started hiring the competent consultants internally from their firm. It certainly costs a lot to the consulting firm as they had to leverage those resources from other projects as the current project with a big client should mean a lot to them. Consulting partner's project team was almost built up and they were about to start their project. Resource mobilization to different sites of customer was also started subsequently. On a fine morning, the customer announced that they are keeping the up-gradation project on a hold for the time being. The reason behind the same was known to all later. There was some merger of the organization with some other company. Now the other company was using different ERP product which the enterprise was not using. Probably they wanted to adopt the same ERP product as the merging company is using due to some of their internal merger policy. So at the last moment they decided not to go with the ERP product that they thought of earlier and made the project as hold. This kind of decision not only costs a lot to the customer but also to the consulting companies and as a whole it can cause a lot more to the long term relationship between the customer and the vendors. In this case the customer did not pass through the right information from their top management to the consulting company at right time probably due to some strategic decision that they would have thought of and that in turn caused a good amount of loss to not only the consulting firms but also to the customers also. This kind of situation

happened due to the fact that the enterprise did not give due importance to the IT implementation part and considered their business merging strategy to be much more critical. This is not so unusual, but at the same time the top management should have more robust communication and information sharing plan. If they would have prepared a robust strategic plan giving due importance to their IT implementation job as well, then this situation would have been avoided.

Case Study 2: In another big bang kind of ERP implementation project, the customer wanted to implement ERP package in their different sites all over the world located at Europe, US and Far East combining a large number of manufacturing and distributions sites. They also planned to implement several supply chain, manufacturing and finance modules in parallel. The customer selected multiple consulting vendors who will support in consultancy to their ERP implementation for the respective modules in sites across the globe. They started the kick-off meeting along with all their consultants and business side IT persons and incurred a good amount of expenditure in order to do that in certain place of India. They even also decided which consultants will be deputed in which of their sites and who will look into which all modules of their business while implementation. The resource deputation process and requirement gathering process also started after the kick-off meeting. The consulting vendors also sourced all the domain consultants from different industries for this project and allocated them for this particular project only. After a few days the top management of the enterprise decided not to go with ERP implementation as a Big Bang implementation approach. They thought to do the implementation by Phased Roll Out by site approach and the IT persons from business in turn declared that in a meeting to the vendors. In that situation that consulting vendors had to release those valuable domain experts from the particular project because of this major scope change. This is an example of improper project management, change management and planning of the business enterprise in taking their decision right at first time. This kind of change in scope in ERP projects causes wastage of cost and can bring in relationship problem with the customer. Although these are very generic issue faced in the ERP projects, but those can be minimized by taking a robust decision on planning and budgeting of the implementation cost from the enterprise.

Again during the implementation phase during the FIT-GAP analysis process, if the FITs and GAPs are not properly identified, then that would cause an issue in the very next phase when the CRP testing process would actually start. Those FITs and GAPs will actually come into front during actual testing. So a competent consultant on respective ERP modules, having very much conversant with the process steps on certain operation can draw an inference on FITs or GAPs during the Kick off meeting itself by actually knowing the business process from the customer. Like for example a sales module consultant having a thorough knowledge on order management processes can tell about on when the holds can be applied to a sales order and based on which criteria. So if the business wants some credit check hold to be applied on the sales orders when the order values crosses some limit for a specific customer, then the ERP product consultant by looking at the business requirement can be able to say that if that is possible to do by ERP standard process or not. So he can instantly tell that if there would be any customization required for this requirement or it is a direct FIT to the ERP product. This analysis is very much crucial and can be done without testing actually in the system, once the consulting firm has very good and competent persons available having sound knowledge in the ERP package for the respective modules and tracks.

The consultants should also be competent enough to understand the actual requirements of the customer during their face to face discussion in the requirement gathering phase. So the person should be having not only the ERP product knowledge, but he should have enough domain knowledge also to understand the user stories. The communication skill is also a big factor at this moment for the business users, IT people from business and the consultants. If the business users are not able to convey their exact requirement during the requirement gathering phase, or if they say something else deviating from the actual requirement, then it would be a complete mess. The consultants should be sometimes diplomatically handling the situation when they really do not know that if certain complex process from business can really be handled directly by the ERP product or not. In that case instead of concluding anything upfront to the customer, one can buy in some time, test it rigorously in the ERP product and then can come back with his decision on FIT or GAP to the customer. This would make the communication channel and understanding between the customer and the consultants more robust, which in turn will lead to a successful implementation.

During the testing phases like in CRP, the testing person from consultancy firm or from the business users should always provide the candid view of their actual testing results in the testing tool. Instead, if someone tries to just complete the testing in the tool for the sake of testing and pass all the steps, then it is of no use. It may sometimes happen to the business users that due to lack of their knowledge or miscommunication between the consulting people and the business or due to lack of time of testing, the test scripts are passed although they actually should be failed. In this case there should be a defect raised by failing the script. Now, this kind of processes would fail in future when users will actually do the same in production and will lead to a dissatisfaction to them. Hence an unbiased and candid opinion during the testing is very much required for

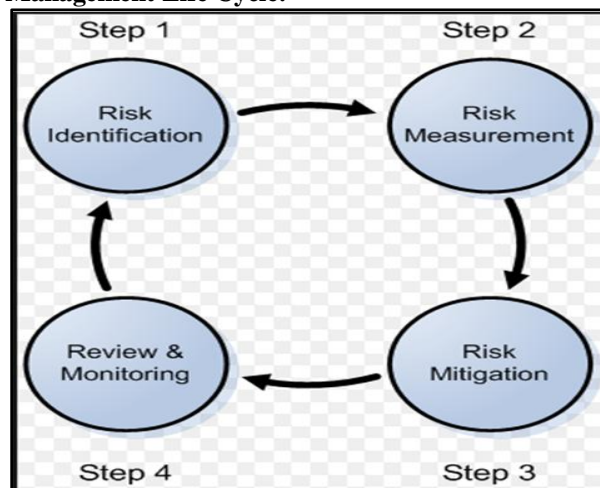
successful ERP project. In this case a knowledgeable and competent tester is also required to have a proper testing done on different processes. The tester should have a good knowledge on the ERP product and also on the testing tool used. The users should also try to provide ample time while testing the test scripts.

The training phase to the business users is also a vital thing for successful ERP implementation. Without a good training provided to the users, they will not be able to operate the system post go live situation and due to lack of knowledge there could be wrong transactions happened in the system causing vital issue to the business. This will in turn may cause severe business loss during the post go live scenario.

There should be good supporting consultants in the post go live period who should be competent enough to fix any severe or critical system issues coming during that time. Any delay in fixing a critical issue may cause a severe damage to the business. Say for example business is unable to ship material from their system due to some issue in shipping module which is preventing the shipment, or due to some unexpected holds in the sales orders which should not have been applied to the order. If the business users unable to release the hold on time or the consultants unable to fix the issue and subsequently the order remains unshipped, then that is a huge problem. Suppose the consignment is very critical for the customer to receive by some specified time and they did not receive it due to the system issue. So this will not only impact the business of the customers who were supposed to be the recipient of that shipment but they may also stop placing order on their supplier who implemented the ERP package. Hence it would be a loss in repeat orders and subsequently the revenue of the company as a whole. Efficient support consultants are required for eliminating this kind of cascading effects in the supply chain. So choosing good post production support staff is a must in order to avoid any kind of post-production mishap which will cause the ERP project to be a success.

Case Study-3: Sometimes although everything goes fine throughout the ERP project life cycle, but in spite of that the business users resist in changing their system at the last moment before the go live. As an example, one ERP project of enhancing and implementing one of the ERP product in few sites of one of the major company, one of the production manager of the enterprise all on a sudden did not like one of their critical process to be operated in the way the ERP product works in the system. At that time it was almost the verge of go-live period and users were doing UAT session. The reason of the concern was due to the fact that, the business users in their earlier testing phases did not give much importance on the actual process that they were doing in the system on that particular operation. The user, who really tested that process, was not the person who could give some decision on whether the process provided by the ERP package would be acceptable or not. Since the production manager did not see thoroughly that particular process during the CRP testing phases and it came into his notice later at UAT phase, he did not allow that process to be operated in the way as provided by ERP. This was an example of mere lack of project management and coordination activities during ERP implementation. So there should be a close coordination and communication in each of the phases between the top management, middle management, operational people, business users, business IT persons and consulting vendors so that there should not be any loophole throughout. An earlier detection of this kind of problems can reduce the confusion like this. Although the business IT persons and the business operational persons along with the top management of the business later on resolved that issue by some tri-partite settlement between them and somehow could manage to go-live for the project, but it would have caused a big problem for that project. The reason behind this incidence can be attributed to the production manager's willingness to change and his ego factor.

Figure – 2: Image of Risk Management Life Cycle:



V. Conclusion

In this paper it has been tried to find out the main factors during ERP project life cycle which contribute to the successes and failures of a medium to large scale ERP implementation projects. It was tried to find out step by step phases where in the challenges are faced and how to minimize them by proper planning and implementation strategies. It was tried to provide the ideas from directly practical experience. There are very few research papers where the success factors and the failure causes were discussed entirely from the practical point of view. The paper is also backed up with some case studies from the real life real life experience. In this regard, the paper is unique and different from earlier papers published on topics like critical success factors, barriers etc. on ERP implementation projects. However, there are few research papers on ERP life cycle worked upon on the theoretical discussion like drawing some mathematical relationship between the critical success factors and the actual success of an ERP projects providing some relative importance/ weightage to each of the factors. This paper does not include that theoretical discussion in detail, rather it focused on more of the practical knowledge.

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