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BUSINESS PROCESSING REENGINEERING METHODOLOGY FOR OPEN-SOURCE ERP USED IN PAKISTAN GOVERNMENT ORGANIZATION

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Abstract: Enterprise Resources Planning (ERP) frameworks have been executed all over the planet in numerous administration associations. Be that as it may, business process re- engineering in an administration climate in Pakistan is itself a mind-boggling task. A few contextual investigations have detailed the achievement and disappointment factors, the right Execution techniques as well as examples gained from business process re-designing in ERP execution. In this paper, we feature the variables that aided in executing the ERP in an OK way and point out the elements that should be kept away from and give BPR technique to carry out ERP in government association. Executing the ERP in government associations has its own flavor. This paper will depict the difficulties, preparing snags and result of cycle reengineering in Government associations. We give BPR procedure in ERP execution so the manual course of government establishment are change into less paper climate with better effect on their capabilities. We would urge any execution to deal with the significant examples gained from this examination. ERP execution in Government Associations can be considered as an Government Resources Planning (GRP) as they observe the guideline government strategies and methods where they need to stay with those cycles regardless of whether they are not exceptionally effective. This report features the positive elements expected in carrying out the ERP in an adequate way and furthermore portrays the entanglements that should be stayed away from. This paper depicts different difficulties and impediments experienced during execution process and our endeavors to beat them by changing administration strategy in like manner for better cycle reengineering.

Index Terms: ERP, BPR, Open source, Pakistan, Reengineering, Government.

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1. INTRODUCTION

Enterprise Resource Planning (ERP) frameworks are business the board frameworks, involving a bunch of complete programming of Information System (IS) intended to coordinate and deal with all business capabilities inside an association, these set incorporate applications for HR, monetary and bookkeeping, deals and dispersion, project the executives, material administration, production network the board [2]. Government entities, particularly in Pakistan, face unique challenges when it comes to the re-engineering of their business processes. While implementing an Enterprise Resource Planning (ERP) system can offer an efficient approach to process re-engineering, it is not without its obstacles and hurdles. Nowadays, Business Process Re-engineering (BPR) has become an indispensable requirement in the business realm, as it is recognized as a key method for driving modifications and advancements in business processes [5]. Business managers must adopt a fresh perspective to discover innovative and more efficient ways to manage their operations, reduce costs, and maximize profits [6]. In this regard, BPR has been identified as an effective managerial tool for

addressing technological and marketing changes in today's fiercely competitive markets. By scrutinizing and redesigning workflow and processes both internally and externally, it facilitates the reduction of operational costs across the entire organization [7]. The concept of re-engineering operations was initially introduced by Hammer and Champy in 1993, defining it as "the fundamental rethinking and radical redesign of processes to achieve extraordinary improvements in vital performance metrics such as price, service quality, and speed" [7].

This paper looking at the Execution Dangers Influencing Various Parts of Big business Asset Arranging Undertaking A good outcome" [8]," An Examination of the Procedures of Business Process Reengineering" [24] and "Understanding End-Clients' Acknowledgment of Enterprise Resource Planning (ERP) system in Venture Based Sectors"[1]. In the examination papers, creators talked about the different strategies of business process reengineering (BPR) and the explanations behind disappointment of BPR endeavors. In continuity of the above-mentioned papers, ERP implementation is analyzed in government organizations of Pakistan to discover the approaches used in business process reengineering. A questionnaire was prepared to conduct survey in the light of literature review in government organizations. The critical success factors of BPR & ERP were addressed in this questionnaire and on the basis of collected data methodology is proposed.

2. LITERATURE REVIEW

Many research papers have already been published by IEEE and software engineering journals about business process reengineering in ERP implementation. These research papers revealed a review of success factors and challenges of public sector BPR Implementations, Interactive Relationship between BPR and ERP, the risk dimensions associated with ERP system implementation success and BPR methodologies Business Process Re-engineering (BPR) stands as a paramount solution for enhancing organizational performance across various business processes and performance metrics [9]. However, it is disconcerting to note that BPR initiatives have been plagued by a significant failure rate, reaching as high as 70% in poorly administered cases. The primary culprit behind such failures lies in the administration's tendency to solely focus on the process itself, while neglecting the crucial aspect of the surrounding environment.

Additionally, top administration of the association ought to break down the wellsprings of obstruction and utilize the appropriate arrangement of systems to balance them. Nonetheless, the executives could see that there is as yet vigorous labor force protection from the functional changes following from ERP execution. ERP systems perpetually need changes in work process which require hierarchical arrangement that will be achieved on a piece of top administration [3]. [8] adds to the developing writing on risk factors in ERP executions by deciding if the practices suggested in the writing really happen in ERP execution undertakings and whether these gamble factors are connected with project achievement. The main ten dangers recognized in risk evaluation are those connected with reengineering period of ERP. [12] adds to intuitive connection among BPR and ERP during the time spent endeavor informatization and gives a few valuable perspectives on the most proficient method to apply BPR and ERP effectively. The paper explains that BPR and ERP are two required courses for overhauling the administration level, BPR zeroing in on administration contemplations, ERP zeroing in on specialized acknowledgment. In the applying system, one is the essential for the outcome of the other. The acknowledgment of changing BPR from thought to the truth is indistinguishable from ERP frameworks, and just through ERP might we at any point support and set new business processes. Just under the direction of BPR will it be not difficult to apply ERP to accomplish anticipated results. Through the combination execution and uses of BPR and ERP, endeavors can be viable in advancing their assets and cycles.

[1],[11],[13-14],[17-18],[21] consolidate the ample literature on BPR success from the private and public sector and identify the relevant success factors and show that a surprising similarity exists between private and public BPR related success factors and shows that organizational, socio-technical and technical aspects each play a significant role in the success of BPR projects, illustrating the cross-sectional nature of the subject. Due to this extensive scope, BPR is fundamental to implementing transformational government. BPR has the potential to reform both front- and back-office service deliveries, improve inter-organizational communication and enhance usability for citizens and businesses.

[23-25] give a survey of BPR and present 'best of breed ' strategies from contemporary writing and present a combined, precise way to deal with the overhaul of a business undertaking and looks at different philosophies of business process reengineering (BPR) and the purposes behind disappointment of BPR endeavors. Research shows that organizations need a BPR procedure that adopts a comprehensive and efficient strategy. Research shows relative investigation of various methodologies and evaluate of the singular strategies.

This research paper get great deal of inputs from the background research as mentioned in above papers and provides BPR methodology for ERP implementation by analyzing the literature view on BPR & ERP critical success factors, evaluating old BPR methodologies and questionnaire filled by government organizations.

3. METHODOLOGY

The primary limitations that were considered for picking the strategies for this postulation work were time and dependability. We direct surveys in government associations and that was a tedious undertaking. Be that as it may, the survey helped me a ton to find the underlying driver of issues. It is generally the best way to deal with look at the down to earth and hypothetical outcomes in order to have a more solid outcome. The overview is made out of inquiries that cover the basic achievement elements of BPR and ERP execution. The fundamental boundaries that were utilized for the Overview are as per the following:

Sample Size:

The quantity of all out respondents is a significant element to accomplish a solid outcome. If there should arise an occurrence of Open Source ERP in government associations, accessible example size is suitable to cover significant areas of BPR and ERP.

Reliability:

Since this survey is about government organization, the respondents must be of government organizations.

Designing of the questionnaire:

Questionnaire was designed on the basis of critical success factor of ERP implementation and BPR phases. The questionnaire was categorized according to executives and senior management, policy makers & end-users.

Analysis of the Results:

The outcomes gathered from the respondents, were then arranged. The rate was then determined in view of different boundaries. To give the per user a visual portrayal for simple comprehension, the organized information was characterized in a framework.

Results

In this section, the results gathered from literature review and experimental survey is represented in the form of grid for easy understanding. The questionnaire was sent to 4 government organizations and all of them back the filled questionnaire. All the organizations are using Open-Source ERP for the efficient business processes. Following are the results of processes reengineering variables and user and management point of view for BPR & implementation using SPSS:

Begin Organizational Processes Change

Table 1 Assessment of old state

		Responses		
		Sample		Percent of Cases
	Strongly Agree	35		35.0%
	Agree	60		60.0%
	Neutral	3		3.0%
	Disagree	2		2.0%
Total		100		100.0%

This table shows the following responses from the users that were taken as the employees from the organization wanted to change their current environment of software or not. Having taking consideration 60% is agree for process change while 35% of user strongly agree upon. Very few of them disagree and are neutral. All below mentioned tables are survey result taken in different aspects.

Table 2 Assessment of Desired State

		Responses		
		Sample		Percent of Cases
	Strongly Agree	47		47.0%
	Agree	42		42.0%
	Neutral	5		5.0%
	Disagree	4		4.0%
	Strongly Disagree	2		2.0%
Total		100		100.0%

Table 3 Communication Campaign for Change

		Responses		
		Samples		Percent of Cases
	Strongly Agree	29		29.0%
	Agree	45		45.0%
	Neutral	10		10.0%
	Disagree	10		10.0%
	Strongly Disagree	6		6.0%
Total		100		100.0%

Analyze AS-IS Process

Table 4 Users Involved in Assessing Old Processes & Technologies

		Responses		
		Samples		Percent of Cases
	Strongly Agree	35		35.0%
	Agree	59		59.0%
	Neutral	4		4.0%
	Disagree	2		2.0%
Total		100		100.0%

Table 5 Assessment of Feasibility of Old Processes According to User

	Responses		
	Samples		Percent of Cases
Strongly Agree	47		47.0%
Agree	44		44.0%
Neutral	3		3.0%
Disagree	4		4.0%
Strongly Disagree	2		2.0%
Total	100		100.0%

Critical Factors	**Percentage Strongly Agreed or Agreed**
Begin Organizational Processes Change	
Assessment of old state	95%
Assessment of desired state	89%
Communication campaign for change	74%
Analyze AS-IS Process	
Users involved in assessing old processes & technologies	94%
Assessment of feasibility of old processes according to user	91%
Gap analysis of old processes and new objectives	81%
Define TO-BE Process	
Brainstorming sessions within departments and cross-functional departments	73%
Assessment of user skills according to new technology	96%
ERP functions were evaluated against old processes	80%
Blue-print the new system	

New Models were documented and communicated	95%
Feasibility of new processes was properly communicated to users	84%
ERP modules were engineered or customized	80%
Perform Transformation	
Training for new technology was conducted	83%
Migration Plan Documented and Generated	71%
User Manuals for ERP provided	63%

Some other results are also important in evaluating the successful implementation of Open Source ERP:

ERP system accurate: 86%

ERP system easy to use: 91%

ERP system requires some improvements for more feasibility: 54%

Over all User satisfaction: 90%

Some other results from management perspective are given below:

Potential barriers: 57%

Risk Management for potential barriers: 88%

ERP enabled BPR in organization with quality of service: 93%

Top management support: 91%

From above stats we can evaluate the following results:

1) Successful BPR through ERP involves risk management for potential barriers
2) Top management support is necessary
3) User involvement is key to successful BPR, as user is the person who adopt the change
4) 54% of users are agreed about proper manuals. It means that the ERP manuals for the users should be properly generated and provided to the users. Since Users along with their skills were properly assessed so user guides should be properly generated.

From the literature we have been concluded with the importance of proper phases and critical factors of BPR and these issues are also addressed in questionnaire. The comprehensive results of questionnaire and literature view is now concluded with BPR methodology, that is the also the aim of our research.

4. BRP METHODOLOGY FOR OPEN SOURCE ERP

Step1: Begin Organizational Change

- Assessing the current state of organization
- Assessing the desired state
- Create communication campaign for change
- Create risk management plan for potential barriers

Step2: Analyze AS-IS Process

- Analyze the existing processes of organization
- Analyze the existing workflows
- Assess the feasibility of existing systems and technology
- Involve user for assessing current state and determine feasibility of current processes and technology from user
- Perform Gap analysis of existing processes with new objectives

Step3: Define TO-BE Process

- Evaluating ERP modules and workflows against new business objectives and current workflows of organization
- Conduct Brainstorming sessions processes within departments and cross-functional departments and determine ERP feasibility by evaluating interactive modules of ERP.
- Determine the level of customization of ERP and engineering work to create new modules
- Perform Gap analysis of Old processes and workflows against new workflows, modules and processes of ERP

Step4: Reengineer the Process

- Model new processes of ERP and the processes that will need to be constructed or customize in ERP
- Determine the new technology specifications
- Model the new information requirements
- Describe the new values and culture required
- Document the new organizational structure

Step5: Perform the Transformation

- Customize and construct the modules, processes and workflows required in ERP
- Develop migration strategy
- Assess current skills and capabilities of workforce
- Map new tasks and skill requirements to staff
- Develop a training curriculum
- Train users about new ERP and describe the feasibility of ERP according to their tasks in new system
- Develop user manuals for ERP according to their roles in ERP
- Incorporate process improvement mechanisms

6. CONCLUSION & RECOMMENDATION FOR FUTURE WORK

This exploration analyzed different cycle reengineering specialized topics in ERP executions at Government Associations. For future exploration, specialists might need to zero in on various space regions while growing the quantity of case destinations. There are various useful roads for future examination around here. A significant initial step is to repeat this study's discoveries in different associations to decide the generalizability of these outcomes. It is essential to comprehend the degree to which these discoveries apply to different kinds of associations and in different settings. Second, it would be valuable to follow and survey worker mentalities all through the whole ERP execution process. It is guessed that mentalities will change after some time and that involvement in the framework will shape worker responses. In this manner, it would be very helpful to evaluate worker mentalities before execution, during the beginning phases of the cycle, and after the framework has become defended inside the association.

A superior comprehension of how perspectives structure and develop as an ERP framework is executed will assist with making sense of why a few executions succeed and others fizzle. Third, it is essential to look at mentalities and execution results (for example stock control, process durations) across the execution cycle. While there is each assumption that worker discernments shape ways of behaving, and that way of behaving, thus, influence objective execution results, this is a significant causal chain to exactly test. It will be especially fascinating to decide if positive results can be accomplished regardless of negative representative perspectives during the beginning phases of execution. More examination on process reengineering and ERP execution given that many activities in associations today have vital significance. For instance, one issue that future examination can address is to check whether there is a connection between project the board development and positive results of interaction reengineering utilizing ERP execution. A positive affirmation of the relationship can immovably lay out the worth of undertaking the board in process reengineering utilizing ERP executions and urge firms to underscore more on their task the executives skill. Generally, it is normal that this examination gives an establishment whereupon future exploration can construct, and interaction reengineering and ERP ought to keep on being a productive area of examination.

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