Research Paper:
Software Solution: Development of SOP for Change Request Form by Using Spira Team as Change Request Management Tool

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Abstract: *Market environments are evolving at an increasingly exponential rate. Technological breakthroughs, the internet, globalization, and the emergence of highly volatile and competitive markets have made managing a company more complex. Enterprise resource planning (ERP) systems support the successful management of businesses under these conditions. As market needs and expectations change, so do the requirements for ERP systems; new or altered requirements are implemented continuously. This paper explores how companies can become more time-efficient in their specification of change requests and whether methods from requirements engineering can be applied. There is a risk of approving and developing changes that are not fully understood. Unwanted side effects can harm the ERP system and require costly corrections later. The methods and procedures are taken from design science research. We intended to develop an artifact that supports companies in becoming more time-efficient in the process of describing, evaluating, and prioritizing change requests. The present research study, concluded through MIS system analysis in a company, found that some methods from requirements engineering can be applied in this context. These methods include: Usage of requirements specification templates, Quality criteria, Categorization of requirements. The primary result of this research is an artifact in the form of a Standard Operating Procedure (SOP) for change requests in the context of changing ERP systems. This SOP was applied in the automotive supplier's change request practice, where feedback on the artifact was also gathered. Here's a simply we used spira team as example of a change request management tool form that can be used as part of the SOP.*

Key Word : *Change management, change requests (CR), enterprise system, ERP system, requirements specification, Standard Operating Procedure (SOP), Quality Control(QC)*

I.INTRODUCTION

Enterprise Resource Planning (ERP) systems are the most luxurious digital technology investments that companies undertake to maintain effectiveness [1, 2]. These systems are sold by several different vendors, who all promise certain profits: improved technical and organizational performance, better customer maintenance and increased control for managers and decision-makers [3]. In addition, these systems improve the company's overall IT manner and remove dismissal and dissenting silo solutions, thereby reducing overall maintenance costs. ERP systems are standardized, integrated software solutions based on "best practices" from different industries [4]. They handle organizational resources and ensure seamless integration of data across departments and functions. An ERP system represents the support of a company, and its trades include everything from finance and project and human resources to the value chain, logistics and customers. However, ERP implementation is not easy; these module-based systems are highly complex and force changes in business processes, work routines and the roles of employees [5]. ERP implementation experts are also urgently needed because technical setup and configuration, as well as end-user training, are challenging. Because of these complexities, many ERP systems fail to realize their potential value as implementation costs exceed their budget or the final system does not fulfil company expectations [6]. Standardization is among the most important features and benefits of an ERP system; however, standardization also creates challenges. ERP systems have predefined business rules and procedures that determine how business processes will work and can therefore be implemented in many different organizations. However, these predefined rules will never completely correspond to the implementing organization's existing processes and practices [7, 8]. In most cases, ERP systems cannot improve corporate productivity and efficiency without the organization also adapting their business processes to the ERP system's rules. Therefore, during ERP system implementation many organizations undergo radical and complex process

changes, called business process reengineering (BPR), to realize the potential of the new system [9]. Compatibility between an organization's existing processes and a new ERP system is an important goal for achieving successful ERP

Implementation. The "misfit", "mismatch" or "misalignment", or "gap" describes the differences between the ERP system functionality and the requirements and needs of an enterprise [10]. To reduce the gap between the predefined rules of an ERP system and organizational processes and practices, the ERP system is often commissioned, changed or personalized, by implementing different system modifications, for example code modifications or the addition of new functionalities and applications, as well as continues modification in changes request form to user boundaries and standard reports [11]

II. RESEARCH METHODOLOGY AND GENERATION OF SOP FOR CR

This research provides standards procedures and guidelines for carrying forward a change request identified by any stake holder of any project and guidelines which are required to be followed at the time of making a change request for a project

2.1 Scope

This policy document sets forth department's policy for making changes to the projects undertaken, being deployed or in production and explains the procedure of controlling and dealing with these changes in an effective way. The scope also includes instituting a policy in the QC domain to establish processes and procedures in support of that policy.

2.2 Audience
2.2.1 End User

It is for the user of the application to initiate the change procedure and inform the MIS Manager for a change that is inevitable for the current running scenario and without accommodating the change, the business might suffer.

2.2.2 MIS Manager

MIS manager before submission must be clear about the intended CR and must attach the supporting document along with the CR and must be very clear about the requirements of the end user.
Initiate a Change Request and sends it to the Project Manager in company for the particular project. Once a Change Request has been accommodated, the MIS Manager will be responsible for closing it in case if there is a new change required.

2.2.3 Project Manager

Once the change request, sent by MIS Manager, is submitted to a Project Manager in company, Project Manager analyses the change request initiated by MIS Manager. Project Manager to put forward this received change request to the Change Request Lead. Project Manager has the authority to reject a Change Request to its originator (MIS Manager) and in case of approval and inclusion, send back the CR with its updated status.

2.2.4 CR Lead

CR Lead after receiving a CR from Project manager will finalize the requirements with the coordination with respective Manager MIS, apart from supervising the complete CR process and delivering the CR to respective MIS manager. In case a CR has to be re-opened this role is in charge to that. After finalizing the requirements of CR, sends it to the Development Lead and receives the accomplished task from the QC Lead. CR Lead will also responsible for packaging of CR Solution.

2.2.5 Development Lead

The Development Lead receives the new CR from CR Lead, reviews it thoroughly and allocates a resource for the CR to be accommodated into the system and once the changes are made, sends the completed CR back to QC Lead. In case there is any anomaly found out by the developer, the developer will inform his Development Lead and about any ambiguous requirements, in case the Development Leads is not able to provide for the ambiguities, he/she will refer them to the CR Lead.
Once the CR has been accommodated, the Development Lead will send this CR to the QC lead and in case an objection has been raised by the QC, review it for those objections.

2.2.6 Developer

Once the CR has been received by the Development Lead, the changes to be made are narrated to the developer for implementation. The developer after thorough investigation works on those changes and sends the CR back to the Development Lead in case of ambiguity or in case the CR had been accommodated successfully.

2.2.7 QC Lead

QC Lead receives the CR from the Development Lead and assigns it to a tester for testing the CR and sends it back to CR Lead the accommodated CR. It is in QC Lead's authority to investigate for errors or any objections, a CR put to him

By the CR Lead. In case the CR is out of the proportion and is sent back to QC Lead by the Tester, it is QC Lead's responsibility to send the sent back CR to Development Lead. In case of successful QC, the QC lead will send the CR to CR lead.

2.2.8 Tester

Once the CR has been received and approved by the QC Lead, it is assigned to the tester to test whether it has been successfully implemented and accommodated by the application for which it has been requested in the first place and submit it back to the QC Lead for any further action.

If the Change Request fails to pass the testing phase, the QC Tester will send back the CR to the QC lead for re-checking the CR. In case there is some genuine flaw with the CR, the QC Lead will send it back to the Development Lead with the relevant objections. The development lead in return will review the objections put forth by the QC Lead and assign the task of accommodating any such objections into the CR to the developer.

III.POLICY STATEMENT

The issues that are to be addressed are
• On spot support Calls
• Online support Calls

3.1 On - Spot Support Calls
These types of calls mainly involve requests for
• Application procedures, Configuration related issues, manuals provisions.
• Software / Hardware provisions
• Infrastructure (network)

The help desk at IT & MIS department of company will deal with such calls by:
• Logging the call with a unique call id for future reference
• Forwarding the calls to relevant personal at IT&MIS in case the solution does not lie with the Help desk in the first place. For further information, refer to the contact details of Support team given at the end of relevant document (Important Email & Contact Numbers)
• Maintaining the call logs on weekly and monthly basis
• Preparing the reports detailing the progress of call resolution

Online support Calls
The processes and procedures for change control listed in this document governs the change and release management Before any changes to a system or a base line the proposed change will be evaluated and approved by the respective authority.

No change request will be entertained without:
• Entry criteria needed to initiate the Change
• An approved plan of action with milestones for implementation that provides a sequence of steps for implementing and releasing the change into the systems in production.
• A complete test plan for the CR
• Approval(s) from the application owners
• Formal reviews by the Quality Control function of IT&MIS to ensure that the criteria for change have been met.

3.2 SPIRA's Change Request Procedure
• Access to the change requests made by other MIS managers will only be given after evaluation by the authority and a time span will be specified for granting such access accordingly.
• The status assigned to the CR during its life span shall be visible to all the role profiles involved in inception and fulfillment of that particular Change Request and in case the status is not being updated, the issue shall be raised with the SPIRA administrator.
• Every activity **MUST** be handled and carried out with the help of SPIRA tool. In case of any correspondence between any two profiles regarding an undertaken CR (*any unforeseen ambiguity and incase of un- intended*
• *mistakes while creation of deletion of CR's*) the profiles shall be intimated via emails regarding respective **CR #'s** and this communication shall be kept as a log file as well.
• Any change request made at any given location when asked by an MIS manager of any other location, it will only be granted after careful consideration by the approving authorities.
• Once the CR has been finalized and sent back to the MIS manager, the time span for verification has been set to 7 days. If in case, no response is received from the MIS manager during the time span specified CR considered successful and will be considered closed. Any query or observation after that span shall not be entertained in any circumstances.

3.3 Implementation of Changes into Production

• All the Change Request's (CR) once successfully verified by the QC Team will be submitted to Manager MIS for Under Verification.

• It's highly recommended to every Manager MIS to verify every Change Request in their Local Training Server.

• Once the Change Request will be verified in Local Training Server, it will be Ready to migrate the changes into Production. Before migrating the changes into production Manager MIS ensure the following.

1. Is any Change Request (CR) consisting of any Script(s) [Table, Procedure, Function, Grants]. If YES then, it's highly recommended to Submit Request via Comments in Spira to DBA data base admistrator for Implementation of Scripts into Production Environment. Once the Scripts will be run by the DBA, the Manager MIS will replace the Forms / Reports into Production environment and do the follow up of implemented Changes into production environment.

2. If the Change Request consist of any New / Existing Form or Report, Manager MIS will replace the form(s) / Report(s) by himself into production environment
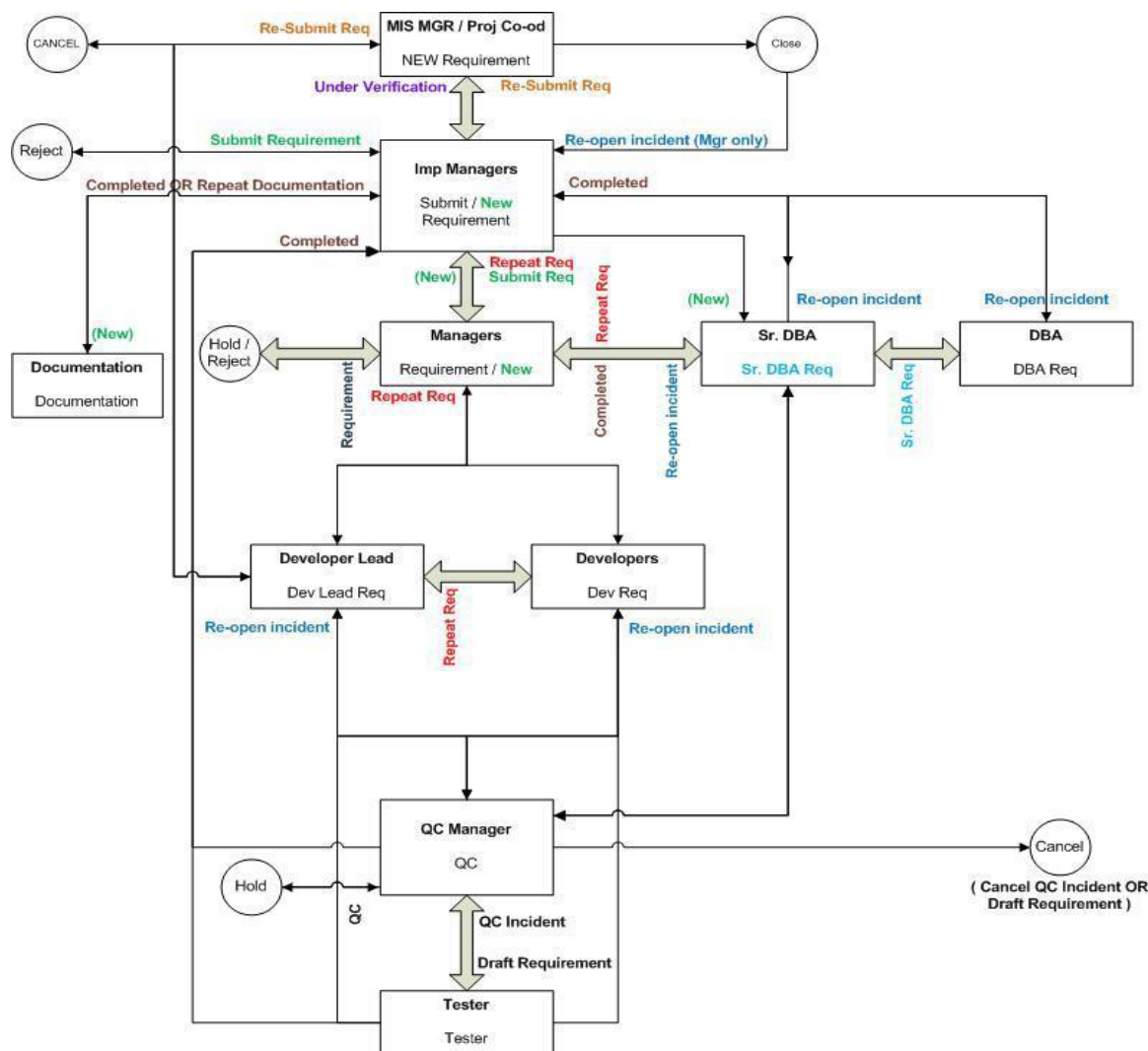

Fig.1: Spira Change Request Work Flow

IV.RESULTS AND CONCLUSION

This paper has explored how companies can become more time-efficient if qualitative content analysis shows that some of the existing methods needs to be modified. To achieve this, we developed an artefact in form of a SOP for change request form which provides the requestors with a transparent guideline on how to properly specify their demands. Although the feedback from the trial implementation of the SOP in the company was positive, this short trial cannot accurately reflect the SOP's usefulness in day-to-day business. The requestors have likely dedicated more time to completing these forms than they would regularly. Moreover, the template was developed based on the findings from complains. To judge whether the SOP, s would be universally applicable and beneficial, more trials at different companies facing similar issues with the specification of change request form should be conducted. A quantitative assertion of how much the overall time efficiency is increased through this new modified SOP, S in change request forms requires a long-term trial with different participants

and companis, which should follow as the next step in this field of research. Nevertheless, within the selected company involved in this research, the artefact has been a success; the change request form followed by SOP, s has been in use for more than six months, and the employees involved in this process have voiced positive feedback regarding time-efficiency and quality of raised requirements.

Acknowledgment

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