A formation to recover Software Process Improvement Model for small Organization

Shalu Chauhan*, Dadan kumar Jha
Department of compuer applications
Assistant Professor, SRM University,NCR Campus,
Modinagar, Ghaziabad, India
shaluchauhan85@gmail.com* ,dadankumarjha@gmail.com

Abstract: The software industry recognizes the value of very small enterprises in contributing valuable products and services to the economy. As the quality of software increasingly becomes a subject of concern and process approaches are maturing and gaining the confidence of companies. Software process improvements are required to increase the productivity and quality of software companies to achieve their business objectives. It is a systematic approach to improve the capabilities and work performance of software organizations. Improved software quality is critical to ensure steadfast products and services and to increase customer confidence and satisfaction. One basic idea is to assess the organizations' current activity and improve their software process on the basis of the competencies and experiences of the practitioners working in the organization. In the work presented in this paper, we have find out what SPI activities in those models that are important for small organizations a survey was conducted. In the survey both supplying and purchasing organizations participated. The survey resulted in a prioritization of SPI activities, which represented the base for the new SPI model. The authors named the proposed model SPISC – Software Process Improvement for Small Corporations.

Keywords: Software Process Improvement, Process, small corporation quality and SPISC phases.

I. INTRODUCTION

The fundamental belief of software process improvement is that improving the process will lead to improvements in the final product.[2]

A software process can be described as the way a company develops its software products and the steps that are followed at each phase of the software lifecycle. There are a number of software process standards in the market with the same basic objective, to help software companies in managing their software development activities in order to produce a high quality product.[3]

The standards list steps that a development organization should follow in each stage of the software production. It also provides assistance in making software project estimation, development plan and measuring quality of software development product. Lyytinen and Robey [5] speaks of a learning failure in the software industry. Not only do many companies fail to learn and improve from previous experience, in time they have also learned to expect to fail. Over time many companies have come to expect and accept poor performance while creating organizational myths that perpetuates short term optimization.

This research shows that in order for SPISC to survive and stay relevant in current software industry, the improvement, maintenance of the current software development process is pertinent. The research also shows that the significant of these processes is two-fold: (1) an organize of the software development knowledge and (2) the effectiveness of the software development teams within the organization.

II. SOFTWARE PROCESS IMPROVEMENT

Many systematic attempts have been made to produce software that is more reliable and of higher quality. Starting in the early 1990's a new set of ideas on how to improve quality and productivity within software engineering was being developed under the notion of Software Process Improvement (SPI). Today, SPI has become one of the dominant approaches to improve quality and productivity in software engineering. [1]

SPI is an applied academic field drawing on its roots in both the software engineering and information systems disciplines. The field takes a managerial approach rather than dealing directly with the techniques used to write code, and it deals primarily with managing software firms to improve their practice [4].

A. SPISC:

The SPISC-Model is a structure that could be applied by small software organizations to assist them in improving their software processes. It describes key elements, which is necessary in order to achieve an effective software process. The SPISC-Model is based on phases as well as an iterative model which is successful in establishing specialized cum generalized set of processes at the discretion or will of small scale industries. The basis on which SPISC structure built upon is the step by step improvement which is shown in Figure 1
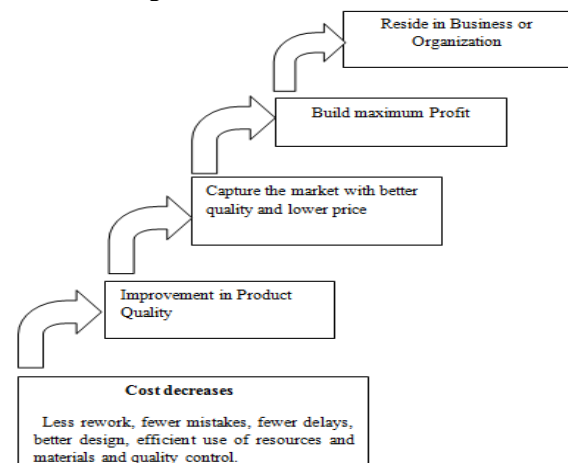

Figure:1

The first two blocks are of major concern in which the SPISC structure is implemented which shows major cost cut offs, less rework, fewer mistakes, fewer delays, better quality products. In the SPISC Ladder after crossing the first step, the product quality improves. Only after improving quality small scale industries can think of the market with their better quality products Building profit is a further step after small scale industries withstand in competition. Profit means they can put more budget and resources to improve the processes effectively. After building profit, small scale industries can go for continuous process improvement with which they can stay in business continuously.

SPISC structure provides a strong foundation for small scale industries to withstand the market scenarios. SPISC is an iterative, specialized cum generalized model which is more or less driven by the small scale industry's own business rules.

III.   RESEARCH METHOD

The model has four different Phases with a **supporting set** of different activities or processes.
Phase 1: Customer Interaction Phase (CI)
Phase 2: Project Management Phase (PM)
Phase 3: Engineering Phase (Implementation) (ENG)
Phase 4: Business Process Optimizing Phase (BPO)

The Customer Interaction Phase is responsible for managing the interaction between an organization and its customers in which developer directly interact with client for his requirement for the software Product. This is the requirement elicitation phase in which customer give his requirements as well developer also consider his implied requirements

The **Project Management** Phase is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements which establish the project, and co-ordinate and manage its resources to produce a product or provide a service which satisfies the customer.

The Engineering Phase consists of processes that directly specify, implement, or maintain a system and software product.

The Business Process Optimizing Phase concentrates on Improvement in Business Processes like cost benefit analysis, quantitative feedback, improving standard software processes, implementing improved processes effectively and also the human aspects.

The **Supporting Set** consists of activities which enable and support the performance of the other processes on a project. The supporting activities can be employed at various life-cycles and can be implemented with different Phases of Process models.
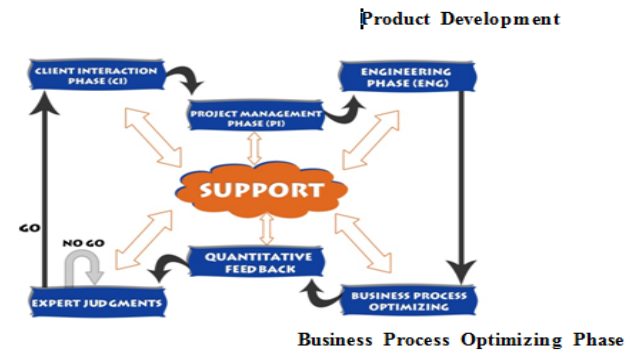

Figure: 2 SPISC Structure

IV.   CONCLUSION AND FUTURE WORK

The main objective of this paper is to produce a software process improvement model that was made to order for small Indian software organization firms. The desired model aimed to enable small software firms to assess their current software development processes and find areas that need improvement. It provides an iterative, specialized cum generalized process model which encompasses small and effective set of processes. Future work would involve experimental study of this process model and identifying appropriate metrics for such evaluation. Software metrics are being identified to provide the specific information necessary to manage software projects and improve software engineering processes and services.

V.   REFERENCES

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