ABSTRACT

In this research an attempt was made to develop and construct the quality of software projects using Software Testing Defect Corrective Model (STDCM). To ensure quality of design of software projects, two important software quality assurance models, namely Software Quality Function Deployment (SoftQFD) and Software Failure Mode and Effects Analysis (SWFMEA) were implemented in a leading software industry in India.

The STDCM was developed based on the two important models, namely waterfall and COQUALMO. The STDCM was implemented and validated in a software Company. The integration of these models was carried out in a stage wise manner. The validation process was also considered in the integration of these models in a stage by stage fashion. The STDCM was used to calculate the number of remaining residual defects in the software projects with a few assumptions and detailed steps of STDCM were highlighted. The application and implementation of STDCM were explored in the software projects of banking applications.

As a part of the STDCM, a SoftQFD model was employed and validated in the banking application of the software projects. SoftQFD was mainly applied in the requirement phase in a software project. The development was quite similar to that in the other industries in terms of building the House of Quality and customer requirements improvements.

The SWFMEA model was applied to the coding phase of the offline review process. The SWFMEA tool was used for reducing the defect occurred and the results (Risk Priority Number (RPN) Values) were obtained. Finally, the recommended corrective actions were implemented in the
SWFMEA. The SWFMEA codes were validated using single paired T-test. The statistical paired t-test showed that there was significant improvement in quality in terms of revised RPN values due to the implementation of the SWFMEA. The implementation of the STDCM showed that there was a significant improvement in the quality of the software project.