6. RESEARCH OUTCOMES

There are two different cases attempted as part of the research from a software development life cycle viz., a pure development project with a complete life cycle and also a technical support project which has implemented ITIL.

6.1. CASE STUDY 1: FULL SOFTWARE DEVELOPMENT LIFE CYCLE

Initial analysis of the baseline data indicates that defect density was of the order of 0.1 per Kilo Lines of Code (KLOC) of code with a defect injection rate of the order of 50%. Defect detection efficiency was only 70%. The project was not performing the desired level and effort slippage was very high (42.4%) causing a very high effort overrun of 9.2%. The impact of effort overrun was directly on the project slipping the timelines which was impacting the profitability of the project. Lean SixSigma implementation is attempted for defect reduction and cycle time reduction in this case.

One of the key outcomes from this case study was that the cycle time is reduced considerably to the order of 10-12 % while comparing with the performance before implementation of the Lean SixSigma methodology and it also reduces the defect density by 32%. Reducing cycle time provides an inference that LeanSixSigma has proven its ability to quicken the process flow by critically finding out the non-value added wastes and steps and also tries to refine the rest of value added steps by making them more efficient.

Using Lean SixSigma framework, this implementation realized a 3.4 sigma in terms of the quality improvement resulting into financial savings, direct and indirect, valued at over US$ 20,000 annually, based on the comparison of the financial data prior to and after the implementation. The direct savings refer to the Lean SixSigma project benefits refer to the ability of this organization to perform an equal extent of business with lesser employees or enhance the business portfolio without increasing the human capital. On the other hand, indirect savings are benefits achieved through Lean SixSigma implementation, such as lesser time to
market, controlling costs or reducing expenses, intangible benefits such as higher employee satisfaction, goodwill and confidence, which contributed further savings to the company.

6.2. CASE STUDY 2: SOFTWARE APPLICATION SUPPORT

Lean SixSigma is attempted in this case for continuous improvement as part of an ITIL strategy. Though ITIL implementation inherently improves the business processes. In this case, at first glance, ITIL and Lean SixSigma appear to be mutually exclusive. However, as this research discusses and the improvement project validates, these two approaches are highly complementary and can be used in combination effectively to continually improve business processes. The benefits are compelling:

- Reduce costs by helping to minimize potential downtime and the adverse effects of system, network and application failures and install, move, add, change and decommission implementations. Overall team size got reduced from 33 to 27 thereby the financial savings of US$ 288,000 per annum.

- Enhance decision-making ability by facilitating access to information throughout the organization and by enabling the enterprise wide use of outputs from an integrated framework of processes and tools through such devices as cross functional IT service dashboards.

- Improve IT service levels by creating operational efficiencies and enabling a linked IT Service Management process loop for defining, measuring, analysing, improving and controlling service performance.

Thus, the benefits of theory have been demonstrated in two live case studies in the IT sector.