

Abstract

India's Information Technology (IT) industry, in particular the software services and IT-enabled services sector, has drawn global attention for its spectacular growth over the last decade. Despite various studies linking the industry's success to various other factors, there is a perception that the role of project management in the continued success of projects handled by the Indian firms could have been understated. Similarly, India's position as an emerging IT nation could be seriously endangered soon for want of adequate skilled manpower. There is a need to unearth the virtues of project management in the Indian software firms, and to assess its manpower scenario.

The thesis investigates the existing project management practices in Indian software industry with the help of questionnaire survey, field visits, and interviews with industry participants and researchers. Causal analysis of two project management issues namely, schedule slippage and software reuse, have been carried out with help of structural equation modelling. The thesis takes a critical review of the industry manpower scenario as regards its availability and requirement in coming years. Finally, the effect of business growth and the available manpower on the software management issues of a company as a case has been analysed with the help of system dynamics modelling.

Analysis of the questionnaire survey reveals that estimation errors and requirement volatility, which together leads to unrealistic schedules, have been critical to schedule slippage in Indian software industry. The survey respondents downplayed the influence of reuse even while acknowledging its practices in their firms. This could be the reason for reuse having not really taken off and having only a moderate presence in most firms.

Structural equation modelling shows that the use of inapplicable empirical model and incorrect sizing measure are the most significant sources of estimation errors. It also shows

Abstract

that schedule slippage cannot be controlled appropriately by rescheduling project deadline or by hiring more people. Structural equation modelling for software reuse shows a distinct lack of management consideration towards developer preference with respect to software reuse.

The industry manpower study highlighted the availability and requirement of skilled human resource for industry to sustain its current growth rate. The study came up with measures to augment country's existing higher education to meet industry needs.

The system dynamic modelling shows that, in the face of high business growth, Indian software companies would be unable to meet the demands of the incoming business and there would be a continuous rise in the pending jobs because of the ever-widening gap in manpower availability. Increasing use of software reuse could make a significant improvement in the development productivity along with a significant boost in the business potential of the company. However, far greater influx of business can only be handled by a proper policy of manpower addition.

Key words: *Indian Software Industry, Software Project Management, Questionnaire Survey, Software Reuse, Schedule Slippage, Manpower Study, Structural Equation Modelling, System Dynamics Modelling*

Curri

The au
the deg
Sarang,
degree
Indian

The at
Mechar
Depart
Techno
of Gov
Educat
Manag

List of

Internu

•