

Abstract of Ph.D. Research, Thesis Entitled

“AN ANALYTICAL STUDY FOR EVOLVEMENT OF IMPROVED GUIDELINES AND MODELS FOR CENTRALIZED LEGACY SYSTEM TO INTRANET-BASED ARCHITECTURES”

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Abstract

Today's I.T. Organization has made huge investments in centralized mainframe-based applications due their continuous operational use. As a result, these legacy systems contain tremendous hub of knowledge that drive daily business operations. Most of the day-to-day transactions that occur in large organizations are rushed with complicity around these systems, which serve the current demands. Though more cost effective technologies are available but about 80% I.T. systems are running on legacy platforms. International Data Corp. recently estimates that 200 billion of line of code is still in use today on more then 10, 000 large mainframe sites. The difficulty in accessing legacy applications is reflected in a study by the Hurwitz Group that found only 10 % of I.T. organizations have fully integrated their most critical business process. According to some industry polls, 85 % – 90% of an I.T. legacy system's budget expend on operation and maintenance. In addition, I.T. departments find it increasing difficult to hire developer qualified to work on applications written in languages no longer found in modern technologies. Constant technological change often weakens the business value of legacy systems, which have been developed over years through the huge investments. I.T. industries are now struggling with the problem of modernizing these systems. Despite their obsolescence, legacy systems continue to provide a competitive advantage through supporting unique business processes and containing invaluable knowledge and historical data.

With the increasing popularity of Internet based technologies, business boundaries have diminished. Every business organization wants to reach the maximum number of clients through the web presence and desired to improve their services and I.T. infrastructures using networks and web centric technologies , it is also observed that those who has done this now entertaining whole world.

So problem is for maintaining and upgrading to these legacy systems and I.T. Enabled services based on it, with different demanding scenarios and perspectives. It is more demanding now to evolve a legacy system over web based environment and here focus is intranet.

This research tackles one of the most urgent problems in today's information technology, namely the evolution of legacy systems to modern platforms and network-centric intranet architectures with keeping of their functionality intact. In this context, several methods, tools, processes are proposed to support reengineering and modernizations of legacy systems applications. This can be a complex task because much legacy software has grown over several generations of programmers and lack a sufficient documentation. Computer-aided reengineering methods and processes have a great potential to reduce the complexity and risks involved in system design recovery and evolution projects. Still, current reengineering tools are hardly adopted for practical problems in industry because they often make idealistic assumptions about the structure of legacy software and the characteristics of reengineering processes.

This research presents solutions to various technological challenges including possibility of reusing existing logic to support current business process, reusing existing process to reduce costs, reusing existing system design to ensure dependable and reliable solution, reusing existing system' elements for faster deliver and challenges need to be dealt in evolution of a legacy system over Intranet based architectures.

The research also provides concepts, techniques, models, methods and guidelines to overcome several limitations of legacy evolution in several perspectives and developing mechanisms to manage uncertainty and inconsistency of current evolution processes.