WHITE PAPER

Critical Considerations for Software Re-Engineering

Delivering the Value of Technology

Critical Considerations for Software Re-Engineering

Whitepaper

Abstract

Many businesses fail to consider the real competitive, technical and business benefits of software re-engineering. Yet the time, expense, risk and effort involved in this process is necessary in today's changing technical and business landscape. Failure to recognize the need for, and benefits of, software re-engineering can stall a business and cause declining productivity and business revenue. If a business undertakes a software re-engineering project with a methodical technical and business requirements roadmap, and careful planning and resources, it will ensure rapid ROI and low TCO, as well as swift user adoption, improved customer satisfaction and increased sales and competitive business success.

Contents

Introduction

In order to remain relevant, every enterprise (large or small) must periodically consider the competitive appropriateness of its software products, applications, portals and sites. In today's mobile world, concepts like Bring Your Own Device (BYOD), responsive web design (RWD), adaptive web design (AWD), 'mobile first' and 'content first' are certainly worth considering, but if a business is to execute a comprehensive review of software products, applications, portals and sites it cannot start and end with buzzwords. Building a high performance, data-centric, device agnostic solutions is just one of the factors a business must consider to remain competitive, and to ensure that software applications are relevant for today's technology and sophisticated user needs. To accomplish these goals, a business must consider the necessity and relevance of software re-engineering.

A software re-engineering initiative is driven by critical business issues and requirements, and involves a comprehensive review of current and future technologies, and user and customer requirements as well as project management, from concept and design, through support, maintenance and upgrade.

Software Product, Application and Site Re-engineering addresses improved UI rendering on numerous screen and device sizes, improves system performance, and migrates and/or upgrades solutions to accommodate new platforms, technologies and user expectations. Techniques can incorporate User Experience Improvement (Ux improvement), UI migration, application server, middle tier or backend migration, migration to new frameworks and new versions, migration for compatibility with integration frameworks and web services, cloud-based code transformations and other components of the software application that extend far beyond simple application development skills. In order to ensure that the business takes a comprehensive, organic approach, a software re-engineering initiative must be undertaken with expert advice and services.

The Importance of Effective Software Reengineering

Many businesses and business managers struggle with the decision to re-engineer a software product or application. Cost, time and resource investment can discourage a business from making this critical business decision, even when they know that re-engineering can and will improve revenue and productivity. Before rejecting the idea of software re-engineering it is important to have an honest discussion of business and user expectations, and demands, and the challenges of satisfying various device sizes, and to recognize the need to protect the investment in current technology and software solutions.

Here are a few of the driving forces that make software reengineering a crucial factor in business success:

- ✓ The business must capitalize on the latest technologies and trends
- ✓ If a portal, product, application or site does not provide an intuitive, mobile user interface it cannot sustain a competitive advantage or improve revenue
- ✓ The product or application must integrate with other applications or systems, and/or previously incompatible technology environs
- ✓ The business is facing increasing numbers of users, changing usage, changing user skills and expectations
- ✓ The company is experiencing a change in the volume, size and type of data
- ✓ The enterprise must resolve issues with architecture that no longer supports the needs of the market or users
- ✓ Applications and software products must be compatible with new target devices, operating systems, third party systems and platforms and offer high interoperability with other systems
- ✓ There is an IT mandate to migrate to the cloud environment in order to remain competitive and improve customer satisfaction
- ✓ There is a need for a browser-based interfaces requiring re-engineering of existing solutions
- ✓ The enterprise has established new IT initiatives, or experienced new technology demands that require migration, upgrade or re-engineering efforts
- ✓ The business must achieve enterprise data integration, application integration and IT unification following a Merger and Acquisition (M&A) or restructuring
- ✓ There is a persistent need for enterprise mobility requiring re-engineering for software products, applications and sites

If a business has not undertaken a review or upgrade of its software product, application, portal or site within the past two years, it must do so immediately and with expert advice and assistance. Existing enterprise IT staff may not have the skills, time or ability to re-engineer a software product. But, that should not preclude a decision to move forward and capitalize on new technologies or to satisfy user, consumer or device requirements for better Ux, more adaptive, easy-to-use solutions and more efficient business processes.

In order to successfully complete a software-reengineering project, a business must employ the following services and skill sets:

- ✓ Comprehensive understanding of existing architecture, cross-platform technologies and functional scope of systems.
- ✓ Thorough understanding of requirements, needs and objectives for re-engineering
- ✓ Technical feasibility and roadmap
- ✓ Prototyping
- ✓ New architecture design and implementation
- ✓ Design and development
- ✓ User experience (Ux) improvement and UI design
- ✓ Testing and quality assurance
- ✓ Industry and government standards compliance and IT security implementation

The Benefits of Software Reengineering

While it is true that a software reengineering project will include time and expense, the business benefits are undeniable and must be included in any comprehensive discussion of software and competitive relevance.

The business benefits of software re-engineering include:
- ✓ Leverage investments in existing applications and IT infrastructure
- ✓ Mitigate the need to rewrite applications 'from scratch'
- ✓ Ensure compatibility with new technologies and platforms
- ✓ Leverage the best of both worlds - new and legacy technologies and platforms
- ✓ Reduce user 'resistance to change' by improving the user experience on existing applications
- ✓ Improve the user experience, integration and business function delivery
- ✓ Decreased need for user training and learning curve
- ✓ Mitigate the risk of disrupting business processes and workflow currently in use
- ✓ Improve ROI and TCO
- ✓ Gain a competitive advantage in business market(s)
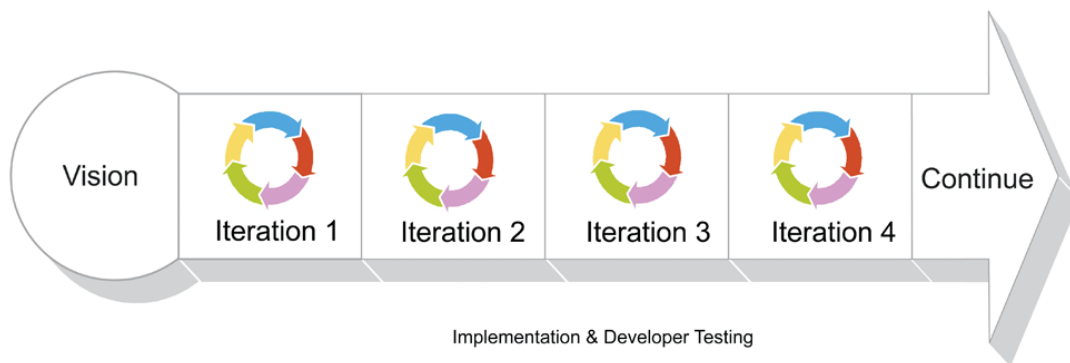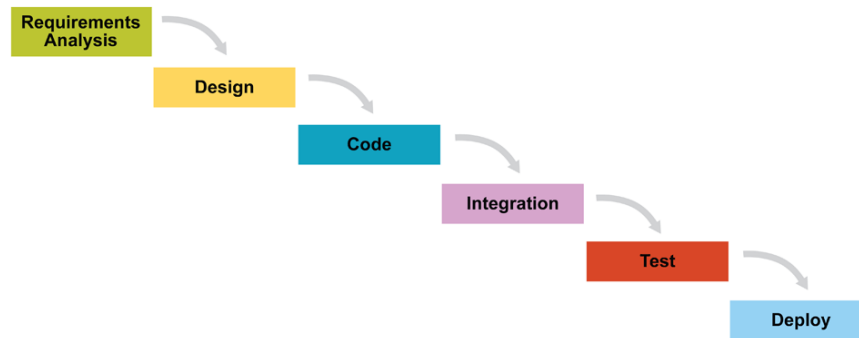
The technical benefits of reengineering include:

- ✓ Improved scalability, interoperability, performance and compatibility with other systems and platforms
- ✓ Improved accessibility on different devices and screen sizes
- ✓ Better compliance with new security standards and regulations
- ✓ Optimized availability of IT skills and time
- ✓ Increased technology life and mitigated technology obsolescence

## The Components of a Software Re-Engineering Project

Once a business truly understands the need for, and benefits of, a software reengineering project, it must plan and execute its project with careful attention in order to ensure project success, return on investment (ROI) and low total cost of ownership (TCO). If the project is successful, the business can improve sales conversions, employee productivity, IT staff optimization, improved competitive positioning and an easy product, solution, application or portal upgrade to accommodate new requirements. To successfully complete a software re-engineering project, the business must follow a detailed project plan and include the following steps:

- ✓ Research and requirements planning to map and understand technology and business processes for all existing systems, including close interaction with technology and business users
- ✓ A summary level roadmap for business, technology and interface
- ✓ A Feasibly study and technology recommendations and selection
- ✓ A detailed technology roadmap
- ✓ Project phase and milestone planning
- ✓ Design, Development
- ✓ Prototyping
- ✓ Testing including User Acceptance Testing after every prototype
- ✓ Go Live, including training, and technology and user support during implementation and deployment
- ✓ Ongoing maintenance and support and review cycles for future upgrades

To effectively execute all of the required steps and phases in a software re-engineering project, the team leverage the Scrum Methodology.

Iteration Detail
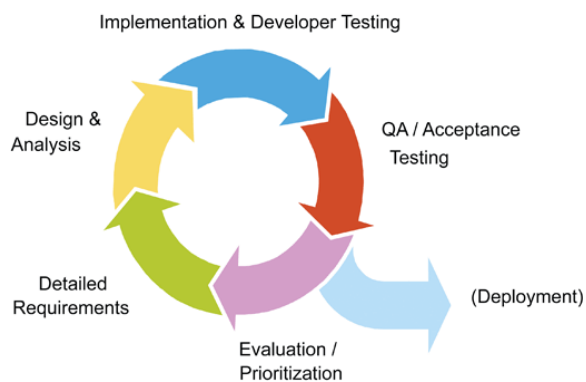
Conclusion

Many businesses fail to consider the real competitive, technical and business benefits of software re-engineering. Yet, the time, expense, risk and effort involved in this process is necessary in today's changing technical and business landscape. Users and consumers demand more intuitive, flexible, accessible applications and solutions and failure to recognize the need for, and benefits of, software re-engineering can stall a business and cause declining productivity and business revenue.

When a business embraces the importance of software reengineering and recognizes its value, it must employ expert skills, appropriate design and development processes and methodologies. If a business undertakes a software re-engineering project with careful planning and appropriate processes and resources, it will ensure rapid ROI and low TCO, as well as swift user adoption, improved customer satisfaction and increased sales and competitive business success.

About Elegant MicroWeb

Elegant MicroWeb has nearly two decades of experience serving customers around the world, and provides user interface design, software re-engineering, offshore development services, product development services, and Business Intelligence solutions, with proven delivery models including offshore, on-site and hybrid models. Elegant MicroWeb can provide software and product re-engineering services to suit every need, and our services are designed to satisfy the needs of software product vendors as well as businesses that provide applications or sites for end users. We have many clients in many industries, and in many countries, including the U.K., Australia, the U.S., Japan, the Middle East and Far East, Europe and India. Our customer satisfaction ranking is excellent and we have served some clients for over ten years. Our clients include small, medium and large enterprises.

We are one of the few ISO 9001:2008 QMS and security certified businesses in India. Our skills and experience include cross-platform and open source technology. We offer flexible, valuable white label partnerships for software companies and web agencies.

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