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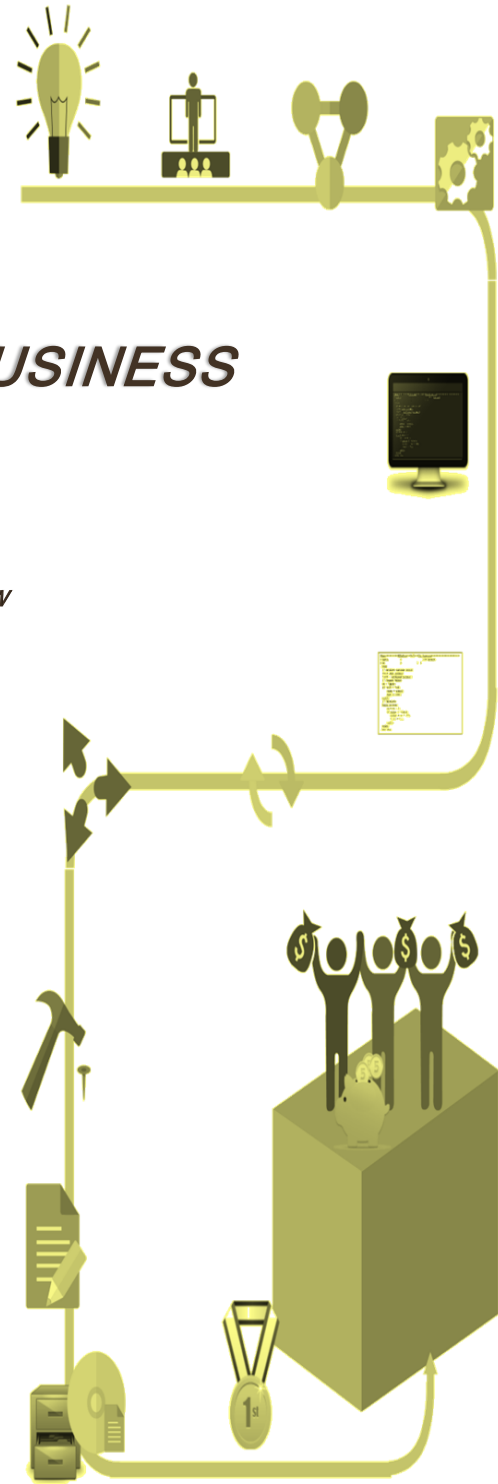
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> HOW TO ALIGN IT WITH BUSINESS CHANGES FASTER

WHAT SHOULD ALL IT MANAGERS AND EXECUTIVES KNOW ABOUT APPLICATION LIFE CYCLE MANAGEMENT?

Business systems undergo almost constant change. Needs evolve and application functionality must keep up. Technologies advance and businesses must adapt or jeopardize competitiveness. But managing change is challenging. This white paper examines those challenges and presents a solution.

> *Just as changes in your business require effective change-management, so do changes in the key applications that your business relies on*

Business is about customers. Without customers, there is no revenue.

And, ultimately, business is about profitability. Without profits, investors will shun the company, it will not be able to secure funding to pursue new opportunities, and, eventually, it will falter. Thus, minimizing costs while keeping customers happy is imperative for all companies.

Business software is a means to both of those ends. Applications help you to provide a wide variety of valuable services to your customers while keeping the costs of effectively providing those services as low as possible through the use of process automation.

However, software is not static.

When companies expand into new markets, offer new products and services, merge with or acquire other companies, divest lines of business or subsidiaries, or change their business processes, they typically need new or modified application functionality. And even in the unlikely event of an otherwise static business, technologies advance and the company must keep up or it will fall behind others in the industry, resulting in a loss of competitive advantage.

Thus, to meet the needs of a business and its customers, software must be in an almost constant state of flux, but software change is never easy. And it's particularly challenging in today's complex IT environments, where myriad programs within multi-tiered

applications interact in intricate ways deep down under the covers. Unless the IT department accounts for and accommodates all of those interactions, a seemingly small change in one program might cause the whole application to fail, not because the modified program was not coded to spec, but because other programs that depend on it no longer interoperate with it, which might halt business operations.

HOW DO CHANGES IN BUSINESS RELATE TO APPLICATION LIFE CYCLE MANAGEMENT?

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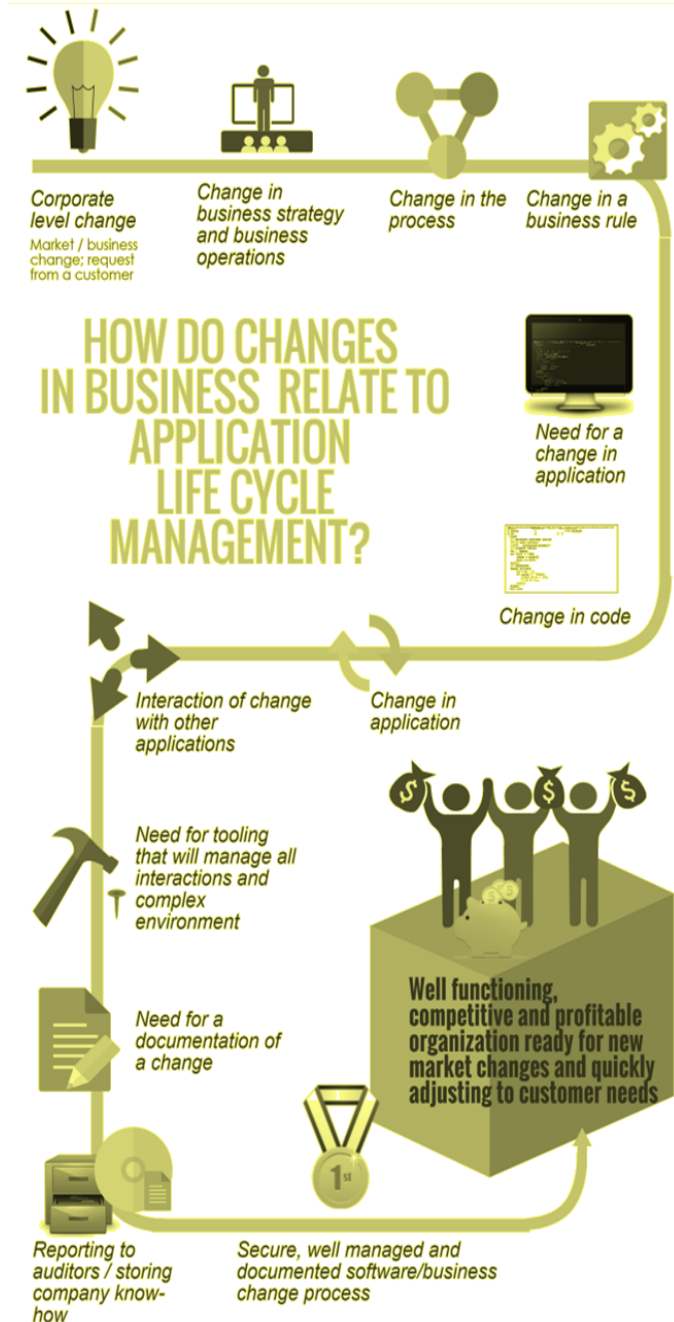
To make matters worse, competitive pressures that demand ever-shorter times to market have dramatically shrunk the time that IT departments have to discover and accommodate all of those interactions and code and deploy bug-free software.

This white paper examines some of these challenges more closely and looks at how change management and workflow management solutions can help you overcome these challenges and allow you to be more responsive to business requirements and deliver higher quality software faster to increase the competitiveness and performance of your organization.

7 THINGS ABOUT TECHNOLOGY IN YOUR BUSINESS THAT YOU SHOULD REMEMBER OF

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7. *Modern organizations are based on modern technology*

6. *Organizational change requires application change*

5. *Quality applications are key to your customers' satisfaction and loyalty*

4. *Investment in technology brings significant ROI*

3. *Adaptability is critical for business competitiveness*

2. *Rapid time-to-market generates significant market advantage*

1. *Badly managed technology incurs high costs*

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▶ Challenges of Change

In business, as in life, change is constant. Businesses that can't keep up with that change will struggle to survive, let alone thrive.

Businesses are so utterly dependent on information technology that it is often taken for granted. But technology doesn't just happen. And whenever the business or its processes change, the IT department must modify the relevant technologies to accommodate that change.

Yet software change can be challenging for a number of reasons, including those described below.

Your Software Must Always Align With Business, No Matter How Much Your Business Changes

Application software is the encapsulation of your business rules. If your business rules state that, for example, "to process an order, follow steps 1, 2 and then 3," then your order processing application must enable those steps in that sequence. If you change the way you process orders, you must change the software or employees will not be able to adhere to the new procedure.

The same is true for *every* process in *every* department in your company.

There are also a great many other circumstances that might necessitate software changes. For example, when a company reorganizes, expands its product lines or adopts new technologies, it must alter its business software to accommodate those changes.

The Critical Number is Total Cost of Ownership

The headline number when considering new software is the cost to buy or develop it. But that's not the most important number.

According to Forrester Research[1], only 34 percent of the typical IT budget goes to new development. Fully 66 percent is spent on operations and maintenance. Thus, you can typically achieve a greater return on investment by focusing your efforts on achieving efficiencies and greater accuracy in the maintenance phases of the application lifecycle than in the development or acquisition phase.

There are many areas where efficiencies, including the reduction of human error, can be found in the software change phases. Consider just the following examples:

▶ Application modules interact. There are dependencies among them and with other resources that can cause an application to fail if they are not taken into account when modifying a program.

Keeping track of those dependencies manually is exceptionally labor-intensive and an invitation for human error. Inevitably, many of the dependencies will be overlooked if the application is of even just average complexity. And the problem worsens at least linearly, if not more, as the size and level of complexity of the application increases.

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[1] *Application Modernization and Migration Trends in 2009/2010*, Forrester Consulting, November 2, 2009

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> When software is changed, documentation must be updated to reflect the software's current state. Otherwise, developers working on future changes will rely on false assumptions—and, therefore, waste precious time creating faulty code. As with tracking down dependencies, manually updating documentation is very time-consuming and error-prone.

> Without proper project management, some essential tasks can "fall through the cracks." Sometimes, those cracks become virtual black holes, swallowing up project budgets and schedules as task dependencies compound the delays and costs caused by inadvertently missed activities.

> Manually installing modules, reorganizing databases and configuring systems can be very labor-intensive and time-consuming. And, as they say, time is money. Accordingly, a waste of time is a waste of money.

What's more, complex manual deployments are highly error-prone. Errors in deployment swell costs because the downtime they cause disrupts business operations and may require that you restart the expensive implementation process.

> Many organizations maintain multiple system environments—one for development, one for test, one for production and possibly different environments for different lines of business and subsidiaries. To determine your total software deployment costs, multiply the cost of software deployment in a single environment by the number of environments in which the software must be deployed.

"The reason to acquire ALM software was the need for a secure procedure for the transfer of development work to a test and production environment. We were also looking for an accepted solution for auditing purposes to make certain that everything that is in production has correctly passed through the development process. We need to be sure that objects and sources belong to each other and have not been placed there incorrectly outside the control of the system."

Kees Trommel,
IS division manager at Yamaha Motor Europe

Auditability is Mandatory

Accountability regulations have grown stricter. Whether it's the Sarbanes-Oxley (SOX) Act or the Health Insurance Portability and Accountability Act for public companies and healthcare providers in the United States, the Basel II and III accords for global financial firms, or a host of other regulations around the world, companies are now required to track and account for their actions much more rigorously.

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Mention the term "accountability" and minds tend to turn to financial records. Those certainly are a major focus of the stricter regulatory environment, but they are not the sole focus.

Companies must also ensure that their systems are auditable. Auditors may demand to know who changed what in critical business applications, when those changes were made, and what the effects of those changes were. If auditors don't get the information they demand, they will issue qualified financial statements, which will affect a company's ability to raise funds through debt or equity.

Manual documentation is often not sufficient to accommodate these requirements. Everyone makes mistakes. And some people may feel that other tasks have a higher priority. Thus, if the IT department depends on manual documentation of software changes, its systems might not be sufficiently auditable.

If You Can't Predict It, You Can't Control It

Major software projects have a reputation for frequently being over budget and behind schedule, often by a wide margin. The problem is that there are so many unknowns.

This can be an even bigger challenge for software change projects than for new development. Programmers don't start with a blank page when they modify existing software. It's not enough for them to know the user requirements. They also need to know the design of the existing software, including its change history.

Without complete visibility into the relevant software and its dependencies, it's impossible to make an accurate prediction of how long a software change project will take and how much it will cost.

What's more, without that visibility, projects will be difficult, if not impossible to manage

effectively because the project will frequently veer off track due to unexpected problems that developers encounter.

In terms of the Capability Maturity Model (CMM) developed at Carnegie Mellon University, to improve the predictability of software projects, while optimizing their efficiency and accuracy, organizations must move from an initial, chaotic Level 1 state to an optimizing Level 5 state.

Satisfied Customers are a Necessary Condition

Satisfied customers are essential to the continued viability of every company. And keeping customers satisfied requires keeping up with their evolving needs and expectations.

Those expectations are determined not only by the interactions between you and your customers, but also by your competitors. If a competitor offers valuable new products and services or ups the level of service it delivers, your customers will expect the same from your company.

In today's technology-driven business world, keeping up with those evolving needs and expectations will inevitably lead to a need for modifications to your current applications.

However, in many cases, the IT department is so overwhelmed with bug fixes and accommodating internal needs, that they don't have time to serve the changing demands of the marketplace.

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Streamlining the software maintenance phases of the application lifecycle can free up the time they need to do that.

Apropos of meeting customer needs and wants, beyond visibility into their software, companies also require insight into the minds of customers. For example, they need better ways to track trouble tickets and ensure that customer relationship issues are solved before they become crises.

Information is a Vital Asset

One of the biggest problems IT managers face in overseeing the application lifecycle is that crucial knowledge about vital business systems sometimes resides only in people's heads. Software engineers take vacations, get sick, retire, change jobs and in most cases it all happens before transferring their knowledge.

The result is that know-how is sometimes temporarily or permanently unavailable.

Yet, that information is a particularly valuable asset. For example, without knowledge of how your software works, your organization's understanding of how its processes work might not match reality. What's more, when it comes time to fix bugs or add new features to take advantage of new opportunities or counter new threats in the marketplace, making the necessary changes to your software will be much more difficult, time-consuming and error-prone without detailed, accurate information about the inner workings of your software.

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▶ An ALM Solution Can Overcome the Challenges and Deliver Significant ROI

A comprehensive application life cycle management (ALM) solution can overcome many of the challenges associated managing software changes to create a significant return on your investment in the solution. The following are some of the benefits your IT department will receive from an ALM solution:

Software Visibility

After implementing an ALM solution, one of its first jobs is to probe your systems and catalog all objects and interactions. Because this is an automated process, the chance of errors and omissions is negligible.

With this comprehensive repository in place, development teams gain much greater visibility into their systems. As they prepare to make changes to an object, they can instantly see what other objects and system resources must also be taken into account. Consequently, developers will encounter far fewer unexpected problems, thereby reducing the time and resources required during the development phase and reducing the number of bugs that crawl into production.

Process Automation

An ALM solution does more than just maintain an inventory of application artifacts and interactions. Its automation of some of the software change processes also encourages, and in some cases enforces, development and maintenance best practices. As a result, the ALM helps to raise standards throughout the IT shop.

"I quickly saw the benefits of the procedures specified in an ALM tool. These [change management] procedures provide excellent repeatable workflow processes, so we no longer have worries about, for example, the transfer of developed software to the production machine."

Patrick Van Ooijen,
ICT manager at ETNA Coffee Technologies

Teamwork Hub

Because all software change is managed through the ALM solution, it acts as a virtual teamwork hub, ensuring that all developers are working from the same knowledge base. And when team members work on different modules, the ALM solution ensures that no interactions between those modules, or with modules that remain unchanged, are overlooked.

12 software changes in 3 to 5 minutes, versus 8 to 10 hours in the past - a 99% reduction in deployment time.

Faster, More Accurate Application Deployments

Automating deployment processes significantly reduces the time and expense required to implement software changes. In addition, it virtually eliminates the possibility of human error during deployment.

Importantly, automation ensures that applications are deployed the same way in all environments. After deployment, the production environment(s) will be identical to the development, testing and acceptance environments, without exception. This prevents the system failures that might result from inconsistent deployments.

Versioning and Undoing

When bugs are found in production applications, fixes can often be applied to the applications in place, but not always. Sometimes the best option is to go back to the last known working version until the bug can be found and eradicated.

An ALM can simplify and speed the back-out process. As part of its standard functionality, the ALM maintains a repository of all previous versions of all software under its control. It also records the configurations associated with those versions. It can then use that information to automate the back-out process, bringing not just the software code to its earlier state, but also the system settings and database schema.

Automatic Auditability

An ALM tool keeps track of who did what to programs and when they did it. That information is stored in a database that is readily available to IT managers and auditors so they can easily track changes that affected application functionality. Auditors can use that information to verify that no inappropriate changes were made to an application during the time that the audit covers.

"Now we can quickly see the dependencies between the various objects and therefore the places where distribution might encounter problems. This allows us to prevent errors in the production environment. Moreover, this solution makes distribution so easy that it can be done by an administrator rather than by a specialist. And finally, if something should go wrong after all, it can be reversed to its former state by simply pushing a button."

Bert Verhoeve, Strategy and Architecture department, LeasePlan

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Ensuring That Work Flows

Some ALM products integrate with workflow management applications to create a comprehensive Application Lifecycle Management solution.

Workflow management software allows you to define and refine processes through business process modeling. These process definitions show how documents and approvals are supposed to flow through the organization.

As processes get underway, the workflow management software routes documents appropriately and flags tasks and approvals that aren't completed when they are supposed to be completed.

The workflow management software thus further helps to ensure that your organization follows best practices, but, more importantly, it ensures that no critical tasks inadvertently fall through the cracks.

Automatic, Organized Documentation

An ALM solution, in concert with a workflow management application, acts as a document management tool for application developers. In addition to automatically documenting development and change activities as they happen, the ALM and workflow management solutions also provide a repository for software documentation, including documents containing requirements, application descriptions, release notes and incident reports, among other information.

Rather than having to hunt through file cabinets or search through separate electronic files in disorganized folders on a collection of disk drives, all documentation related to an application module can be called up with the click of a button.

Speedy Modernization

An ALM solution can also provide significant value when it comes time to modernize old applications. By providing greater insight into programs and their dependencies, an ALM tool can reduce the complexity of software. As a result, rather than being stuck in constant maintenance and bug-fixing mode due to inefficient and ineffective workflows and deficient information about software modules, development teams use some of their freed-up time to pursue new development.

Increased Predictability

Another benefit of an ALM solution is that it makes the person-hours, duration and cost of software change processes more predictable. Tasks that are automated, such as cataloging program objects and interactions and deploying software, will become completely predictable. And because the ALM solution will allow IT professionals to collaborate more efficiently and effectively and allow managers to better monitor the flow of development processes, that work will more closely adhere to benchmarked best practices, meaning that it will be more consistent.

As a result of this greater predictability, budgeting for software change projects will be easier and more accurate.
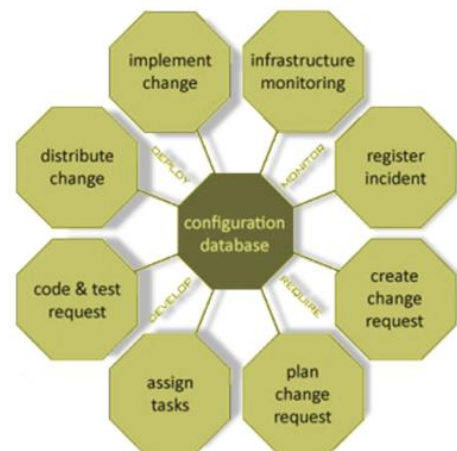
▶ Conclusion

For the past half-century, IT departments, or what used to be called Data Processing (DP) departments, have helped organizations to automate business processes and digitize information to increase productivity, improve service quality, gain valuable new insights and do things that they couldn't do before. But, as the old saying goes, the cobbler's children have no shoes.

It took a long time before IT applied technologies to its own operations to provide the same benefits to IT as IT had been providing to the rest of the organization. ALM and workflow management solutions help to address that shortfall. They automate the flow of many application life cycle management processes to make them more productive and accurate and to provide far greater visibility under the covers of applications.

Now, thanks to ALM solutions, companies are able to improve the quality of their software change processes, while reducing the costs of the related IT processes and being able to more quickly meet the needs of the organization and its customers and quickly implement new revenue-generating products, processes and services. The end-result is improved customer and employee satisfaction and higher profitability.

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Call us to get more info about improving change process in your organization!

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▶ About Remain Software

For more than 20 years Remain Software has been an expert and a market leader in Application Lifecycle Management solutions for the IBM i platform. The innovative and flexible software change and workflow management solutions from Remain Software help organizations to manage their IT assets by simplifying and automating application change and modernization processes, improve workflows and teamwork, and streamline IBM i, Windows, Unix und Linux software development - from defining requirements through design, development and up to deployment and testing.

Simplified and standardized Application Lifecycle Management, time and cost savings, and improved productivity and communication within teams are just some of the benefits that help to deliver high quality applications and customer satisfaction. Taken together, these features and benefits serve to increase organizations' profitability.

Remain Software is supported by an extensive Partner Network. Together with their Value Added Resellers, Remain Software offers a broad range of services and training that maximize the benefits of our solutions.

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