Missing the Mark: Ten Reasons Why Automation Fails Across the Software Development Lifecycle

Automation is the foundation for success in the digital age. However, as organizations forge ahead, they often find themselves on faulty footing. Here are some of the reasons automation fails and the traps that organizations should avoid.
EXECUTIVE SUMMARY

Automation is pervasive in IT organizations across industries as companies strive to become more agile by cutting response times. In the digital era, automation across the software development lifecycle (SDLC) lays the foundation for real-time service delivery.

While automation’s benefits are well established, many companies find themselves on a creaky IT foundation due to flawed implementation or unrealistic expectations from their investment in automation. Proper due diligence is of paramount importance when embarking upon an automation program. It must be based on clear business outcomes and assessed on the basis of its long-term potential for investment returns. Not every organization is prepared to extensively automate immediately. It is necessary to lay the groundwork by optimizing manual processes before committing to automation.

This white paper explores some of the common reasons that automation fails and reveals how companies can ensure that their investments function as a source of competitive advantage.
SDLC AUTOMATION PITFALLS

The maintenance conundrum: Who pays for it?

Investments in automation often fail to deliver on their promise. It’s not uncommon for projects to suffer from escalating maintenance costs, just to keep their automated assets in usable condition. In this scenario, many managers find themselves questioning who is going to foot the bill. It begets the question: how could anyone have missed this while drawing up the annual budget?

While new automation initiatives are often well planned and budgeted for, maintenance costs tend to fall through the cracks. It is essential to have clarity on where the budget for ongoing maintenance comes from – as part of projects or from a centralized fund – and estimate the same during the IT budgeting cycle. The cost of a maintenance miss is especially steep in the world of Agile and DevOps, where cycle time comes at a premium.

The end goal of automation is headcount reduction: Automation is so much more than that.

Automation is often synonymous with job loss or a reduction in team size. To measure the success of an automation initiative, management instinctively reaches out for statistics on the effort saved or the headcount reduced.

Viewing automation in this way is self-defeating, since the very people who build more automation are also the ones who will eventually be replaced – this gives the team very little incentive to explore every avenue for automation. Not only that, in today’s knowledge economy, replacing a team with years of enterprise experience is typically counter-productive in the long run. It’s better to view automation as yet another tool to complement the team and free them up for more innovative and value-added activities.

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QUICK TAKE

What Happens When Automation is Not Tied to Business Outcomes

A U.S.-based mortgage lender – a national leader in the wholesale mortgage business – envisioned an enterprise-wide API management platform. The objective was to automate the entire SDLC, a program that was presented to management as a technology initiative to reduce operating costs.

The platform, if instituted, could have reduced the time from origination to closure by over 70%. However, business leaders failed to see how this automation opportunity would impact the business and the initiative was shelved.
Automation succeeds only if it reduces costs: 
*Tie it to broader business outcomes as well.*

The business value of automation is often restricted to the bottom line while ignoring more nuanced outcomes such as speed and quality. This sort of a narrow definition of benefits makes it difficult to determine return on investment (ROI). Automation ultimately needs to solve a business problem and that problem is never just cost reduction. Excessive cost is only a symptom of the underlying problem. Sometimes, an automated solution might not reduce cost at all but still meet broader business goals.

Automation is just another organizational initiative: 
*It’s actually a cultural shift!*

When organizations view automation as just another initiative, it tends to create a division between automation and non-automation resources. This makes automation the responsibility of only one group, who then miss the expertise of the other, which can lead to issues down the line. To avoid this, organizations should approach automation from a change management perspective.

To realize automation’s full potential, it is important to blend together automation and non-automation teams, so that the following are addressed adequately:

- **What should be automated?** Feasibility analysis and ROI estimation are critical activities before signing off on an automation initiative. Just because something can be automated, it doesn’t mean that it should be automated.

- **How should it be automated?** This is especially important considering the variety of tools and technologies available for automation. What seems like a quick-fix today might not even be relevant tomorrow.

- **When should it be automated?** Traditional wisdom pegs the start of automation to later in the software development lifecycle, when requirements have achieved a measure of stability. This no longer holds true in Agile/DevOps projects, where waiting for stability could mean automating a few days before the end of a Sprint.

Automate to fit your budget: 
*Budget to fit your automation needs.*

Automation initiatives are often put on the back burner while competing project priorities take center stage through the year. However, as the year comes to a close and managers still have an available budget, the focus shifts to automation as an early investment for the next year. In this process, what often happens is that traditional due diligence is disregarded in favor of “making the most” of the funds available and organizations end up automating processes that are low in ROI.
Automation should always be complemented by diligent documentation and a strong knowledge management system to ensure that reliance on automation doesn’t become a crutch in times of need.

**Automation is the only lever for efficiency:**

*It’s a foundational lever of efficiency but there’s more to it.*

Automation enables a quantum leap in efficiency and typically provides the greatest “bang for the buck.” However, automating indiscriminately often leads to bad habits that are increasingly coming to the fore in the digital age, as cycle time comes at a premium. For example, some organizations may find themselves stuck with large automated test suites that are unnecessarily run and re-run without ever catching a defect, just because it takes no additional effort. It is always better and especially important nowadays to apply proper diligence and be selective in automation.

**Every team automates for itself:**

*Automation benefits cut across operational silos.*

Since teams typically span silos, many organizations view automation very locally. In reality, automated assets created by one team are valuable to other teams as well, such as build automation that both development and testing teams can use. However, when the build automation process is isolated, other teams might end up re-creating automated assets, applying their own standards along the way. This reduces asset reuse and leads to a lack of consistency across the enterprise. While one team might be responsible for the creation and maintenance of automated assets, there should be collaboration across the lifecycle to ensure maximum reuse and ROI.

**There is an over reliance on automation.**

*Don’t eliminate SME knowledge.*

One of the unintended consequences of automation is that it undervalues subject matter expertise (SME) knowledge as automation allows knowledge to be captured and codified for future use. This could gradually lead to an erosion of systems knowledge within the team that is exacerbated when an automated asset fails and an issue needs to be resolved the good, old-fashioned manual way.

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The True Cost of Indiscriminate Automation

The online sales division of a U.S.-based bank invested significantly to automate its regression testing suite. Regression testing had consumed over 50% of its QA efforts and automation was seen as a silver bullet that could accelerate release cycles.

While the team focused on implementing a build automation framework, it failed to clean up its regression suite, which was never updated or validated to assure complete coverage. This resulted in an outage in the very first cycle, which had a huge impact on the bank’s operations.
Before committing a substantial amount to one tool or the other, organizations should undertake a detailed study and prepare a benefits timeline at least five years out, during which time they can recoup their initial investment.

**Automation generates instant return:**

*It takes time but it’s worth the wait!*

As with other capital investments, automation requires a high initial expense outlay with the promise of future returns. To accelerate benefits realization, it is common to take a big-bang approach where more automation becomes a goal unto itself. This usually ends up defeating its purpose as ambitious savings targets remain unmet and project sponsors become hesitant to fund a failing cause.

It is always better to take a phased approach, initially picking the low-hanging fruit that is simple to automate and will generate a quick return, before moving on to more complex tasks. This serves a dual purpose of earning the confidence of project sponsors, while also allowing the automation team to gain confidence before attempting more complicated projects.

**It’s difficult to adapt to rapid changes in tools and technology:**

*Keep ahead of the curve.*

Keeping pace with the rapid change in technology and especially automation toolsets is a daunting task. What is hot today quickly turns obsolete as the next solution promises to make it even easier to deliver results. To further confound decision makers, there are a variety of specialized tools for various niches of automation. While a specialized solution might be apt for a few projects, it might not make business sense at an enterprise level.

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The Value of Keeping Automation in Sync Across Enterprise Software

A major auto lender used Salesforce.com for campaign management and sales, which required automated data synchronization between enterprise systems and the cloud. Unaware of existing market tools, the team automated this process using custom scripts.

The immediate cost incurred was minimal, until the process experienced data accuracy issues between enterprise systems and Salesforce code. This resulted in an extra effort to fix and maintain on an ongoing basis. A $50K initial investment could have helped avoid $200K in annual maintenance costs.
LOOKING FORWARD

While automation is definitely one of the most potent tools in every IT practitioner’s toolbox, it is often one of the most misused. Many organizations focus on automation, but even with heavy investment the results are often underwhelming. The intention to automate should be complemented with a structured framework to evaluate automation opportunities, ensuring that investments are tied closely to business goals. Business and IT decision makers should:

- **Automate for the right reasons.** Just like any other capital investment, automation should not be treated as an “infinite-ROI” initiative. Its utility is always time-bound in a changing technology landscape. Decision makers should pre-plan and tailor the budget to meet automation needs rather than the other way around.

- **Automate the right processes.** Not every process can be automated, or is even worth automating. It is better for automation teams to invest time in studying applications, understanding the business flow and future priorities before beginning an automation project. In the scramble for agility, organizations often employ shortcuts that come with a long-term cost.

- **Automate the right way.** Standardized automation frameworks and properly commented code aren’t always the most glamorous use of an automation engineer’s time. However, as noted earlier, with automation becoming more ubiquitous, SME knowledge in the team is gradually being codified in the form of automated assets. This degree of reliance on automation makes it very difficult to maintain voluminous automated suites without standardized and well-documented processes.

- **Automate with the right team.** Automation is a specialized field with a plethora of tools, each adapted to different needs. The choice of tool is often influenced by team composition rather than the nature of the application and business outcomes that are to be achieved. This approach often ends with mixed results, as organizations are faced with escalating maintenance costs at best, or at worst with a large automated suite that is no longer usable.

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