

The Testing Center of Excellence

The New Framework for Quality in
Business Process Execution



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Today, many large enterprises are embracing a “center of excellence” model by forming teams whose charter is to accelerate the deployment of innovation and ensure the quality of business processes and systems. Typically, these teams fall within an IT or Quality organization and are managed as a budgeted line item. This trend marks a radical departure from the past where business process testing and quality assurance were managed on a “one-off” project basis – or not at all.

What is triggering the growth of centers of excellence? Now more than ever enterprises are tasked with introducing innovative technologies and new systems at record speed – in support of business objectives. SAP HANA® in-memory databases, mobility, portal, and cloud technologies are in demand and driving the pace of innovation. This pressure is forcing enterprises to test business applications at faster rates, even as budget pressures and staff constraints push IT teams to reduce costs. The trend also means increased emphasis on end-to-end business process validation to minimize business disruption when technology changes are introduced. Shortcuts can lead to quality problems and operational challenges that organizations need to avoid.

A center of excellence (COE) for software testing provides a framework to speed the testing process, eliminate redundancies, ensure high business process quality, and reduce risk to the organization. According to a recent industry survey, over 40% of the companies that use SAP® currently have a Testing Center of Excellence in place or have plans to start one. For many Fortune 500 firms, it’s the best approach to reduce IT costs, accelerate innovation, sharpen your competency in testing, and improve the quality of business systems – all at the same time.

The goal of a testing center of excellence (TCOE) is to accelerate the delivery of innovation across an enterprise, while driving down the risk and cost of change.

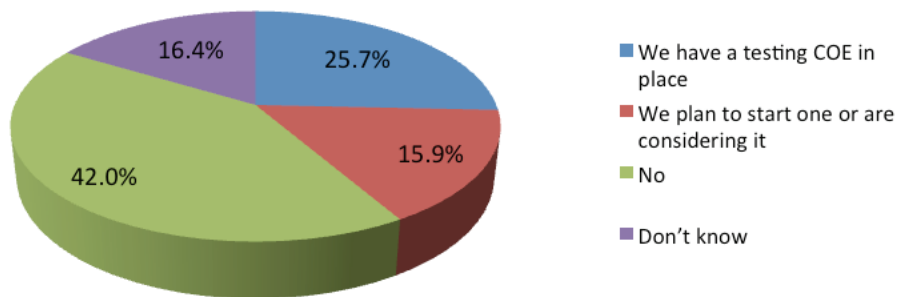
What you will learn in this paper:

You will understand the elements of a testing center of excellence and the keys to maximizing your enterprise’s value from a TCOE. You will learn why it is important to establish end-to-end business process testing as a competency, and understand the organizational aspects of building a TCOE. Finally, you will be able to identify and avoid the common stumbling blocks in building a testing competency and establishing an effective TCOE structure.

The TCOE Trend

Worksoft commissioned an independent third party to perform a 2013 market research survey in which one of the questions was, “Does your company have a testing center of excellence or plans to start one?”

The results were strong, with 603 respondents from over 400 companies. The majority of respondents were IT professionals in large global enterprises. A substantial portion (41.6%) said they had a center of excellence in place or plans to start one (25.7% with a TCOE in place and 15.9% with plans for the future). These results spotlight the growing importance of testing and the increasing focus on business process validation. It also shows that companies are increasingly viewing testing as an essential competency.



Analyst Observations

The leading software industry analyst IDC (IDC 2012 Report) notes this trend as well, commenting on the increasing importance of business critical testing, and the industry’s increasing focus on avoiding the risk of business disruption due to technology failures:

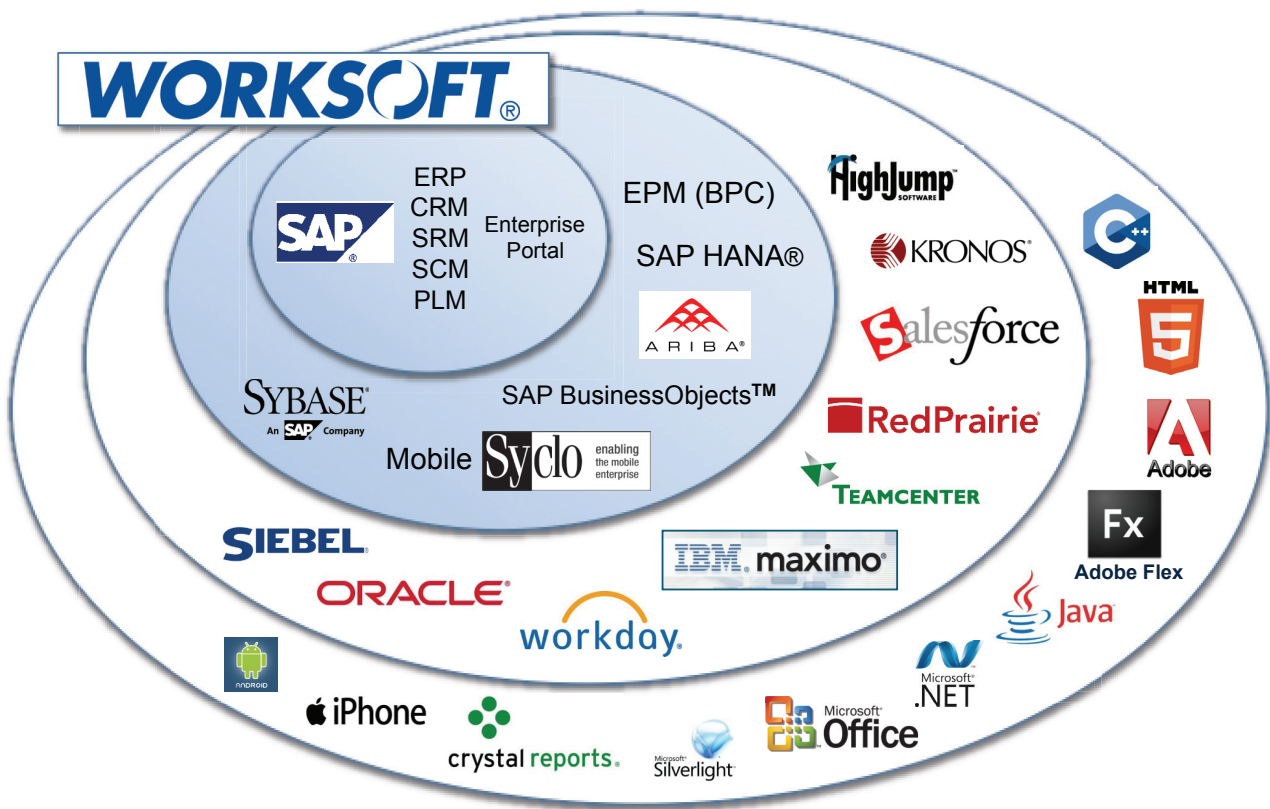
- “With the advent of agile approaches to development and product evolution, including apps for mobile environments, software release cycles and churn are faster than ever.”
- “Proactive, consistent quality management for business-critical applications has increased in importance for most organizations.”
- “Given the visceral impact of downtime and performance degradations in a difficult economy and the agility enabled by software such as ERP solutions, the demand for effective testing has never been greater.”

Strong Business Demand

SAP initiatives and technology environments are getting increasingly complex. Business systems must provide more and more functionality and capability. Businesses are changing at a faster and faster pace. And the resources to address these changes are in greater demand.

Organizations cannot afford to “stay the course” and apply outmoded tools and approaches to these new challenges. If they do, they risk serious business disruption due to technology failures. They also risk staff burn out, and worse, may lose some of their most valuable and critical team members.

Today functional teams and business analysts are being asked to do more than ever. They are tasked with helping the business change, working with systems and systems groups to implement the changes.



In most organizations, they are also needed to test systems before they go into production. These are time-consuming and complex tasks - and doing them well doesn't leave much room for anything else.

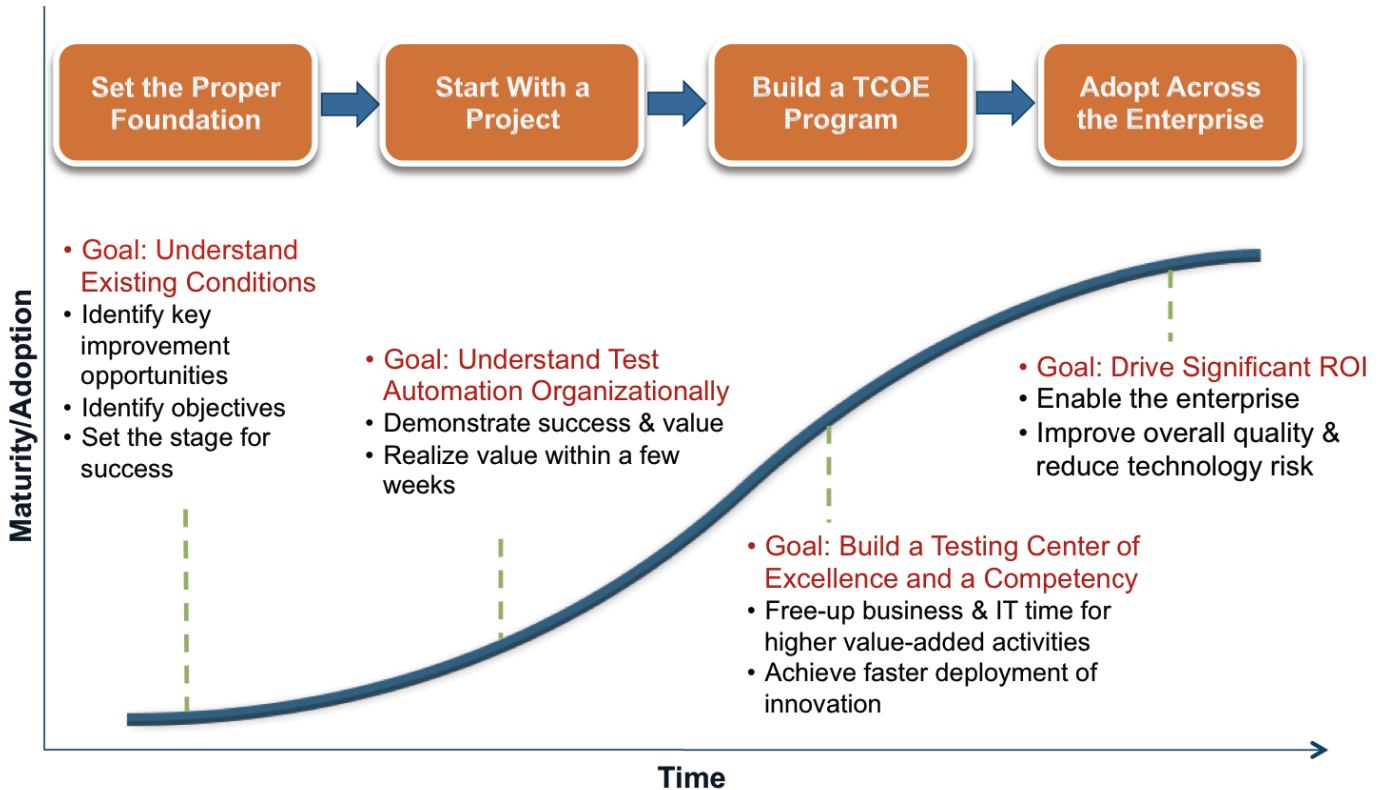
In addition to SAP, the typical global enterprise has dozens of other packaged enterprise applications, as well as customer applications and interfaces between them. When one system changes, how can CIOs be sure that all of their critical end-to-end business processes still work as intended? A comprehensive approach to business process validation is required.

A typical roadmap for SAP and the ecosystem of enterprise applications around it will include system maintenance, minor releases, major releases, upgrades and major projects. Many teams today have determined that if they only "stayed the course" with current methods, their functional teams would be doing manual testing full time for the next few years! More and more organizations are realizing that this is not the most valuable use of their teams' time and resources. Enterprises today simply can't afford to have these functional business experts, who are in high demand today, work on anything but high value-added activities.

That's driving the push to efficiency and automation. And that's why the most successful organizations with the best quality programs have developed a competency around testing and test automation. These enterprises have matured their organizations through incremental success and organizational learning.

If you're reading this paper, you know that software for test automation and business process validation is critical to building a testing competency. However, other components are equally essential. So, how and where do organizations start?

Testing Competency: The Organizational Maturity Curve



Large initiatives don't work in today's business and investment climate. Most organizations don't invest broadly in a new area until they prove the value on a pilot or initial project. The best strategy is to achieve success incrementally, grow initiatives wisely, and mature your organization appropriately.

Perhaps you've been doing manual testing for a while, but know you need a change. Maybe your workload has become intractable, or the budget is under pressure. Or you've just completed a project and had a critical business outage.

No matter what led you to the crossroad, the experience of others can be beneficial in helping you navigate the path forward. Worksoft has seen many companies move along a proven path in establishing testing as a competency and achieving broad enterprise adoption – along with the dramatic business benefits that result:

Step 1: Set the Proper Foundation

Step 2: Start with a Project

Step 3: Build a TCOE Program

Step 4: Adopt Across the Enterprise

Step 1: Set the Proper Foundation: Understand Current Conditions and Objectives

A first step is to understand how your organization is ensuring the quality of systems and business processes today. When and how are systems being tested? How are end-to-end business processes validated? When new technology is deployed, how does your organization know that critical business processes will continue to work as intended? What levels of staffing are available and what is the level of experience with testing and test automation?

This self-assessment really focuses on three aspects of your preparedness: people, processes, and technology. As a company moves along the maturity curve, each of these factors will develop as well:

- People – How do we create the skills in our organization and grow those skills over time from our current baseline?
- Process – What processes should be altered, removed or added as we establish a formal testing competency to improve business performance?
- Technology – What enabling technologies should we use as a part of the testing competency?



In addition to preparedness, this is also a good time to clarify the needs and objectives. What project drivers are most immediate?

- SAP HANA® or major SAP® upgrades; other enterprise system deployments
- A quality improvement initiative
- Acquisition, merger, reorganization or consolidation
- New mobility, cloud or web business applications
- Streamlining systems maintenance or budget reduction initiative

What risks are of greatest concern that a TCOE can mitigate?

- Business process disruption caused by a technology problem
- Project failure or lack of adoption of new technology that creates business value
- Project delay in the deployment of major systems, or delay in realizing cost savings of new technology
- Budget overruns

What are your most important objectives for a TCOE?

- Faster projects and on-time, on-budget execution
- Increased business process quality; catching more defects early before they impact the business
- Lower technology risk
- Faster deployment of required legal, HR, and compliance updates
- Increased pace of innovation
- Lower staff costs, systems maintenance costs and increased staff efficiency
- Lower stress, increased staff job satisfaction, higher retention, and greater productivity

Step 2: Start with a Project: Learn, Prove and Succeed, Incrementally

As we've said, most large companies today want to prove a new approach before making a large scale investment. So the best way to do that is to identify an initial project to demonstrate the value of end-to-end business process validation for a specific project. Fortunately, it's not difficult to demonstrate the value of test automation – today's solutions make that a straightforward proposition.

In the course of the first project, your team will gain an understanding of how testing works today in your organization, the people that are involved, the amount of time it takes with manual processes or outmoded testing technology, and the quality of software being moved to production.

For the typical technology deployment project, you will usually address each of the following areas:

- Install and configure the enabling technology to be used for functional testing, such as Worksoft Certify®
- Identify the critical business processes to be validated and tested end-to-end (where to start)
- Educate your team on the test automation technology
- Determine which business processes to test using automation, and where to test scenarios manually
- Capture the processes in the test automation system and design the functional tests
- Build and harden the functional tests
- Validate and run functional tests again and again during the course of the project
- Use the business process documents (automatically generated by Worksoft Certify) for staff training, compliance, and other business purposes

Typically, one project is all that is required to demonstrate success and the value of test automation – and to gain the organizational support for investing in testing as a competency.

A collaborative project approach is crucial. The IT professionals involved in a project need to work closely with the functional subject matter experts. The practice of capturing a process on paper nearly always results in something being lost in translation and typically requires extra time for explanations and clarification. There can be quite a bit of re-work due to misinterpretations or incorrect assumptions. How many times have you taken a document, a written test or a written script, and either executed it manually or tried to automate it and failed on the first time? We see this happening frequently. The days of the handwritten process document are over.

Organizations should engage the functional team in the design process, and with a tool like Worksoft Certify that is easy. By mimicking the workflow they would do manually, but using an enabling technology like Certify to capture the process, organizations can increase the overall accuracy of the effort and significantly decrease the effort of testing. The IT side should be engaged in a similar manner, partnering to take these captured processes and turn them into re-usable assets for the organization.

When done incrementally, organizations will see value from this process in a short period of time. It's not a serial process, but rather a parallel process that generates value with each iteration.

Step 3: Build a TCOE Program. Establish Testing as a Competency

Organizations that build a testing competency do so to maximize the ROI for software testing expenditures, increase the capacity of critical resources, minimize business disruption, reduce time-to-market for new products or applications, and change the quality culture within the enterprise.

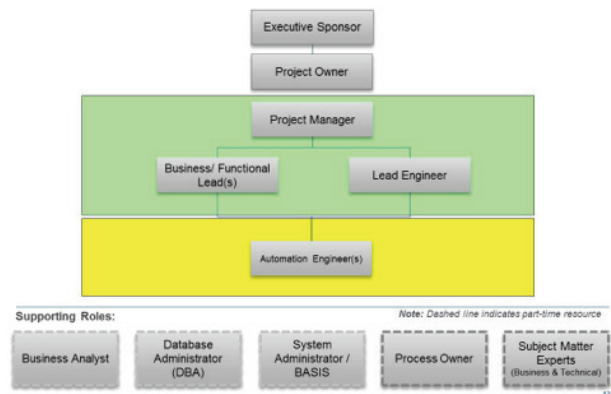
To achieve business value and innovation, software testing must be managed like any other business asset – as an integrated set of repeatable activities focused on producing a positive business outcome.

Building a TCOE involves building a competency in testing and entails adopting an approach and a technology across an organization. More expansive than building skills alone, it includes people, processes, and technology.



The importance of leadership. Testing automation engagements require participation and dedication from the following:

- A designated and active Champion or Executive Sponsor
- A regularly scheduled Steering Committee with representation from key stakeholders and functional groups
- Designated, active and knowledgeable Project Managers
- Customer Team Members who are dedicated to enabling others in your organization
- Subject Matter Experts (SMEs) who are available for discovery sessions and support on a timely basis, throughout the projects, as needed



Bring in top ranked test automation technology and prepare hardware. The technical environment must not be an impediment:

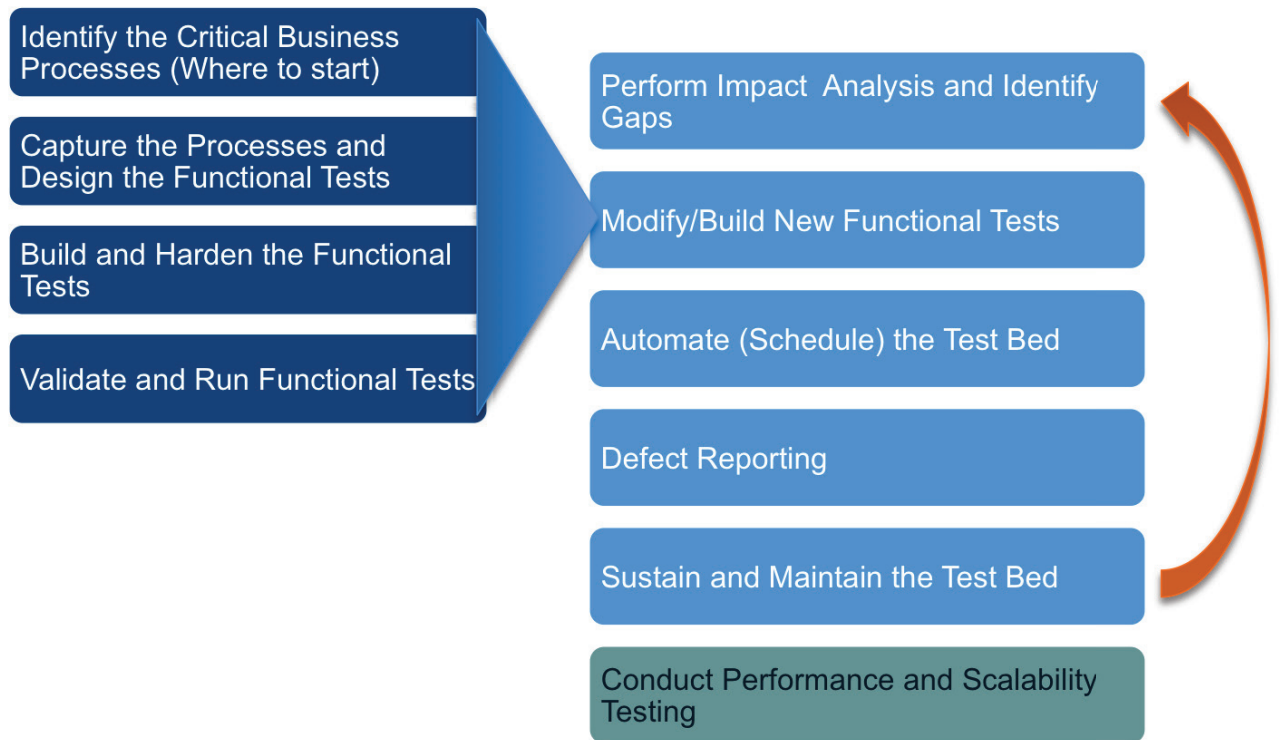
- Prepare initial hardware and environments for installation of Worksoft Certify® software, the industry leading solution for functional testing and end-to-end business process validation
- Establish test environments with test data

Manage the TCOE like a project in itself. Preparation and execution are keys to successful engagement and overall adoption:

- Define project success criteria and project charter
- Clearly define project roles and responsibilities
- Target tests for business processes that are well established and are business critical
- Define objectives

Manage the test portfolio and identify the next target projects. After completing an initial testing project, organizations will have an initial business process test bed with which to work. This test bed should be leveraged for re-use, but also for determining what to test next.

Organizations should perform an impact analysis on their test bed to determine suitability for the next project and to specifically target which tests need to be added and which need to be modified. Testing coverage is key to long-term success. In some companies a longer term goal is to automate more than 80% and sometimes over 90% of critical business process tests. Over time, the test bed will grow as more and more projects use the existing test bed for end-to-end business process validation.



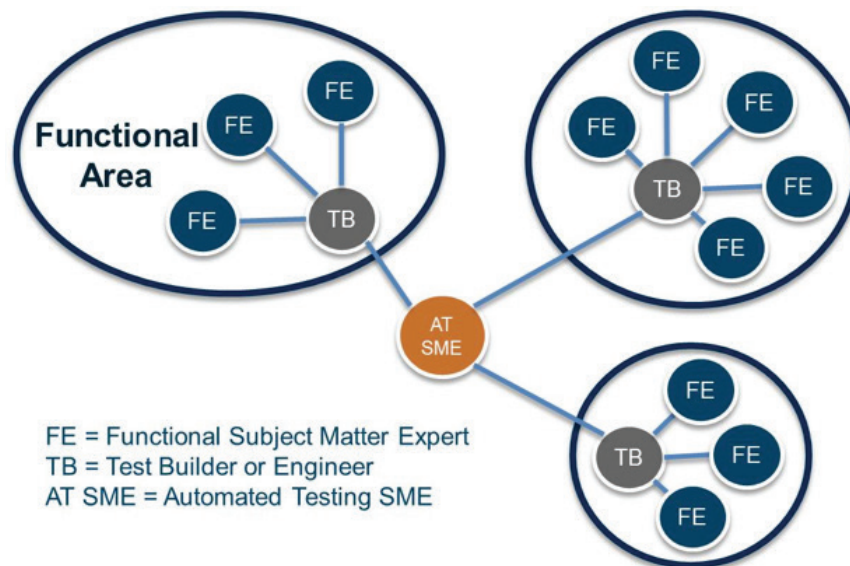
In other words, the test bed becomes an immensely valuable corporate asset of the company's end-to-end business process tests that can be leveraged repeatedly for test automation in large and small technology projects worldwide.

The test portfolio and testing competency as corporate assets. For companies that adopt testing as a competency, testing is viewed as an asset with a positive business outcome. The organization develops the competency internally and builds the skills, best practices, processes, procedures and standards within the organization that enable it to leverage, grow and gain increased value from the competency. In this designation, testing as a competency is the development of an organizational capability that is leveraged to enable the enterprise.

The TCOE builds a testing competency within the organization, one with clearly established objectives, well-defined processes, multi-disciplined skill sets, governance, tools and technology to achieve highly efficient end-to-end business process validation.

Organizational structure and division of labor. Most organizations elect to centralize some element of the competency through a TCOE and then deploy some degree of a federated model depending on the competency and organization. In what cases will the TCOE enable other parts of the organization to become proficient in test automation on their own? In what cases will the TCOE actually perform test building and execute tests (implementation project delivery functions)? The division of labor and role definition for TCOE staff should be clear to the organization.

Learn through delivery and develop best practices. As the TCOE staff gain experience, be sure to document and communicate best practices in the areas of:

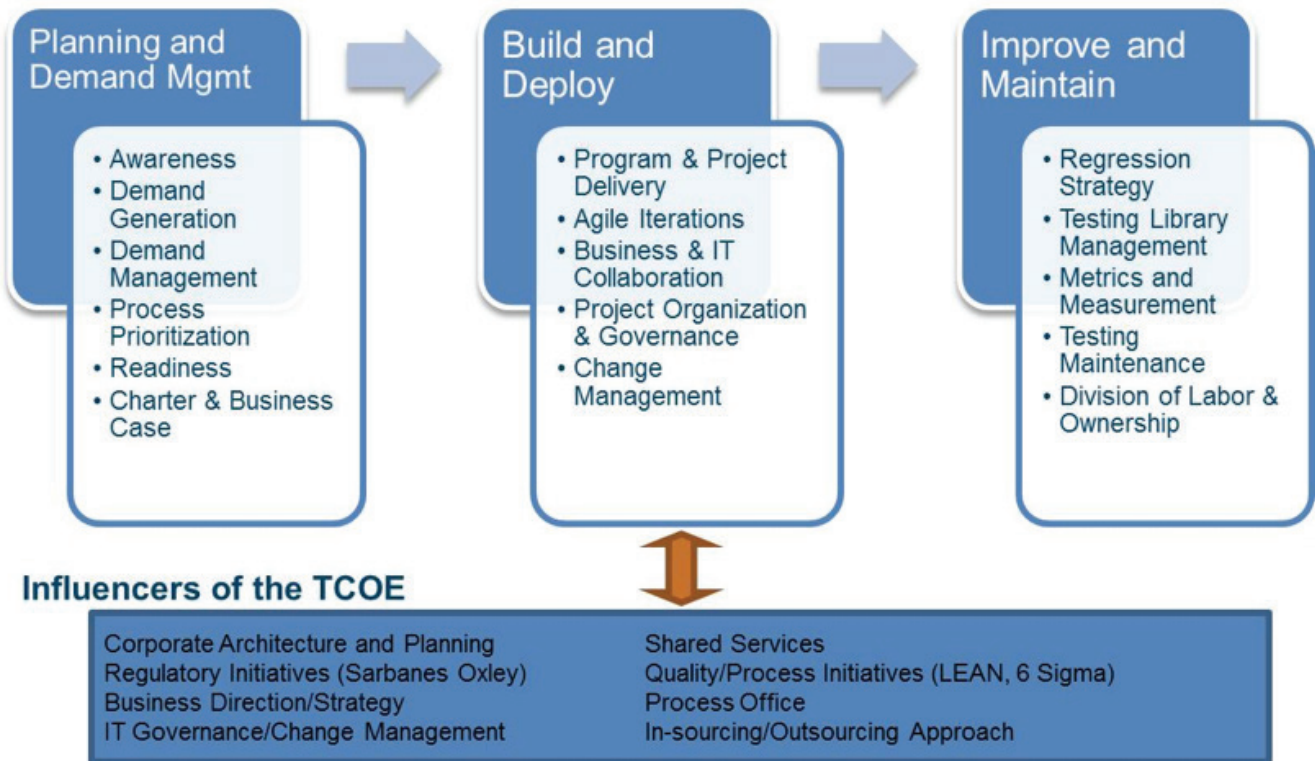


- Administration and IT Environment Setup
- Security
- Naming Conventions for Automated Tests and Variables
- Change Management
- Change Control
- Automated Test Design
- Automated Test Execution and Defect Reporting

Step 4: Adopt Across the Enterprise

The single most important success factor in enterprise adoption of testing as a competency and the TCOE is strong executive sponsorship and an execution champion. The roles aren't full time, but they are crucial. Broad enterprise success cannot be achieved without strong sponsorship and leadership.

The executive sponsor needs to have organizational buy-in and influence. The execution champion or leader needs to both direct the TCOE initiative and evangelize the capability of the team. Building a program and broad adoption requires identifying the projects, effecting change, quantifying the value and having active support from senior leadership. The way to evolve from a Project to a Program with broad adoption is through finding important projects and driving change. It's an active process.



To truly scale across the organization, consider the best practices developed through organizational learning and mature those so you have the ability to enable other parts of your organization to use test automation. When companies reach this part of the maturity curve, "Build and Deploy" becomes the easy part. In order to sustain and expand adoption, you must consider:

- **Planning and Demand Management** – Make sure the worldwide organization is aware of the TCOE capability. Develop a "roadmap," or inventory of work that can be addressed with the testing competency. As part of developing the roadmap, prioritize and begin to develop an organizational talent map. This talent map will be important in managing the TCOE team.

- **Improve and Maintain** – Maintaining the business process tests and leveraging them across regressions, projects, and performance testing is widely understood. However, where many companies fall short is in measurement and metrics. Are you trending defect rates and quality measures? Are you trending toward increasing business process coverage of automated testing? Can you measure it? Lastly, are you looking at achieving risk-based testing?

Capture the organizational learning. Enterprises should adopt a new approach, add new tools, techniques and collaboration to their Systems Development Life Cycle (SDLC)/Methodology and treat testing as a project within a project. After doing this, companies should begin capturing the organizational learning. For example, what did they learn from this new approach and thought process?

Don't forget to tell the stories of success. Nothing speeds the adoption of new methods like success. Cost savings, efficiency gains, stories of on-time projects, faster innovation, and technology land mines avoided! A steady stream of successful projects and widely communicated success stories will ramp up the momentum, recognition, and adoption of the TCOE approach.

Case Study: The Need for a Testing Center of Excellence

This Fortune 500 manufacturer releases critical changes and enhancements to its SAP® system once per year. After the 2011 release, its largest international distribution center could not ship product for 12 hours. The problem was traced back to less-than-thorough testing of the international shipping business process. The awareness of the issue reached the CEO.

Since 2011, the manufacturer has developed a testing competency. The earlier unit and functional tests have been replaced by comprehensive end-to-end business process tests. With this approach more test iterations, covering expanded geographies are possible. To date they have reduced the time to test 150 business processes from 14 days and 55 unique testers to one day and one tester. They will be well prepared for the 2013 annual release, and with the new approach the risk of business disruption due to technology updates or enhancements has been dramatically reduced.

Common Stumbling Blocks in Building a TCOE

Having observed a number of global firms looking to establish testing centers of excellence, we have seen their challenges as well as their many successes. Some of the common stumbling blocks include:

Failure to distinguish between outsourcing and competency

- Key strategic decisions are abdicated to external parties
- Key internal leaders become unnecessarily entrenched in tactical decisions

Lack of integration with established internal practices

- Project intake and justification process
- Funding model
- SDLC and Methodologies
- Existing testing approaches

Lack of process understanding and competency ownership

- Insufficient process design capability
- Unclear process owner roles and process governance

Failure to distinguish between methods and technology

- Automated testing tools exist and are essential, but the real value is in organizational discipline
- Unable to engage the business in the building of testing competency

Inability to align capability supply to demand

- Training resources with the right skills at the right time
- Linking into the project portfolio process
- Driving organizational awareness of the capability

The funding model can be a very thorny issue for an organization. Without the right funding model, the TCOE initiative may never get off the ground. Organizations that fail to commit to a TCOE as an initiative and fall back to a project-based funding model are unlikely to succeed.

Test automation technology such as Worksoft Certify is an enabler, but it is not the complete answer. Even as a software company we recognize that technology enables adoption faster and cheaper than alternative methods, but it cannot be viewed as the only solution. Change is difficult and change can be disruptive. If an organization is not amenable to change outmoded quality assurance practices, then the best technology in the world won't make an initiative work. We're specifically talking about changing the way people work - and doing so requires sponsorship, support, patience and effort.

In Summary

In our experience, the establishment of a testing center of excellence within an organization can be an important milestone in reflecting that organization's progress in ensuring quality end-to-end business process execution. It means that the organization has progressed from:

- Primarily unit testing to more comprehensive end-to-end business process validation
- Testing software for specific projects to testing business processes on an on-going basis, even 24 x 7 lights out testing
- Manual or lightly automated testing to highly automated testing, even exceeding 80% automation of critical business processes
- Unfocused or partial testing to systematic impact analysis with targeted testing of technology changes
- Project-based budgeting to departmental budgeting for testing and quality assurance processes
- Less formal staff management to greater skills development and career pathing in testing and quality assurance as competencies

Most importantly, organizations that adopt the TCOE model typically realize dramatic business benefits:

- Significant cost savings, sometimes in the millions of dollars annually with test automation
- Lower technology risk, less chance of business disruption with technology changes, and fewer defects in production
- Shorter project timelines, fewer project delays, and faster deployment of innovation
- Higher staff job satisfaction through greater career path opportunities, elimination of highly repetitive tasks and greater focus on higher value added activities

Many companies consider testing as vital to maintain quality business process execution, and are developing and nurturing their staff's skills in this area by establishing testing centers of excellence. This demonstrates that companies are increasingly viewing testing as an essential competency.

Some companies are well ahead of their peers. A significant number – about 40% – have embraced testing as a valuable core competency, as indicated by the establishment of current or planned testing centers of excellence.

Like most competitive advantages, there is a window of opportunity now for operating companies to seize the benefits of highly automated testing more quickly than their peers and competitors. That window will likely close in the medium term, as test automation becomes broadly adopted, raising the bar for all industry players as it becomes standard "must have" technology over the next 5 years.

About the Author

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Toby Cappello is responsible for managing all aspects of Worksoft's global Client Services organization, focused on providing expert education and delivery services to ensure the success of our customers. Toby has over 20 years of experience with IBM, Lombardi Software, PWC, and Coopers & Lybrand driving software adoption and building a community of success within Information Technology functions across all industries.

About Worksoft Inc.

Worksoft[®] - an SAP[®] partner - is a leading global provider of business process validation software for packaged enterprise applications. Fortune 500 companies use our solutions to lower technology risk as well as shorten project timelines, reduce costs, innovate faster, and improve business process quality. Worksoft solutions validate end-to-end business processes with high levels of automation - often exceeding 80%. Blue-chip companies across manufacturing, financial, government, energy, healthcare, retail, entertainment, and transportation sectors choose Worksoft.

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