Continuous Testing Transformation
7 Critical Success Factors

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Continuous Testing Transformation:
Seven Critical Success Factors

Over the years, TTC and Tricentis have been involved in many Continuous Testing transformation efforts. While there are several variations, we consistently see similar themes among the organizations that have most successfully modernized testing to meet the needs of agile and DevOps environments.

To share these success factors with the broader community, we surveyed a representative sample of organizations to determine what's required to transform testing with Tricentis Tosca. Our research included quantitative analysis as well as interviews with recognized leaders and practitioners in the field.

These organizations consistently cited adopting Tricentis Tosca as the cornerstone for their Continuous Testing transformation because of its ability to:

- Accelerate their progress with test automation

- Support a wide range of enterprise technologies

- Allow their current QA team to contribute to test automation

- Reduce test maintenance

- Ultimately, reduce the number of critical production defects, and the cost and time required to identify defects before production

Our research demonstrates how Tricentis Tosca can be used as a catalyst for not only transformation efforts, but also for elevating the QA team's visibility and the importance of software quality as a strategic business priority.

The director of testing at a large global manufacturer says he "can't emphasize enough how Tricentis Tosca has enabled us to automate across multiple business units and technologies."

While selecting the right testing tool is critical, a true transformation effort requires greater organizational change. During our research we uncovered the following critical success factors:

1 Organizational support

2 A defined Continuous Testing strategy and transformation plan

3 A dedicated test automation working group or committee

4 Investment in training and continuing education

5 Defined and enforced best practices

6 Partnerships with key vendors

7 Effective methods for measuring success

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Success Factor 1:
Organizational Support is Critical

A Continuous Testing transformation does not happen in a vacuum. It's often one element of an organization-wide effort to modernize business strategy and process, which requires commitment from both executives and peers across the organization.

While early transformation is often defined by grassroots efforts, our research shows that executive support from the CIO or one of their direct reports is critical to successful testing transformation. Because they typically have experience on both the business and technical side, CIOs can develop a clear and coherent transformation strategy.

These leaders also understand at a conceptual level how technologies like test automation can impact the business, which means they can communicate the benefits to, and gain buy-in from leaders outside the IT department. According to a **2018 Gartner survey**, the role of a CIO at top-performing digital organizations has substantially widened beyond IT to include innovation and transformation as primary responsibilities.

Our respondents said their executives support Continuous Testing transformation by:

1. Communicating a shared vision for Continuous Testing
2. Facilitating collaboration across teams
3. Removing roadblocks for progress
4. Providing resources to drive the transformation
5. Aligning organizational goals and KPIs

100%
of the organizations we surveyed cited executive support as a critical success factor.

According to the director of testing at a large global manufacturer, executive support has been critical in his team's transition to testing in a DevOps environment.

"As we move towards agile and continuous delivery, we need to have Continuous Testing," he says. "We knew that we couldn't continue to be dependent on manual testing. That means that we had to have executive support for our efforts." He socialized the idea and gained executive buy-in for the transition, which included Tosca expert training.

The organization had first approached Tricentis looking for an alternative to Micro Focus UFT. At the time, only one specialist on the team was trained on UFT, which resulted in a significant test automation bottleneck. The director of testing, aware that this would prevent the team from scaling test automation to support DevOps and an expanding digital business strategy, flagged the issue to management.

Today, the organization has 45 team members trained in Tosca that support all of the organization's agile teams with a robust, automated regression test suite.

Executives at successful organizations support transformation by:

Providing resources to drive transformation (91%)

Communicating a shared vision (88%)

Facilitating collaboration (79%)

Removing roadblocks (73%)

Aligning organizational goals and KPIs (68%)

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The Importance
of Peer Support

While executives can set the strategic direction and encourage participation in new initiatives, many times the day-to-day decisions that influence success will be made by your peers. The testing leaders we interviewed undertook significant initiatives to evangelize testing transformation efforts and increase adoption rates for new processes and tools across their organizations. Their strategies included running lunch-and-learn sessions, demos and pilots. Several developed internal case studies to demonstrate early successes and encourage adoption of new processes.

Worldpay adopted Tricentis Tosca to launch an automation strategy to help reduce production defects and increase test coverage. Automation was already a significant organizational priority assigned to QA Leader,

Sandra Baker, so her evangelism efforts focused on convincing members of the organization's distributed agile teams to adjust workflows to accommodate the introduction of test automation.

"Even though the tool was easy to pick up, it was still a different mindset," Baker says. The keys to a successful partnership with the organization's agile teams included "bringing resources together and talking about what their challenges are and how you can partner with the application and development owners and product teams," Baker says. She scheduled time to meet in person with team members in offices across the U.S. to demonstrate the tool and examples of her team's early successes.

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Addressing Misconceptions
Test Automation is not a silver bullet

Test automation is sometimes viewed as a silver bullet, especially by business leaders and others outside of the technology organization. A common misconception is that test automation will drastically and immediately reduce the need for manual testing. But a significant change in strategy and tools requires an investment in organizational alignment, change management and training.

According to Worldpay's QA Leader Sandra Baker, it's best to clear up any misconceptions at the outset. "That was very difficult," she says, "because it's not about reducing headcount or having less resources, it's about increasing the coverage and reducing defect leakage."

Baker clearly communicated her goals to executives and defined metrics to effectively demonstrate progress. "One key metric that resonated was what this would have cost if we had to do it manually. Our number has been around a half million that we're saving each month."

Additional metrics that effectively convey progress to executives include increases in the team's productivity, decreases in testing time, cost savings and the ability to support larger organizational initiatives.

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Success Factor 2:
# Develop a Defined Continuous Testing Strategy and Transformation Plan

To support transformation, your testing strategy must be purpose-built for success in agile and DevOps environments. There is a fundamental difference between a manual-heavy test strategy and a highly automated, Continuous Testing strategy. Transitioning to test automation is a major strategic shift that requires not only new tools, but also an evolution in mindset and process. True transformation requires a well-planned strategy that includes how you'll prioritize projects for automation and manage the change, how it will affect testers and team members in adjacent roles and how you'll measure success against defined goals.

"If your test strategy is wrong, then the tool can't fix that," says Dawn Hall, Test Manager at the International Air Transport Association (IATA). "You can't just implement a test strategy overnight. It doesn't work like that." The organization's previous test strategy didn't fit with the organization's evolving business model. Today, the organization is working toward its first DevOps release pipelines, supported by automated tests built with Tricentis Tosca.

A sound test strategy includes plans for rolling out new processes and tools across your organization, which requires both change management skills and technical skills. Our research shows that the majority of successful organizations took the time to define and communicate goals with executives and peers across the organization.

The most important element of a successful strategy, survey respondents said, was demonstrating how test strategies were aligned with larger initiatives, such as DevOps transformation or a new line of business. In fact, 80% of successful organizations aligned their Continuous Testing strategy to a larger business initiative.

Are testing strategies aligned to larger business goals?

No
20%

Yes
80%
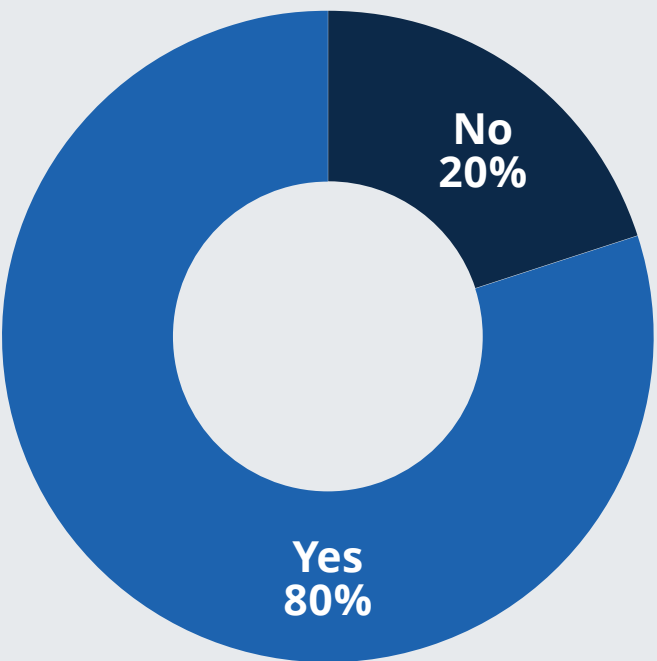
Many of the testing leaders we spoke to suggested documenting early successes to generate credibility for the new strategy. Presenting these successes helped their teams make the case for scaling test automation from one or two projects to more critical initiatives across the organization.

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Success Factor 3:
Establish a Dedicated Test Automation Working Group or Committee

Most successful organizations (83%) created some form of dedicated test automation group or community of practice to lead Continuous Testing transformation. Organization structures varied, with some training testers across agile teams and others creating a central committee that provided test automation expertise across agile teams.

Members of these groups are often sourced from within the organization. Many of our survey respondents said they invested in training testers who were already on board and were eager to specialize in test automation. "People don't need to have automation or development experience to use Tosca," says IATA's Dawn Hall, "but having the mindset for automation is important. There is a learning curve when transitioning to an automated test strategy," she says, "but an iterative approach to training has proved successful."

83%
of organizations created a dedicated test automation working group

A dedicated test automation working group typically incorporates the following elements:

- A senior or executive manager as sponsor
- A Tricentis Tosca certified architect as the technical champion
- Provision of architectural guidance and review
- Evangelism to socialize successes and encourage adoption
- Support for engineering and customization (sometimes outsourced to Tricentis PSO or a services vendor)
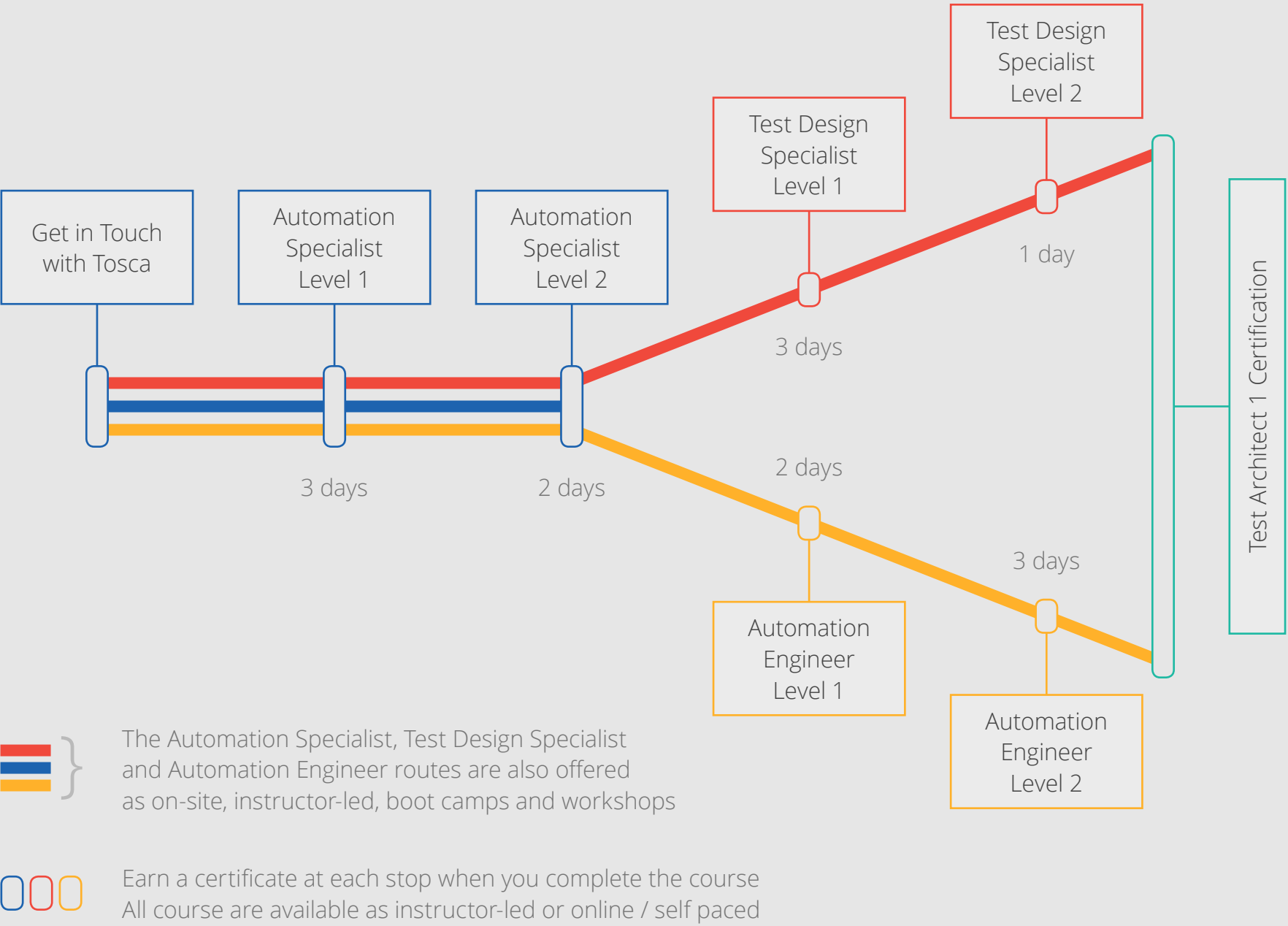- Test automation delivery capabilities

According to Sandra Baker at Worldpay, "Establishing a strong, centralized Tosca team was critical to support the organization's utilization of Tosca."

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Success Factor 4:
Invest in Continuous Training & Learning

Undergoing a successful Continuous Testing transformation often requires up-skilling the quality engineering team. It's helpful to invest in initial training for foundational skills, then pivot to providing continuing education as the team matures and begins to specialize.

Teams find that the online training courses offered by Tricentis are a good starting point, and most organizations follow Tricentis' recommendations for role-based training programs.

Many organizations also adopt immersive and practical learning that is specifically tailored to their needs. This can be covered in an initial training and enablement engagement as well as by ongoing training and coaching sessions. Continued education often takes the form of a lunch-and-learn series led by Tricentis Tosca experts, which covers topics tailored to the team's current maturity and goals.

One respondent emphasized the importance of securing management's approval for continued, hands-on education. "AS1 and AS2 trainings are a great place to start, and they're the right place to start," he said. "Then team members should have some hands-on coaching with real applications."

Get in Touch with Tosca

Automation Specialist Level 1

Automation Specialist Level 2

Test Design Specialist Level 1

Test Design Specialist Level 2

Automation Engineer Level 1

Automation Engineer Level 2

Test Architect 1 Certification

3 days

2 days

3 days

1 day

2 days

3 days

The Automation Specialist, Test Design Specialist and Automation Engineer routes are also offered as on-site, instructor-led, boot camps and workshops

Earn a certificate at each stop when you complete the course
All course are available as instructor-led or online / self paced

Tricentis Tosca role-based training and certification options

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Success Factor 5:
Define and Enforce Best Practices

Organizations that are most successful at scaling test automation have a proven ability to define and enforce best practices. To ensure the team has access to these critical guidelines, they are often documented in a central repository or wiki. "We've really utilized Confluence to cover Tricentis Tosca best practices, common repository folder structure and technical tips and tricks. This has helped a lot with sharing knowledge about using the tool properly," one respondent said.

While best practices evolve over time and according to the organization's requirements, they tend to cover similar themes, such as:

- **What to automate:** Guidance on how to select appropriate candidates for automation, including existing manual test cases or new requirements, based on the value they will provide to the organization

- **How to automate:** General guidance on naming conventions, as well as how to design, track and map test cases

- **Specific application or organizational requirements:** Specific guidance on how to automate within a unique environment, i.e. a highly customized SAP environment or according to industry regulations

- **Test case organization:** The layout and folder structure of the common repository

- **Role and responsibilities:** A breakdown of how different users can work within Tricentis Tosca

- **Development and review process:** A description of the overall process and what is required at each stage

A defined test automation development and review process is critical for enforcing adherence to best practices. When designed correctly, it is also one of the best opportunities for more experienced team members to teach and mentor new specialists.

Many organizations define quality requirements for each individual specialist to achieve before submitting to the review stage. For example, a new test case must have executed three times successfully in an execution list or run for one week successfully in distributed execution (DEX). According to Worldpay's Sandra Baker, "The review process helps ensure that test automaton is built in a consistent way, and it's also a great opportunity for up-skilling the team. They learn so much from it."
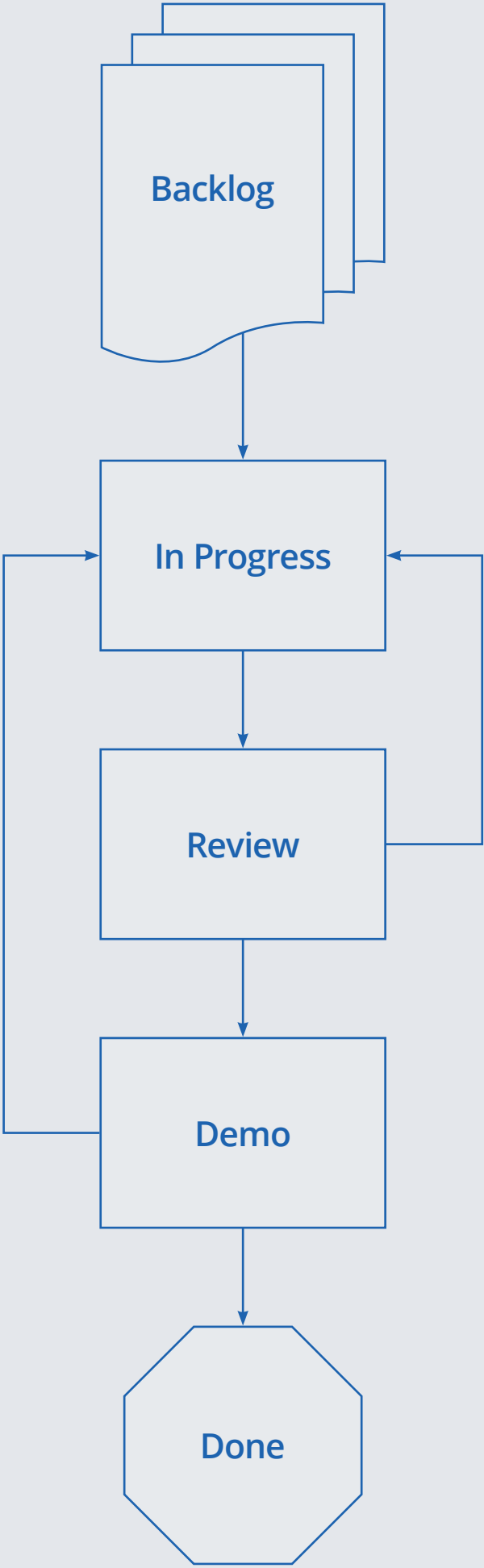
Success Factor 6:
Partner with
Key Vendors

When embarking on a Continuous Testing journey, many teams cite working closely with external partners as key to success. These include existing services vendors, Tricentis and potentially new services partners with specialist skillsets. Many reported that establishing partnerships was beneficial to their initial success.

An organization's partners can assist in driving transformation by:

- Providing an external lens with which to view the organization's challenges

- Sharing insights, use cases and best practices from similar transformations

- Providing strategy development assistance, training and support

- Supporting critical projects with additional resources and expertise

- Delivering messages and endorsement from an external, reputable source

External endorsement for a new strategy can be useful for getting the transformation project off the ground. The testing leader of a government organization says his services partners were particularly helpful in championing the effort to modernize testing. "We used an external vendor to assess our current level of capability and endorse our strategy going forward," he says.

The organizations that have leveraged Tricentis Tosca most successfully have also established a close relationship with Tricentis and taken advantage of the resources the company offers. These organizations have learned best practice via case studies and webinars, leveraged Tricentis MOOCs (massive open online courses) and other forms of training and developed close relationships with Tricentis Support and Customer Success Managers.

True partnerships require all parties to be aligned around an explicit purpose and vision. This alignment will drive the partnership forward, create the energy and motivation required and facilitate the sharing of collective knowledge. Partnerships should be focused on creating win-win situations, and all parties should be open and transparent about what they look to gain.

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Success Factor 7:
Effective Methods for Measuring Success

Defining what success looks like and how to measure it can be challenging. It requires up-front and ongoing alignment as criteria will often evolve as the practice matures. But it is well worth the effort. Defined and agreed-upon goals set the stage for effectively communicating progress, which helps to ensure ongoing support from stakeholders across the organization.

Well defined success metrics are especially valuable for day-to-day participants in a transformation effort, serving as a north star that keeps stakeholders aligned amid significant, and sometimes disruptive organizational changes. These metrics should cover a number of different categories, including changes in efficiency, quality, cost and risk over time, as well as overall transformation success.

Common key metrics include:

• Risk coverage

• Test automation coverage

• Test automation pass/fail rates

• Test automation stability

• Execution time reductions

• Productivity increases

• Cost saved vs. manual testing

• Defect escape percentage

• Percentage of defects captured at each stage

It is very important to clearly define what each metric means to your organization—both within and outside of your team. For example, how are you defining risk? While most organizations cite business risk as the most critical, it's essential to understand the specifics and translate them into technical terms. Team members will optimize their behavior based on the metrics testing leaders set, particularly if incentives are attached, so it's critical they are clearly defined up front and aligned with organizational objectives.

One respondent had to address the executive team's misconception that testers would be developing new automation at the same steadily increasing rate: that is,

100 test cases the first month, 200 the next month and so on. She had to change the perception of how success is measured by demonstrating how model-based test automation offers efficiencies that eliminate the need for exponentially increasing test case volume. She shifted executives' perspectives by presenting metrics that focused on the increasing percentage of the automation suite that executed successfully.

Another respondent, the director of testing at a large, global manufacturer, said his team had shifted metrics to focus on business risk coverage. "We're focusing on utilizing requirements and risk assessment to determine what our actual coverage levels are," he explained.

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Advice From the Experts

Driving the adoption of Continuous Testing is fundamentally a transformation effort. As such, it requires the ability to drive technical, cultural and organizational changes across the enterprise. We asked the experts to share their advice for others who are beginning this journey. Here are their best tips.

"You **become an expert** through repetition. The team should be using Tosca every day."

"Focus on getting your first and second win. Then the **word of mouth** will spread."

Director of Testing at a Global Manufacturer

"Think about how exploratory testing can **add value,** and how you can change from traditional testing to structured exploratory testing and test automation."

Dawn Hall, Test Manager at the International Air Transport Association

"Figure out your metrics and how you will measure them up front. If you start that early and you can **show the improvements** it is a lot easier to drive change."

"**Set the right expectations** within the organization. Make sure that executive leadership within the organization has a realistic understanding of the benefits and the costs."

"Partner with others in your organization. Socialize what you're doing to **bring visibility to your success.**"

Sandra Baker, QA Leader at Worldpay

"When **driving a transformational change**, you need to address your cultural challenges first. You also need to understand your current level of maturity—where you are strong and where your issues are."

Testing Leader at a government organization

"Having a plan for executing, interpreting and maintaining the tests you automate is critically important. **You want your test cases to be running frequently.** Best practices are helpful, reviews are important, but running your test cases frequently is the key contributor to stable test automation."

Nate Custer, Senior Consultant at TTC

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APAC Best Services Partner
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Best Global Implementation
2017

Americas Best Services Partner
2018

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With the industry's #1 Continuous Testing platform, Tricentis is recognized for reinventing software testing for DevOps. Through agile test management and advanced test automation optimized to support 150+ technologies, we provide automated insight into the business risks of your software releases—transforming testing from a roadblock to a catalyst for innovation. The result is accelerated software delivery speed, improved cost efficiency, and reduced business risk.

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