eBook

Testing Center of Excellence:
Achieving Quality and Efficiency
in **Software Testing**

CONTENTS

INTRODUCTION

Speed and agility are key requirements for enterprises to develop high-quality applications that can fulfil customer needs. Additionally, these applications must be scalable to implement new functionalities and work seamlessly with other legacy systems. To achieve this, testing should be catching up with development. This puts intense pressure on quality teams, operations, and processes.

Traditional Quality Assurance (QA) practices at the project or product level are no longer adequate to keep up with these changes. For any enterprise IT team, it is an uphill task to gain full control over application quality, see how quality practices are followed across different projects, and find ways to reduce operating costs to shorten time to market.

While enterprise leaders are constantly looking to shift left their testing and integrate testing tools as part of CI-CD pipelines, Quality Engineering is still a distant goal.

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14%

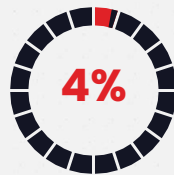of teams don't have any automation in place

18%

of testers are not part of the CI-CD processes

21%

of testers say that they have test automation, but it has not replaced any of the manual testing efforts

13%

of testers work in team without any CI-CD process or they are not part of it

4%

of organizations have involved other business users like developers, product owners, support staff, and end users in testing processes

Source - The State of Testing 2022 by PractiTest

Statistics clearly show Quality Engineering is still a decentralized practice!

QUALITY ENGINEERING – A DECENTRALIZED PRACTICE

As companies move ahead in digital age, staying relevant as per customer expectations is the matter of survival. The paradox here is customers want new features and products every day, but they don't want any glitches or downtime in their present brand interactions.

This means software teams must develop and test parallelly. New feature release should not hamper the current brand experience or loading speed or ability to process the payment.

Enterprises recognize that implementing standard-based processes and improving quality processes will benefit them in the future but are lacking necessary skillsets and tools and technologies expertise.

Enterprises must work towards achieving

One Team, One Vision of High Quality Digital Application

And this is possible by

Building Testing Center of Excellence

In this e-book, we are giving away our most successful best practices/tips in building testing center of excellence for your organization. These tips are the result of building more than 50 Testing Center of Excellence for clients across globe and industries.

Inherent disadvantages of
Decentralized Testing Model

1 Sticking to traditional quality assurance practices to meet the demands of the business to deliver applications and products faster to the market.

2 As technology and business priorities change rapidly, your QA teams are not adapting quickly enough to deliver what the business needs. They lack tools knowledge, skill sets, and time.

3 Defects and performance problems are frequently only detected after the application has been deployed into production, causing business disruptions and negative impacts.

4 QA is unable to accurately estimate the time and resources required for release of an application to production. Lack of cross project visibility results in a shortage of resources for supporting critical applications, which delays time to market as well as production holdups.

5 Limited IT resources are often held up with repetitive manual testing activities. It is not only inefficient, but it may also aggravate tensions between the business and IT departments and create feelings of frustration within IT personnel leading to tanking productivity.

6 Developers do not adhere to "upstream" quality practices such as keeping adequate documentation or performing unit testing. The result is that most QA issues are relegated to the QA phase, where fixing them is more expensive and time-consuming. This issue becomes even more critical when teams move to an Agile delivery methodology with its tight schedules an high quality demands. Developers and testers need to work in tandem to assure quality during Sprint cycles or risk missing application delivery milestones.

7 Achieving quality during Sprint cycles requires collaboration between developers and testers. QA teams are restricted to spreadsheets and word documents, making collaboration and reuse difficult and ineffective, even when different teams wish to share testing assets and standard practices.

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WHAT IS TESTING CENTER OF EXCELLENCE

A Testing Center of Excellence (TCoE) is a function within an enterprise that is responsible for managing and improving the testing function. The TCoE establishes best practices and standards for testing, as well as provide training and support for testing activities throughout the organization. The goal of a TCoE is to improve the efficiency and effectiveness of testing and help teams deliver high-quality products. A TCoE manages a variety of practices like test automation, DevOps, DevSecOps, DevTestOps, Agile Testing, Chaos Engineering, Test AI-ML practices, and more.

Testing Centers of Excellence (TCoE) deliver proven results by helping organizations improve application quality, performance, operational efficiency, and alignment between IT and business.

It serves as a virtual command center where standardized testing methodologies and best practices, automation, metrics, and tools are employed. The company manages a flexible pool of resources to ensure a high level of quality across all applications, both prior to deployment and while in production. Further, it assists IT managers in making deployment decisions by providing visibility into the quality of software systems and projects.

For a TCoE to be successful, several thoughtful steps must be undertaken, including assessment, planning, impact analysis, setting objectives, selecting tools, and adjusting the organization. The success of a TCoE initiative depends on the strong backing of executive leadership and the support of a business unit or organization. The benefits of a fully functioning TCoE, however, often outweigh any initial effort and risk involved.

Caution to remember

Though TCoE is categorized as different function with an enterprise, its working style must be tightly integrated across organization for outcome-driven implementation. The successful TCoE are built using overarching strategies that involve top-down and bottom-up approaches.

Here are some steps you can follow to implement a
Best Practices for establishing Testing Center of Excellence
within your organization:

Define the scope and objectives of the TCoE:
Determine what the TCoE will be responsible for, and what goals it will aim to achieve.

Establish a team of experts:
Identify and recruit individuals who have expertise in testing and quality assurance to form the core team of the TCoE.

Develop a testing strategy:
Create a testing strategy that aligns with the overall goals of the TCoE and the needs of the organization.

Define processes and standards:
Establish processes and standards for testing that will be followed across the organization.

Provide training and resources:
Ensure that all members of the organization have access to the training and resources they need to effectively implement the testing processes and standards established by the TCoE.

Promote continuous improvement:
Regularly review and assess the effectiveness of the TCoE and make changes as needed to improve efficiency and effectiveness.

Foster collaboration and communication:
Encourage collaboration and communication between the TCoE and other departments and teams within the organization to ensure that testing is integrated into the overall development process.

An Industry Overview

The market is anticipated to rise at a considerable rate during the forecast period, between **2022** and **2029**. In **2022**, the market is growing at a steady rate and with the rising adoption of strategies by key players, the market is expected to rise over the projected horizon.
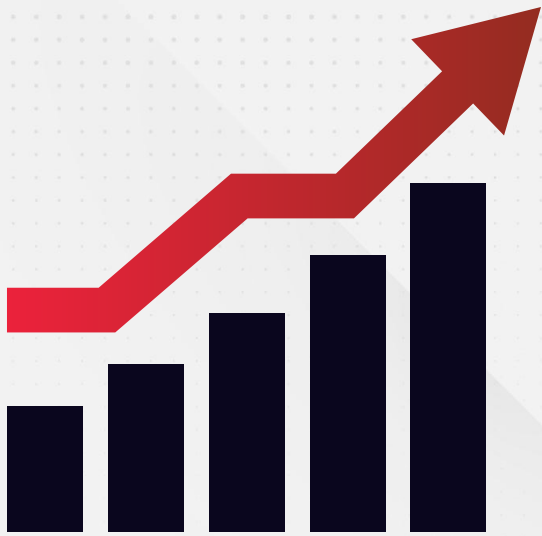
The Global Automation CoE Market is expected to reach

USD 1.5 bilion

by 2027
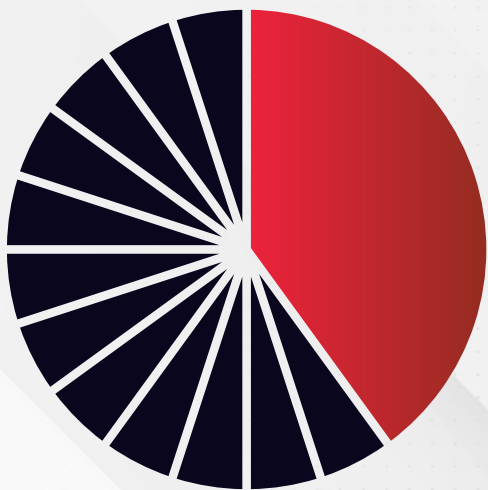
growing at a CAGR of

36.9%

during the forecast period.

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Testing Center of Excellence:
Points Need to Take Care While Assessing an Organization's Readiness

An organization's needs must be assessed according to its industry, business goals, existing processes, and software development methods. TCoE assessment can assist test organizations in identifying the key challenges and determine their readiness to begin the conversion process.

Cultural Maturity:
Assess the cultural maturity to implement and build shared services infrastructure. Organizations that have some standardization in terms of quality protocols like adhere CMMi, ITIL, and/or have built a shared services infrastructure can start their TCoE journey immediately and will achieve more success.

Assessment of Test Automation Process:
Enterprises that have matured test automation processes can take the best practices from the established process and start implementing them in other areas by taking help from TCoE. immediately and will achieve more success.

Skill Set Availability:
Developing subject-matter experts from existing resources can help build and maintain key aspects of application and process knowledge (SMEs). As the talent crunch is increasing, it is highly advisable to work with industry experts that can help in establishing TCoE and scaling them.

Stakeholder commitment:
An organization's or business unit's commitment to quality will make establishing strong processes, governance, and metrics easier.

Test Tools and Environment:
Assess the current tools and environment landscape. With variety of tools and environment spread across various teams, TCoEs has to bring standardization in terms of implementation practices, processes, goals, and outcomes.

Key Performance Indicators:
Evaluate what are the current KPIs that your teams are tracking, TCoE must understand business objectives and help teams in aligning IT goals with business goals. KPIs must be identified that measure the achievement of these business goals for IT management to identify them.
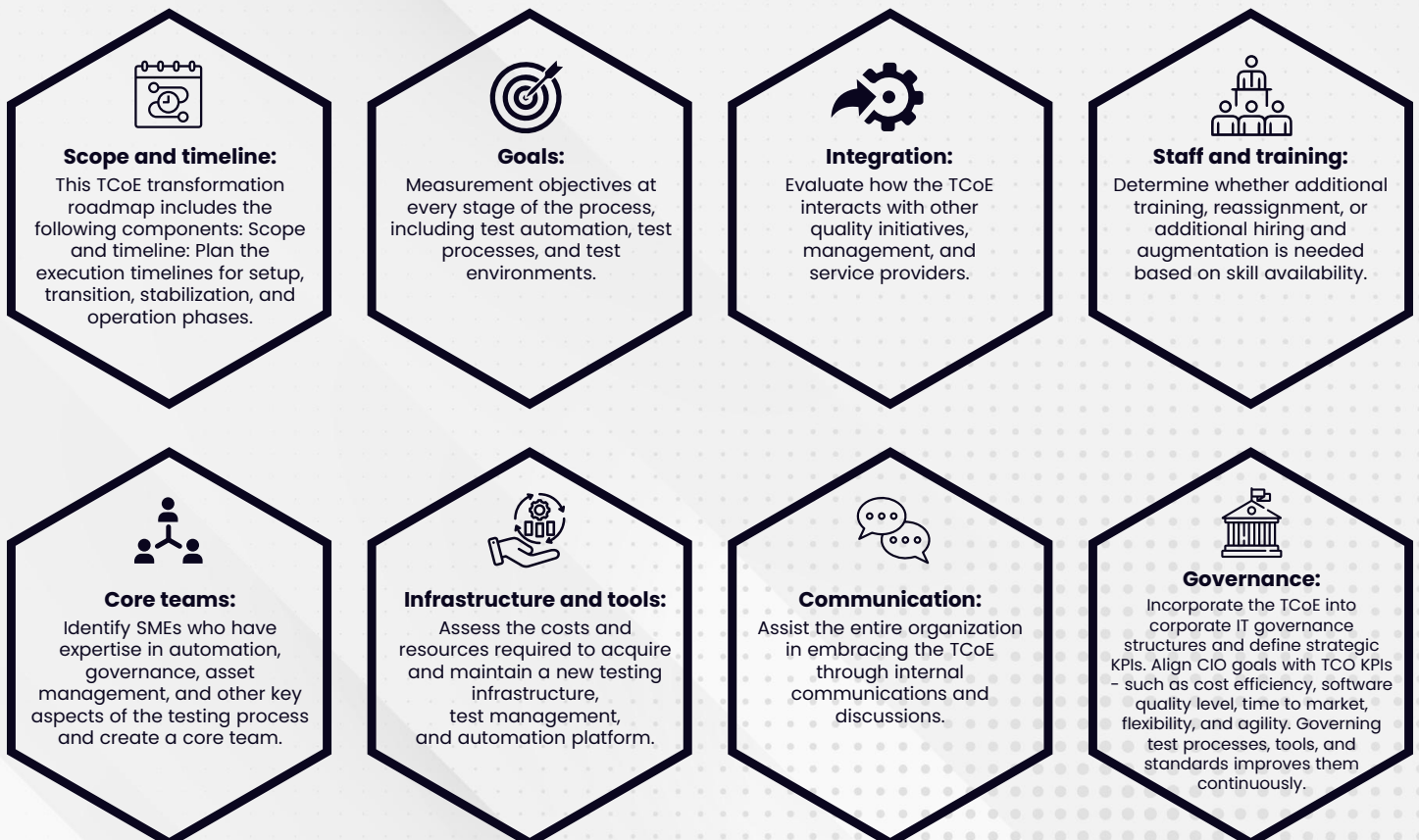
OUTCOME-DRIVEN TCOE TRANSFORMATION ROADMAP

A TCoE can be fully operational in as little as 1-2 sprint. Organizations can complete the initial phase of transformation within 3-6 months, then stabilize and optimize within another 6-12 months.

Within six months of implementing the right approach, your company should begin to see tangible improvements in the quality, performance, and security of your applications.

As a result of improved process efficiency and the introduction of a revised, optimized operating model for your entire quality assurance department, you will experience even greater cost and quality benefits in less than a year and a half.

A TCoE transformation roadmap includes the following key elements:

Scope and timeline:
This TCoE transformation roadmap includes the following components: Scope and timeline: Plan the execution timelines for setup, transition, stabilization, and operation phases.

Goals:
Measurement objectives at every stage of the process, including test automation, test processes, and test environments.

Integration:
Evaluate how the TCoE interacts with other quality initiatives, management, and service providers.

Staff and training:
Determine whether additional training, reassignment, or additional hiring and augmentation is needed based on skill availability.

Core teams:
Identify SMEs who have expertise in automation, governance, asset management, and other key aspects of the testing process and create a core team.

Infrastructure and tools:
Assess the costs and resources required to acquire and maintain a new testing infrastructure, test management, and automation platform.

Communication:
Assist the entire organization in embracing the TCoE through internal communications and discussions.

Governance:
Incorporate the TCoE into corporate IT governance structures and define strategic KPIs. Align CIO goals with TCO KPIs - such as cost efficiency, software quality level, time to market, flexibility, and agility. Governing test processes, tools, and standards improves them continuously.

By assessing and planning, you'll be able to estimate the organizational changes that will require TCoE, estimate the costs associated with hardware, software, skills, and outside services, and establish a timeline and milestone.

TCoE
STAGES OF EVOLUTION

As a Testing Center of Excellence (TCoE) evolves, it typically moves from a focus on sharing processes and standards for testing to becoming a service utility that supports the testing needs of the organization.

In the early stages of TCoE evolution, the focus is on establishing the TCoE and defining the scope and objectives of the TCoE. The TCoE team works to develop processes and standards for testing that will be followed across the organization. The goal at this stage is to share knowledge and expertise with other teams, and to promote the use of consistent testing practices and tools.

As the TCoE matures, the focus shifts to consolidation and continuous improvement. The TCoE team works to ensure that the testing processes and standards established in the early stages are being consistently followed across the organization, and focuses on identifying and implementing efficiencies in the testing process. The TCoE also works to provide training and resources to other teams to help them effectively implement the testing processes and standards.

In the final stages of TCoE evolution, the TCoE becomes a service utility that supports the testing needs of the organization. The TCoE team works closely with other teams and departments to ensure that testing is integrated into the overall development process, and plays a key role in driving continuous improvement and innovation in the testing process. The TCoE is viewed as a strategic asset and is actively involved in shaping the direction of the organization.

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BUSINESS BENEFITS OF A TESTING CENTER OF EXCELLENCE

Having worked with clients who have implemented the TCoE, we have found that these organizations report positive quality shifts and constructive cultural changes.

Culture of quality: As the organization transitions from project-based testing to standardized quality processes and toolsets, it becomes more focused on quality issues and the evolution towards a culture of quality accelerates.

Value Creation: A TCoE can help improve the organization's reputation by demonstrating a commitment to producing high-quality software and can help the organization stay competitive in its industry.

Increased agility: An agile quality team is better prepared to meet the new challenges of the business by managing and scaling its quality resources and allocating its resources to the highest priority tasks.

Faster time-to-market: It helps companies stay competitive and respond better to new business opportunities by eliminating the delays caused by a lack of resources and the right skill set. We have achieved an average reduction in test times of 30% or more as well as a 50%-70% increase in test automation levels.

Cost efficiency: The centralization of testing tools and resources can reduce redundancy and reduce resource utilization, as well as costs associated with the acquisition, setup, and maintenance of software.

Tighter alignment: TCoEs help keep quality efforts aligned with business needs through the definition and measurement of key performance indicators

Improved knowledge sharing: A TCoE can serve as a central repository for knowledge and best practices related to testing, which can help to improve the quality and effectiveness of testing across the enterprise.area.

Up-sklling and Re-skilling: This model creates a compelling opportunity for testers to move ahead in their career. With established center of excellence that helps in understanding right tools and technologies and how they can best leve age them.

CONCLUSION

It is evident that quality centralization is on the rise, even though there are relatively few Testing Centers of Excellence. Almost two-thirds of respondents from large and medium-sized companies have indicated they are considering exploring the concept of TCoE and plan to implement a more industrialized approach to application quality in 2011-2012. TCoE eliminates redundancy within business organizations and streamlines and accelerates testing processes, which accelerates overall software testing.

We have operated Testing Centers of Excellence for clients for the last few years, often in pursuit of a fully managed testing service. Through assessing readiness, TCoE design, training, and automation, we have developed a roadmap for taking clients at their own pace.

We assist clients in optimizing the quality and performance of their applications, standardizing testing methodologies, best practices, automation, metrics, and tools, industrializing testing efforts, and developing a pool of skilled and motivated resources during the transition. Deployment decisions are more accurate when based on an accurately assessed business risk under this cost-effective model.
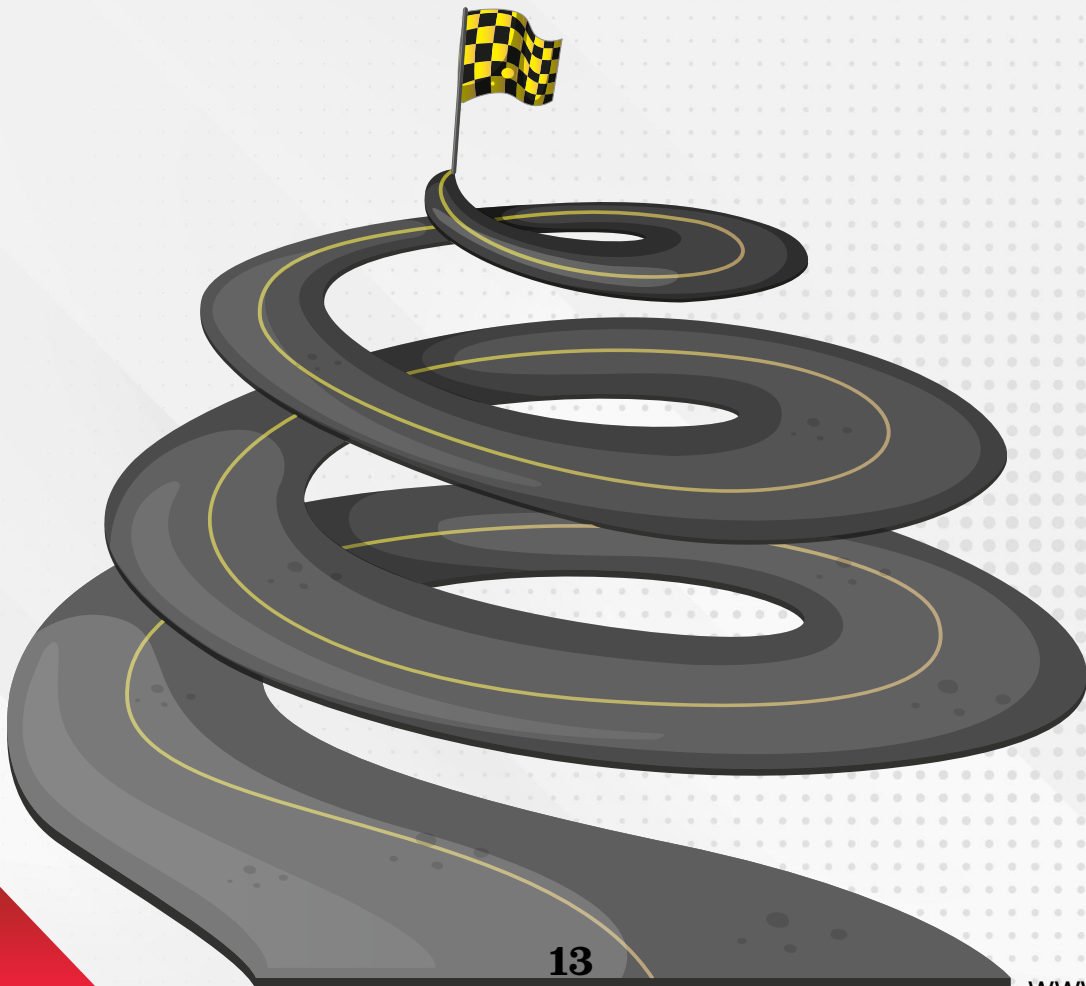
About Enhops

Enhops was established in 2015 to drive Digital Disruption across industries through 'Quality-Engineering,' 'Automation-First,' and 'Smart Testing solutions. Within a short span of 7 seven years, we have grown into a leading end-to-end Quality Engineering company.

In 2022, Atlanta-based ProArch (A Technology Company) acquired Enhops, looking at our Quality-Engineering DNA, rapid growth, and notable clientele. Now Enhops is a wholly owned subsidiary of ProArch. This gave Enhops a distinctive identity of becoming A ProArch Company and reiterated our vision of making Quality-First Digital Solutions.

We provide Test Assessment, Test Centers of Excellence, Test Process Establishment, and Test Automation for both functional and non-functional tests. Our unique global outcome-focused delivery methodology can align the tech stack as per your business goals and reimagine your customer experience to unlock new value and drive revenues.

Our Expertise :

• Quality Engineering

• Quality Assurance

• Digital Transformation Assurance

• Product Engineering

• Data Engineering

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