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Testing Center of Excellence

Achieving Quality & Efficiency in Software Testing

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Testing Center of Excellence are making their way back in the organizations.

Speed and agility are key requirements for enterprises to develop high-quality applications leading to better end-user experience. These applications must be scalable to implement new functionalities and work seamlessly with legacy systems. This requires extensive testing across the entire software lifecycle. While recent reports and surveys suggest that testing is no longer a siloed function, most of the test automation efforts are still in the mediocre category. Technology leaders are constantly trying to shift testing towards left in the development lifecycle and integrate testing tools as part of CI-CD pipelines. But successful and streamlined test automation is still a distant goal.

TCoE can help organizations achieve the true automation with standard testing practices and frameworks.

Primer on Testing Center of Excellence from The World Quality Report 23-24

This year we see a continuation of these needs plus the emergence of a true game changer in the field of software and quality engineering: Generative AI adoption to augment our engineering skills, accelerated like never before. The lack of focus on quality seen in the last few years is becoming more visible now and has brought back the emphasis on the Hybrid Testing Center of Excellence (TCoE) model, indicating somewhat of a reversal trend. Business Assurance is the name of the game, and QE evangelists need to truly step up and elevate their real purpose to focus on assuring business outcomes.

An agile quality culture is permeating organizations, albeit often at an individual level rather than at a holistic program level. Many organizations are adopting a hybrid mode of Agile. In fact, 70% of organizations still see value in having a traditional Testing Center of Excellence (TCoE), indicating somewhat of a reversal trend.

What is Testing Center of Excellence

A Testing Center of Excellence (TCoE) is a centralized strategic function that makes QA a shared responsibility across the organization. It makes [RM1] sure testing processes are consistent across all teams, help teams to adopt best practices, and continuously provide knowledge related to upskilling and reskilling themselves.

Acting as a virtual command center, it employs standardized methodologies, automation, metrics, and tools while managing a flexible resource pool to ensure high quality applications are delivered from day zero. It streamlines the knowledge management and innovation throughout the organization.

Roadmap to Testing Center of Excellence

1. Define Vision and Objectives

Clearly define objectives of establishing a TCoE. Some examples can be improving testing efficiency, enhancing test maturity levels, better automation, more manual engineers learning automation tools , reducing time-to-market for products, and lowering overall testing costs.

2. Assess Current State

Conduct a thorough assessment of the organization's current testing practices, including automation tools, challenges, and skill sets.

3. Design Governance Structure

Develop a governance framework that defines the organizational structure, roles, responsibilities, and reporting relationships within the TCoE.

4. Implement Best Practices and Tools

- Implement standardized testing processes and methodologies that promote consistency across projects.
- Introduce automation tools and frameworks to streamline testing activities, improve test coverage, and accelerate the testing process

5. Build Team and Skills

- Recruit and train a team of skilled professionals with expertise in test automation and operating in TCoE set-up.
- Foster a culture of collaboration, learning, and continuous improvement.

6. Establish Metrics and Measurement

- Define KPIs and metrics to measure the effectiveness and efficiency of testing activities.
- Establish benchmarks and targets for quality, test coverage, defect detection rates, and other relevant metrics.

7. Promote Adoption and Engagement

Engage with project teams, development teams, and business units to promote the adoption of TCoE practices and methodologies

8. Continuous Improvement

Establish mechanisms for gathering feedback, soliciting suggestions, and addressing challenges faced by testing teams.

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.

Business Benefits of Outcome-Driven Approach

Before establishing a TCoE, it's crucial to define key metrics and KPIs. An outcome-driven TCoE ensures alignment with your business objectives. Create a comprehensive roadmap detailing key activities and milestones for each maturity phase, ensuring the TCoE stays aligned with business goals and industry best practices.

Organizations can complete the initial phase within 3-6 months, followed by stabilization and optimization within another 6-12 months.

In six months, you can expect tangible improvements in the quality, performance, and security posture of your applications. Our engagements are tailored based on your business requirements and technology stack.

Culture of quality:
TCoE enforces quality across the organization by bringing standardized and automated testing processes.

Time-to-Value:
Accelerates time to value by shifting testing to the left and identifying bugs early in the release cycle.

Faster time-to-market:
Helps in achieving faster time to market by eliminating the delays caused by last-mile testing.

Closer integration and visibility:
Promotes better collaboration between Business teams, Developers, Testers, and Operations.

Skills enhancement:
Fosters the idea of continuous learning and have personalized career pathways for testers.

Cost efficiency:
Centralization control of testing tools & resources reduce redundancy of purchasing multiple tools & associated costs.

Improved knowledge sharing:
Serves as a central repository for knowledge management and best practices related to testing and quality engineering.

Stages of Evolution

Stage	Characteristics	Focus	Challenges	Skills Required
1. Initial	Ad hoc, unstructured testing; reactive; minimal documentation	Immediate defect detection	Lack of standardization, inconsistent quality, inefficiencies	Basic testing skills, bug detection, and reporting
2. Defined	Basic processes and methodologies documented; standardized practices	Establishing standardized testing practices	Limited scalability, dependency on manual efforts	Process documentation, test case design, basic QA methodologies
3. Managed	Optimized and managed processes; use of metrics & KPIs	Process optimization, consistent quality assurance	Balancing improvements with project timelines, resource constraints	Metrics analysis, risk management, process optimization
4. Automated	Integration of test automation tools and frameworks	Enhancing efficiency, reducing manual efforts	Initial investment in tools/training, managing test data/environments	Automation scripting, tool expertise, test data management
5. Optimized	Continuous improvement via feedback loops and advanced analytics; CI/CD practices	Continuous integration/testing/delivery	Maintaining high levels of automation, adapting to new technologies	Continuous integration, advanced analytics, CI/CD pipeline management
6. Strategic	Alignment with business goals and customer needs; advanced quality engineering practices (e.g., AI/ML)	Delivering business value, enhancing customer satisfaction, driving innovation	Ensuring alignment between testing and business outcomes, measuring ROI	Business analysis, AI/ML in testing, strategic planning, ROI measurement

Assessing Readiness

Cultural Maturity:
Assess the organization's cultural maturity regarding the adoption of new tools and technologies.

Test Automation Process:
Evaluate the current testing processes, determining the balance between manual and automated testing.

Skill Set Availability:
Check the availability of automation experts, manual testers, SDETs, and process specialists within the team.

Stakeholder Commitment:
Check on complete buy-in concerning budget, efforts, and resources.

Test Tools and Environment:
Assess the number of applications, tools, testing methodologies, and pre-production environments.

Key Performance Indicators:
Review the current Software Testing KPIs.

Modernize your QE Practices

Despite of all modern glossary around low code/no code, shift-left, production testing, chaos engineering, and more, there is a long way for testing to see the complete benefits of automation. With this, AI is changing the market forever for every business function, role, and technology.

In such scenarios, business leaders need a strategic advisor that can work with them closely to bridge the gap between business ambitions and quality engineering initiatives, Testing Centers of Excellence are fully capable of doing that.

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.

Enhops TCoE Services

Our TCoE services are customized based on client needs and requirements. Whether the engagement is to improve testing practice for one or two projects or bring in quality mindset throughout the organization, our TCoE works towards better test maturity for your organization.

Strategic Planning and Governance:
Define quality vision, establish governance models, enable culture change with communication strategies, and adopt QA vision holistically.

Process Optimization & Metrics:
Our process experts help various siloed teams adopt and implement standardized testing processes, create tailored test strategies, and track KPIs.

Tool Governance & CI/CD Integration:
Recommend tools and technologies. Ensure investment in right automation tools, establish best practices for test data and environment management, and others.

Structured Knowledge Management:
Create centralized repositories for test artifacts, processes, best practices for easy adoption of standard testing methods.

Monitor and Improve Testing KPIs:
Monitor and optimize testing KPIs using data-driven insights. Dashboard views for stakeholders to show the improvement in testing lifecycle.

About Enhops, a ProArch company

Enhops works at the forefront of Quality Engineering and Software Product Engineering solutions to suit the most unique business needs. Enhops was established in 2015 with a vision of driving Digital Disruption across industries through ‘Quality-Engineering’, ‘Automation-First’, and ‘Smart Testing’. Our philosophy has always been to partner with our clients in their Digital Transformation journey.

Blending Enhops’ Quality Engineering capabilities and ProArch’s two decades of expertise in Software Product Engineering, we are a true partner who delivers value-based outcomes.

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