Guiding principles and dimensions of testing transformation
**Defining testing transformation**

Simply put, testing transformation is the process of defining a set of processes and methodologies to accomplish the objectives of the business. It creates an environment that allows for correctly measuring and continuously improving processes and instilling a sense of quality in every stakeholder.

Through this definition, we focus on quality, its drivers and the methods that help us achieve quality. Inherently, that precludes subjective interpretations of low or high quality. If we meet requirements, we deliver quality, else we do not. This paper is about creating a quality function that helps the enterprise meet their business requirements.

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**Shortcomings of traditional transformation methodologies**

Traditional transformation methodologies employ a simplistic conceptual model of assess-define-execute-improve. However, such a model requires changes when it is applied at an enterprise level. The resulting assessment then becomes a fluid model, open to interpretation and often resulting in partial implementations which create tremendous change management complexity. In addition, traditional approaches to testing transformation miss the following:

- Ensuring that the CIO portfolio is aligned to the business
- Validating that what is being tested is the goal
- Ensuring that other stakeholders are working towards the same goal
- Emphasizing zero defects

The right transformation model should include the following dimensions by logical units of the organization:

- Maturity
- Integration
- Complexity
- Impact

Starting with a right top down view ensures that the variables of change are clearly understood and implementations followed in a systematic, organized and quantifiable manner. The following figures depict this approach. While both figures follow the assess-define-implement-refine model, the approach on the right starts with the premise of creating a top down, enterprise view.
Guiding principles of testing transformation
Testing transformation requires change at many levels across the enterprise. It affects and attempts to align culture, processes, technology, communication, expectations of performance and rules of engagement. In addition, as technology becomes an integral part of business strategy, creation of value is dependent on how the enterprise conceives and executes its overall strategy.

The following foundational principles must be clearly laid out in order to embark on this journey:

1. Vision
   Define a vision which encompasses the key elements like customer centricity, service delivery excellence and value creation

2. Accountability
   End-to-end ownership and responsibility for the quality of products, services and communications

3. Rigor
   An unwavering focus to stand by the vision and drive the same

Vision
Testing transformation requires definition of investments in enterprise-wide initiatives such as:
- Shared services and CoEs
- Test data management
- Methodologies and governance
- Performance and automation
- Reusable and common test strategies
- Adequate resourcing models
It is important to define a vision that encompasses key elements such as customer centricity, service delivery excellence, and value creation. Setting this vision requires collaboration on IT strategy and its alignment to the key business objectives and plans. These business objectives could be reduction in costs, faster time to market, and meeting evolving customer needs through innovation and market. It is followed with translating this strategy to the means of delivering on the planned initiatives and ultimately culminates in creation of value (costs, efficiency, and agility) that ensures a true long-term CIO-COO-CEO partnership.

**Accountability**
Define end-to-end ownership and responsibility for the quality of products, services, and communications. It follows that accountability for quality cannot be achieved without defining:
- The dimensions of quality
- The authority to control these dimensions

If testing continues to be performed and measured on individual initiatives, then testing transformation initiatives are reduced to meeting tactical needs. Testing transformation requires accountability for metrics that lie beyond test execution, including measures of reuse, test planning as well as testing process improvement.

**Rigor**
This principle relates to creating an unwavering focus to stand by and drive the vision. Initiatives on data consolidation, clear portfolio and project-based engagement models and reporting of metrics across the life cycle are important to consider and institutionalize. New processes may need to be piloted before they can be adopted widely. Continuous improvement of testing maturity is achieved only when quality is measured and tracked at the enterprise level, and when there is buy-in of a standard framework.

**The dimensions of testing transformation**
Testing transformation is a strategic initiative. The following aspects are key to ensuring a systematic evolution.

**Organization**
The right organizational structure of a team is an important foundation of achieving true testing transformation. Centralized as well as decentralized models should be explored and can range from shared service units to comprehensive Testing Centers of Excellence (TCoE). A common approach is to pursue the path of Shared Service Units (SSU) for specialized services such as automation and performance testing as well as test data management. The SSUs can then be migrated over time to a TCoE after common governance frameworks and unified test strategies are developed.

The SSUs themselves can be set up to serve clusters of departments, moving towards consolidation and ultimately a centralized TCoE.
Process improvements

After organization, processes are the next building block of transformation. Processes fall under various categories such as:
- Project portfolio prioritization
- Integration with all phases of the PLM (project or product life cycle)
- SSU or TCOE engagement
- Project or portfolio testing strategy

Performance and automation

Performance and automation are a key dimension of testing maturity. Traditional approaches have tried to implement improvements on individual project or application portfolios. Such an approach yields short-term benefits but then requires significant reengineering efforts to align repositories, frameworks and reporting mechanisms.

Creation of a performance and automation strategy must be aligned to the future state organizational and process model definition. The methodology must also include portfolio or application priority, complexity and frequency of change. Factory models are to be explored in case of known and repetitive use cases.
Tools rationalization

A category that is often considered simplistic, tools rationalization is actually a significant aspect of transformation. Consideration of a rationalization strategy should look beyond testing aids (automation, performance and so on) and must include process management aspects as well. These include:

- Project scheduling and planning (of which testing is a phase)
- Defect tracking and resolution
- End user engagement
- Continuous improvement of processes
- Test phase reporting
- Integration with architecture and requirements gathering
- Portfolio-level reporting
- Integration with change management
- Project change management

Summary

The benefits of a well-executed transformation program can result in cost savings of more than 30% as well as significantly enhanced project quality and reduced time to market. The following illustrates the typical improvements from the various levers of transformation.

At one of our key customers, Mindtree implemented a testing transformation framework that helped in streamlining testing across the IT portfolio and brought about significant improvements in quality alongside reduced costs. The areas of focus included leveraging testing automation across the portfolio, implementing a risk-based testing strategy, consolidating test environment management and creating a hybrid test model with agile and waterfall methodologies. For another key customer, we helped migrate 150+ applications to a shared service model that standardizes governance, test management and certification for all IT applications to ensure compliance with federal standards.

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About independent testing at Mindtree:
Mindtree collaborates with customers to understand and exceed the end-users’ expectations. Our expertise in independent and cost effective automated testing services across industries has made us a preferred partner for leading global enterprises. We employ an ROI-based testing approach to deliver a defect-free solution by efficiently and effectively predicting and managing the risks.

Our testing pillars of excellence, MindTest™, Test Labs and Test Academy enable us to be the “voice of quality” for our customers. MindTest™, an integrated quality assurance platform, helps customers see measurable results that help them make timely and informed decisions. We do this by using proprietary frameworks - Test Quality Index (TQI) and Test Metrics Analysis and Decision (TMAD).

About the author:
Shivaprasad Hiremath is a General Manager at Mindtree and is responsible for our Testing Business in the United States. Shiva has managed testing businesses for Hi-Tech, Manufacturing, Travel, Transportation, Insurance, Media, Services, Telecom and retail industry groups. Prior to joining Mindtree, Shiva played the role of Testing Practice Manager for Wipro’s US geography focusing on providing solutions for Telecom and Datacom customers. Shiva has presented at several testing conferences such as StarWest and has written on the subject of testing trends and challenges.

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