VIEW POINT

The Enterprise QA Transformation Model

A solution to enhance an enterprises' testing maturity

– Reghunath Balaraman, Aromal Mohan

Abstract

With the increasing acceptance of testing/QA as an independent function; the focus on building mature testing practices has become critical for organizations, as quality has a profound effect on business outcomes. This in turn has necessitated the need for a model that can assess the maturity of the current test organization and also work as a reference model for selective improvements. In the previous paper1, we had reviewed why most conventional and QA maturity models available today fail to assess the overall test process maturity and understood the need for a comprehensive QA/ Test maturity model and its desired attributes.

In this paper we shall understand The Enterprise QA Transformation Model, the answer to the need for a comprehensive test maturity model, which defines the QA Transformation roadmap and manages its implementation. It has been developed to help organizations selectively improve their testing capabilities based on key dimensions that contribute to the testing maturity and can be customized to the business environments that the organization operates in. The innovative scoring and assessment methodology of the model helps identify and understand the prevalent weaknesses and transform the testing services by leveraging their current testing capabilities and adopting the best testing practices across industries.

Infosys®

INTRODUCTION

The importance and contribution of software systems in supporting businesses and generating revenues has risen significantly over the last several years. The volatile economic conditions, increasing pressures to control costs and improve return on investment in IT systems has forced organizations to seek processes and practices that can improve the overall benefits of better quality, faster time to market and lower costs. While the focus on quality has continued to increase, the drive to control costs has resulted in complex and diverse organizational structures.

It is now widely accepted that the ability to warrant the quality of IT systems and processes establishes the success or failure of an enterprises business outcomes. Hence, it's imperative for them to gauge the maturity and effectiveness of their QA organizations in order to plan strategic and tactical steps to improve their effectiveness and efficiency. It was at this juncture that the dire need for a reference model and framework for assessing the maturity and planning improvements to the processes and practices was widely felt by organizations. In the previous paper of this series we had discussed, the limitations of the traditional approaches to Test/ QA maturity models and the key attributes of a comprehensive QA assessment framework model[1] that would meet the needs of a dynamic business environment. There was clearly the need for a comprehensive framework that addresses all dimensions of a QA organization, in a selective manner and builds varying levels of maturity for different practices, depending on the way the organization has organized its software development and testing operations.

What is 'Enterprise QA Transformation Model' all about?

Infosys has worked closely with many large enterprises spanning across industries for building and operating many mature Test Center of Excellence's and Test Factories. In the course of these complex and diverse engagements, Infosys identified various key factors that significantly contribute to the QA service maturity . This eventually led to a detailed evaluation of these various engagement and operating models that organizations had adopted. Infosys also leveraged its expertise in Testing Services and experience in implementing Test Centre of Excellence (TCoE) for large accounts in QA organizations. The evaluation resulted in the development of the Enterprise QA Transformation Model, which was built to enable organizations to understand the current weakness and transform the testing practices by improving their current capability based on business needs. The model also helps in managing the implementation initiatives in a systematic manner. The figure 1 below gives a high level overview of the model.

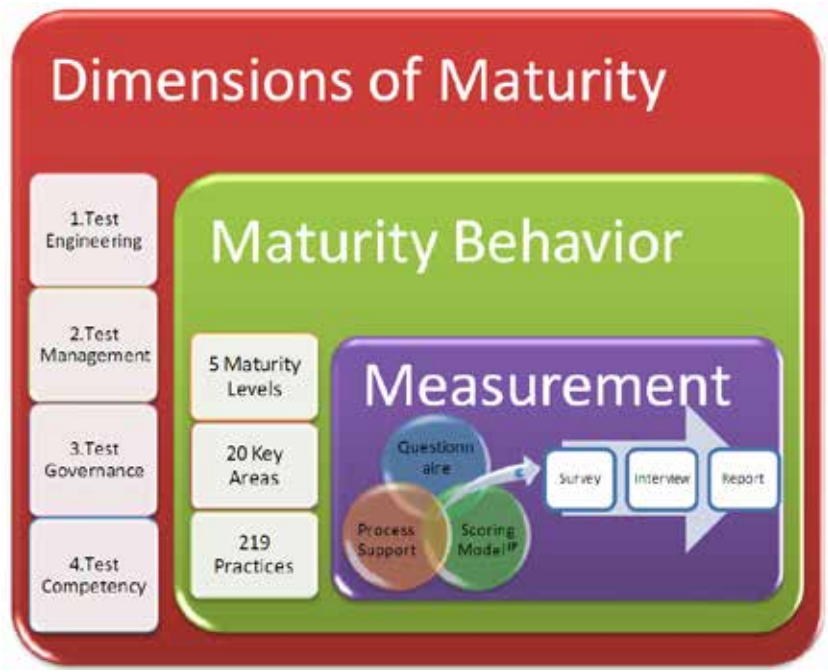

Figure 1: Key aspects of the "Enterprise QA Transformation Model"

External Document © 2015 Infosys Limited

Dimensions of Maturity

The model classifies the four identified key dimensions of QA maturity as listed below.

1) Test Engineering dimension focuses on the software testing life cycle practices
2) Test Management dimension changes the way the independent testing projects are managed and maintain a tight integration between them and the overall project management life cycle.
3) Test Governance dimension lays the foundation for mature testing services by establishing 'n' tier governance structure, a standardized test methodology, processes and policies.
4) Test Competency dimension helps leverage the domain & technical knowledge and address the career progression of testing professionals.

These dimensions encapsulate the fundamental QA capabilities that need to be established at an organizational and project level. The Test Engineering and Test Management dimensions help an organization improve all the testing practices of a project and hence their impact is felt more at the project level. The Test Governance and Test Competency maturity dimensions have a comprehensive influence at an organizational level.

Maturity Behavior

As part of this model, 20 key areas, 5 maturity levels and 219 unique test practices have been defined within the four maturity dimensions discussed above. Each maturity dimension has several behaviors or the expected activity defined. A set of behaviors or observable characteristics collectively determine the maturity level for each dimension. Further, these behaviors are in turn supported with testing practices. These practices help organizations implement the key areas and exhibit the expected behaviors associated with them. This model generates a detailed map of the current capabilities which help identify the strengths and weaknesses of the current QA/ Testing processes for the organization.

Measurement

The model is equipped with a robust measurement framework. It has an innovative assessment and scoring mechanism which includes questionnaires and systems to measure the testing capability. The assessment includes an industry wide accepted survey, interview and reporting practices.

The Solution Deployment Approach

The current testing capability is assessed using the maturity model. The scope of assessment varies according to the business priorities of an organization. Based on the assessment findings, a detailed roadmap is built to elevate the organizations current QA maturity level. The assessment phase is followed with the design phase in which new practices and processes are introduced to improve the current test maturity state. Then, the implementation phase includes the selection and deployment of the new practices, processes along with a pilot execution. This is followed with an enterprise level deployment. An annual operating plan is formulated to sustain these practices which include measurement mechanisms and periodic reviews. The key implementation stages of the solution deployment approach are depicted in Figure 2.

Figure 2: The Key Implementation Stages of the Solution Deployment

External Document © 2015 Infosys Limited

The Key Features of The Enterprise QA Transformation Model

The Enterprise QA Transformation Model is a comprehensive platform for building mature and effective QA organizations. Let's go through some key features of this model.

COMPREHENSIVE ASSESSMENT FRAMEWORK

The model includes a comprehensive assessment framework which comprises of a maturity map, an assessment questionnaire, scoring model and a complete set of process aids and tools that help plan and conduct assessments. Figure 2 below gives a snapshot of the scoring model. The assessment framework is designed to gather data on the behaviors that help determine the testing practice and map it to the corresponding maturity level. The assessment methodology used in this model is an IP of Infosys (Patent filed in India & US PTO).

SELECTIVE AND CONTINUOUS IMPROVEMENT

The Enterprise QA Transformation Model gives organizations the flexibility to selectively improve its testing capabilities based on the way they operate and engage with vendors and sub-contractors.

REFERENCE MODEL FOR IMPROVEMENT

The model also functions as a reference framework for building a strategic roadmap for improvement. It helps in selecting, prioritizing and sequencing the improvement initiatives in a manner that is in line with the organization's vision and the current QA capabilities. The QA organization can leverage its prior experience and knowledge gained during the maturity assessment of the organization undergoing the transformation, to recommend a series of initiatives that would lead to a superior level of QA maturity and effectiveness.

ACCELERATORS

The model is supported with a suite of processes, process aids and tools to manage the improvement implementation which helps accelerate the transformation journey of QA organizations. The process framework can be customized to the business objectives of the organization's TCoE. The tools include some industry standard tools and several proprietary tools from Infosys.

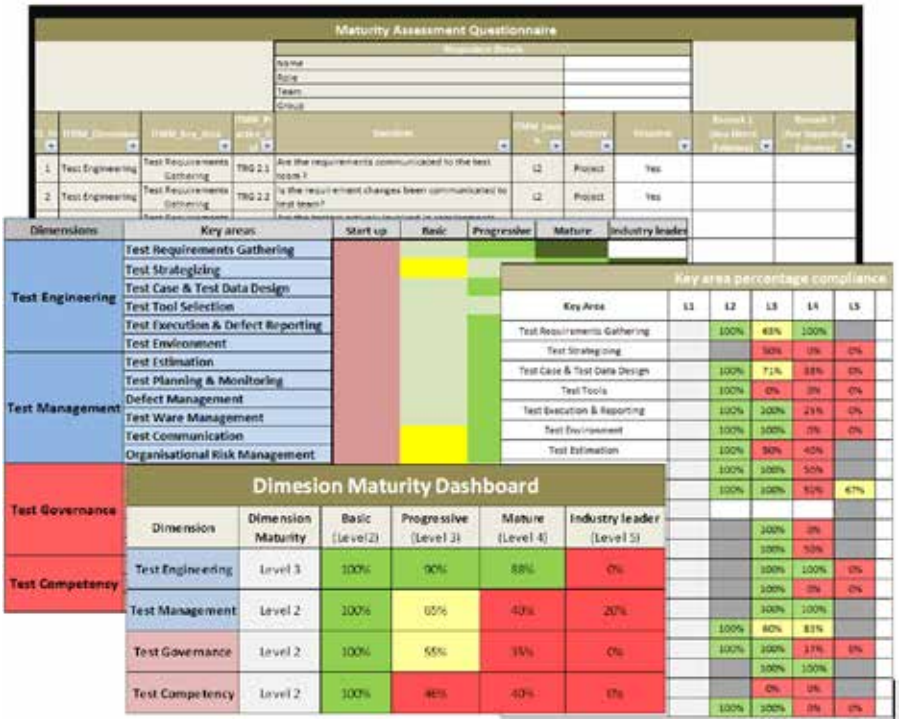

Figure 3: A Snapshot of the Scoring Model

External Document © 2015 Infosys Limited

What are the Benefits of this Model?

The model leverages Infosys' best practices in successfully building and delivering Test Centers of Excellence's (TCoE) for organizations' across industries. As part of the QA service transformation journey, Infosys sets up a governance structure, consolidates and optimizes the testing practices & processes for managing the QA organization. By adopting these practices, the QA organization would be able to improve the efficiencies of their QA teams and minimize critical issues in their business applications and transactions. This would eventually lead to building an effective Test Center of Excellence that is well integrated in the organization's software development lifecycle.

Figure 4 describes how the Enterprise QA Transformation model creates business value for an organization.

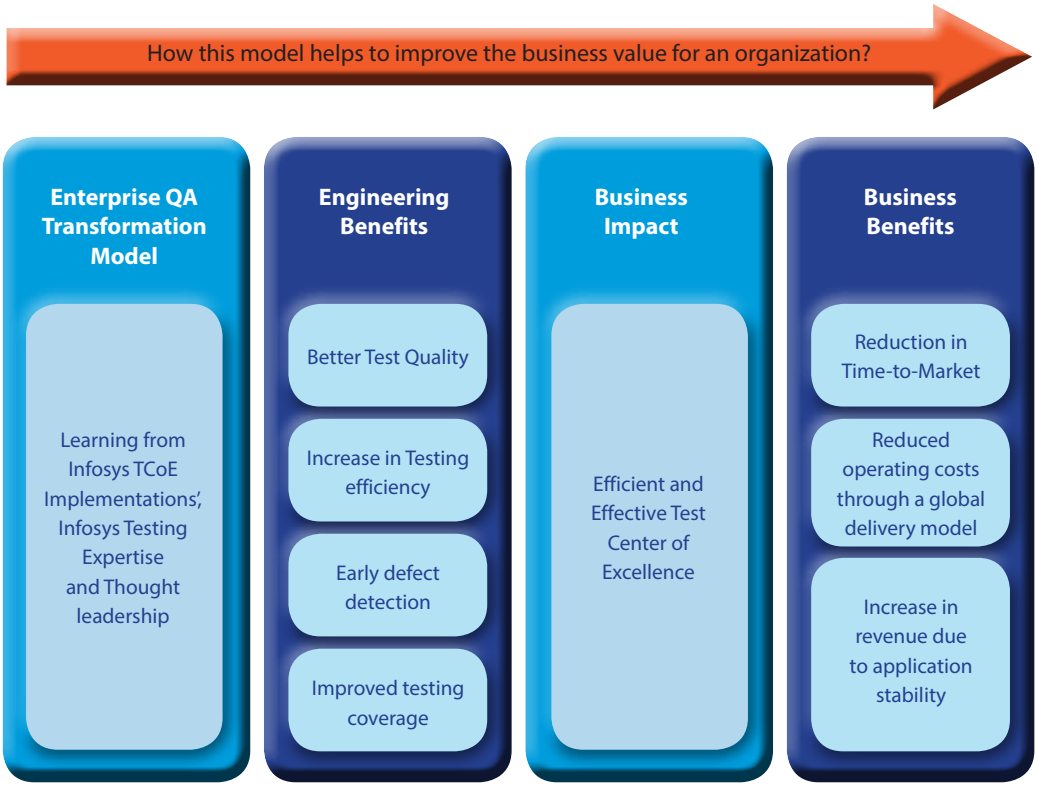

Figure 4: How the Enterprise QA Transformation Model Creates Business Value

External Document © 2015 Infosys Limited

Conclusion

The Enterprise QA transformation Model meets today's dynamic business needs, taking into account the heterogeneous delivery structures of organizations today, as it helps build mature testing practices that help deliver exceptional quality, effectively and reliably. The model helps assure quality and maturity of the testing capabilities that would lead to efficient business operations, translating into successful business outcomes. It's conspicuous because of its comprehensive framework that gives the ease of flexibility, the power of customization to an organization's specific business need, plan selective improvements, its relevance in today's complex business environments and because it facilitates in transforming the QA organization into today's mature Test Centre of Excellence. These features set it apart from the conventional and available QA Maturity models.

References

1. Need for a Comprehensive Test Maturity Model, Infosys, August 2011

External Document © 2015 Infosys Limited

About the Authors

Reghunath Balaraman (Reghunath_Balaraman@infosys.com)

Reghunath Balaraman is a Principal Consultant, and has over 16 years of experience. A post graduate in Engineering and Management, he has been working closely with several large organizations to assess the maturity of their QA organizations and help them build mature and scalable QA organizations, and is well versed with industry models for assessing maturity of software testing.

Aromal Mohan (Aromal_Mohan@infosys.com)

Aromal V Mohan is a consultant in Independent Validation Solutions Unit and has experience in Test service capability assessment, design and implementation. His areas of specialization are process models and framework. He has been involved in Test Center of Excellence implementations for various clients. He focuses on design and implementation of test process, test service governance, metrics and estimation. He holds a Master degree in Business Administration with a specialization in Information Systems.

External Document © 2015 Infosys Limited

For more information, contact askus@infosys.com

© 2015 Infosys Limited, Bangalore, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.

Stay Connected