From ‘Zero Defect Software’ to ‘First Time Right with Business’

To succeed in today’s dynamic digital world, QA organizations must look beyond pure system defect testing to ensure that software applications not only satisfy users but deliver better business outcomes.

Executive Summary

Businesses across industries are contending with massive changes driven by new regulations, accelerating digitization, steep competitive pressures and unrelenting technological advancement. Many must address these challenges by prudently allocating flat IT budgets with little margin for error.

Business leaders expect quality assurance organizations to deliver in-depth quality checks across the software cycle, supporting ongoing business resilience and reducing the cost of quality through optimized testing by detecting bugs before applications go live.

One simple solution is relentless end-user focus on quality assurance. However, focusing exclusively on technology challenges is no longer enough. QA organizations must shift left to focus on end-to-end testing early in the lifecycle to understand how business requirements are being met and accordingly design the test strategy to validate each step of the business process flow.

This white paper assesses the key elements of business process assurance, by examining how an end-to-end approach unlocks the hidden potential of testing to optimize and improve stakeholder experience and deliver better business outcomes.

Current Quality Assurance Scenario

Quality assurance organizations remain focused on a technology-centric approach that prioritizes application defect detection. Exhaustive testing performed by application testers may, at times, ensure zero defect leakages to production but fails to assure business outcomes due to QA’s limited business perspective. For instance, in an insurance claims processing function, one of the business outcomes may be the percentage of auto adjudication that minimizes exception transactions. If testing is able to assure probable exception scenarios handling, then the percentage of exception transactions and relevant costs would come down, resulting in better business outcomes.

Similarly, the following concepts should be considered by QA organizations to enhance business value:
• **Rethink the overall approach to application testing.** System testing in-process is confined to application functionality, offering little relevance to the end-to-end business process. When an application goes live, it is impacted by a host of other factors such as business rules and regulations, exceptions, controls and frauds raising the potential of legal risk or financial failures on the business overall.

• **Update application quality reporting.** The system view of quality is completely different from the business view. IT quality reporting considers only functional metrics such as test coverage, tests failed, defect leakages etc. - whereas these metrics may not make sense to business stakeholders. These stakeholders need reporting from a business perspective to take go/no-go decisions.

• **Reorient user acceptance testing (UAT).** Most QA organizations carry out only functional testing with unstructured/ad hoc UAT, while others leverage business-critical or high-cost operational resources who may not have the time/expertise for mature UAT. UAT is one of the key areas that ensures effective delivery at reducing business risk. It requires a streamlined process for business validation and a dedicated team with domain expertise.

  > Consider continuous involvement of business user: In traditional methods, for validating the software from a business perspective, business users get involved at a later stage of the software testing lifecycle after comprehensive system validation. Defects found at this stage not only multiply the cost but also delay the time to market. Business process assurance advocates continuous involvement of business users, makes technology more usable for the business and prevents unexpected shocks.

  > Examine digital assurance of applications: Digital assurance is often looked upon from a technology-centric perspective rather than its alignment to business-centricity for a seamless customer/stakeholder experience. While moving legacy systems to the digital world, it is also imperative to assure core business processes.

In a nutshell, although quality assurance may have reached its maturity in terms of excellence in application testing, business validation still finds its place in the last stage of the software lifecycle. Furthermore, given release time constraints, comprehensive validation of the business process often becomes quite difficult to achieve, which in some cases could lead to business failure. Therefore, incorporating business understanding in testing through shift left is a key requirement of business leaders around the world to support their resilience agenda and optimize the cost of testing.

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**Quick Take**

Achieving a BOOST from Business Process Assurance

BPA leverages our business-outcome-oriented scenario testing (BOOST) framework for testing from a business standpoint. The BOOST framework takes into consideration the following three points and designs the corresponding business-outcome-focused test strategy.

• **Business outcomes expected from the process:** What are the related business outcomes for a business process? For example: A reduction in processing error is a business outcome for the card issuance process.

• **Metrics used by the business to measure these outcomes:** What are the metrics used to measure those business outcomes by business? For example: The number of applications reprocessed due to erroneous capture of data.

• **Scenarios that have a strong linkage to influence those outcomes:** Developing test scenarios that influence those outcomes. For example: Validation of fields with all possible data entry according to the data dictionary and boundary validation.
Defining Business Process Assurance

Business process assurance is a step change in regular testing. It complements traditional IT/testing with a business perspective, thereby mitigating business risks and allowing business to deliver outcomes right-first-time, faster. As Figure 1 shows, it involves two components: business process testing and user acceptance testing.

- **Business process testing (BPT):** BPT is a complete transformation of system testing to augment the current approach to real-time business scenarios and inspire business thinking at the deepest level of testing. It is driven by business processes and reusable business components by triangulating business/test analytics + intelligent test automation + business-aligned testing for a faster and more cost-effective outcome.

- **User acceptance testing (UAT):** UAT is the validation of business processes, holistically covering regulatory compliance, process controls, exceptions and fraud scenarios. It leverages the knowledge of industry experts for customer journey validations from an end user’s perspective and certifies its readiness to go live.

BPA Strategy for Aligning Business Focus

Business process assurance can help enhance existing testing practices. It takes into account the simultaneous requirement of accelerated business resilience and reduced cost of business change through smarter QA approaches. Our Cognizant Mature Business Acceptance Test (COMBAT) model (see Figure 2, next page) can help here.

Elements Underpinning COMBAT

- **Asset industrialization:** A reusable asset library and the best QA practices and products for end-to-end validation of the business process are critical. This approach leverages the 60:20:20 rule that states 60% of assets are generic for industry, another 20% is for regional customization and the remaining 20% is specific to individual organization business rules/procedures.
**Business expertise:** Collaborative capabilities of business process experts with operational SME capabilities, including ex-business users, ex-auditors and those with extensive domain expertise for determining business processes flows, regulations, exceptions, controls and fraud scenarios.

**Business-process-led test design and execution:** This involves breaking business processes into business components with defined business rules and stitching test results to each business component for optimal testing. This improves business maturity by simulating real-world business scenarios to test all critical business functionalities.

**Analytics-driven automation:** New-age analytics for the business process to identify the sweet spot for business component automation. This goes beyond regression to end-to-end business process modeling and test design/execution automation using user free-form test libraries.

**Customer/user first:** Use nonconventional inputs for testing processes such as customer surveys, audit reports, customer perception on social platforms, etc. It allows business leaders to visualize the journey that the customer experiences and identify major failure points - ensuring testing delivers a broader mix of business outcomes.

**Built-In improvement engine:** This makes continuous improvement someone's full-time job rather than a wishful nice-to-have. The competency center embedded within the operating model is the mother ship that drives innovation and sharing of best market practices.

The combination of right people and skills with domain experience, industry learnings, analytics-driven automation and asset industrialization, along with a built-in improvement engine, supports business in accelerating resilience by proactive implementation of business change at an optimized cost. It also enables quality assurance to deliver faster time to quality across the enterprise.

**Looking Forward: Key Challenges**

Implementing BPA requires clear-cut preparation and an active mindset. Moreover, achieving testing maturity is an arduous task for most organizations. We recommend that QA organizations keep in mind the following key constraints and suggestions as they implement BPT and UAT.

- **Unavailability of business process assets:** Many organizations do not have technology-agnostic business process documents. The general documents, from a system perspective that depicts data flow diagrams, create bottlenecks to understanding the business process flows. This issue can be addressed by involving
Quick Take

Industrializing Business Process Assurance

BPA leverages several process modelers and test design tools such as our ADPART tool that provides a unique platform to build business models and create seamless usability for requirement management and test scenario generation. Based on our engagements with multiple clients, ADPART delivered the following benefits:

- **Effective change management and impact analysis:** Roughly 40% to 50% of effort reduction during change request management phase.
- **Silo approach to traditional testing:** Testing teams currently work as silo units, focusing only on individual application without much collaboration. Leveraging BPA SMEs can enable convergence, since many are well-positioned to collaborate with QA teams and the business to ensure end-to-end assurance.
- **Inadequate BAs and SMEs on test teams:** The testing team is usually comprised of application focused testers. All BPA actions are considered mere suggestions because the domain teams are typically not available to implement business-focused testing. Organizations can hire operational SMEs and BAs with strong experience in business and can bring that perspective to testing.
- **Considering UAT as an extension of system integration testing (SIT):** In many cases, organizations consider UAT the same as or an extension of SIT, stringing along SIT test cases for UAT. This is either because they do not have adequate budgets for UAT or they are not aware of the difference between the two. BPA clearly demarcates the methodology to be followed for SIT and UAT. Efficient use of analytics and automation assures cost-effective validation of end-to-end business processes.

Moving forward, organizations will need to realign their quality assurance with business to accommodate ever-changing business requirements and capitalize on customer expectations for zero defects. Business process assurance can be considered as one of the possible ways of ensuring effective delivery of business outcomes and reduced risk to business at an optimized cost.

Footnote

1 To learn more about ADPART, visit [https://adpart.cognizant.com/](https://adpart.cognizant.com/).
About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process services, dedicated to helping the world’s leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 100 development and delivery centers worldwide and approximately 233,000 employees as of March 31, 2016, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world.

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