

# LEAN QA – Transforming QA teams for Just-in-time test delivery



## Executive Summary

In today's era of skyrocketing customer expectations, ever-shortening time to market and the need to incorporate changing customer requirements into the product development, the process is causing stress to delivery teams.

On top of these challenges, the skill gaps in team and cost pressures are driving delivery teams crazy.

LEAN is a methodology that promises to provide solutions to the current challenges of software development by optimizing the development time and resources, eliminating waste and delivering maximum value to customers.

Although LEAN originated for the manufacturing industry, it has been adapted well for the software industry too. In the book, Lean Software Development, Mary and Tom Poppendieck share details on the application of Lean principles in software development.

The seven principles of Lean development can be summarized as:

1. Eliminate waste
2. Amplify learning

3. Decide as late as possible
4. Deliver as fast as possible
5. Empower the team
6. Build integrity in
7. Optimize the whole

Lean methodology will only achieve stated lean objectives when these are implemented across all the teams including software testing.

Software testing and quality engineering teams rely on structured processes/ documents which often are inflexible. At times these processes / artefacts do not add value to the customer.

IGT has created a Lean Testing framework, which helps achieve lean benefits such as waste elimination, faster delivery, continuous learning, enhancing team productivity, manage changing priorities and improve customer interactions.

This document is an attempt by IGT Solutions (IGT) to introduce our LEAN framework, which has offered great value to our clients.

## Eliminate Waste

Anything which is not adding value to the customer is regarded as waste as per Lean philosophy, In Quality Engineering and Testing, such wastes may include:

- Specific Test artefacts – which are not adding value to the customer
- Unnecessary code or functionality
- Delay in the testing process
- Task switching
- Relearning
- Waiting
- Slow or ineffective communication
- Handoffs
- Defects and quality issues
- Management activities

The waste elimination process is an iterative continuous process and includes identification, analyzing and elimination.



## Amplify Learning

Software testing is a continuous learning process and should be done under broad guidelines.

Creation and retention of knowledge can be done by using any combination of the following tools:

- Training and Knowledge sharing sessions
- Wiki/platform for building a knowledge base Incrementally
- Documentation, code reviews, pair programming, peer review

The process of learning can be expedited by:

- Frequent communication with stakeholders including customer
- Increasing feedback by short feedback sessions with customer
- Aligning testing team from early-stage e.g. requirement gathering stage
- Focus on defect prevention at different phases
- Sharing risks and involve stakeholders for a discussion on the solution

Learning is an iterative process and different tools/processes can be utilized to enhance effectiveness.



## Decide as late as possible

Often testing teams may not have all the required details and certain assumptions are made which if gone wrong, will add to waste and repeat work in the system. Lean focuses on having various approaches in place and decides later on the final approach, once things become clear based on facts. The final design/approach is chosen basis its merits over the other, and with slight changes in design after learning other approaches.

Decide as late as possible means to:

- Not plan in great detail for several months in advance
- Not decide on ideas or options without a full understanding and analyzing the requirements keeping various factors in view
- Constantly accumulate and analyze information about any important decision for option/ approach

Flexibility is to be built in systems for late decision making, once most of the information needed to make a decision is available.

## Deliver as fast as possible

The Faster we deliver, the sooner we get feedback and incorporate it in the next iteration. Faster delivery of the quality product is what customer is expecting in today's time.

This Just-in-time testing service can be implemented by harnessing pre-built frameworks and accelerators. Following pointers can help achieve just-in-time testing:

- Continuously create/optimize the test assets
- Risk-based test mapping and deliver results faster
- Short delivery cycles for customer feedback
- Continuous learning and optimization to eliminate delays in test cycles

The customer's business needs fulfillment is assured by a speedy delivery. Lean QA team, a partner in the customer's digital transformation journey, can help achieve business objectives by ensuring speed with quality.



## Empower the team

Respect for individual team members and enabling the team to plan, commit and deliver their work themselves are key foundations for Lean testing. A Highly motivated team is collaborative and requires minimum supervision from the management. Few ways to empower the team:

- Enable team to decide on planning, activities, deliveries
- Support team by removing impediments
- Stay away from micromanaging
- Encourage open communication
- Show your trust to team members
- Create a positive work environment

Highly motivated teams deliver fast and with good quality, they act as an extended team of their customer.



## Build integrity in

The customer is looking for the overall experience of the system, that it works as expected and all the modules are optimally integrated and provide an end-to-end view. It is perceived integrity that the testing team has covered all areas of risk and no defect is visible in end-to-end flow.

Few items to build integrity are:

- Automation testing is part of the production process
- Continuous process for defect reduction
- Ensure end-to-end system works as expected
- Ensure coding guidelines are followed
- Regular refactoring of processes and code
- Establish two-way communication channels with customer

Integrity build into the system helps create trust with the customer which enables long term partnerships.

## Optimize the whole

Think big, act small, fail fast, learn rapidly – rightly summarizes lean principles in the software testing process.

Sub optimization is the enemy of Lean and is often seen as a key reason for Lean team's failure. For achieving successful Lean implementation, we have to target major areas such as:

- Buggy code by the development team – Mostly as an excuse to deliver faster
- Long cycles at the testing team – Mostly as testing teams are overloaded and it takes testers time to provide feedback on code
- Integration issues with internal and / or external applications / systems
- Non-functional requirements – implicit or explicit business requirements not met by the product

As software testing represents value stream delivery in sequence – test design, test execution, reporting and optimization. In order to deliver as much value as fast as possible, value streams need to be optimized. This optimization coverage is to encompass the entire system to get desired lean delivery benefits

## Benefits

While addressing the dynamic needs of maintaining quality and delivering value, Lean Testing helps achieve waste elimination, deliver fast and with good quality. Lean testing is gaining popularity in - teams where delivering customer value at a fast pace in agile ways is the requirement.

IGT sees a few notable advantages in adopting the Lean testing approach:

- Faster test delivery
- Increased team productivity
- Reduced lead time
- Improved visibility to stakeholders
- Better predictability of planned features on production
- Accelerated Release Cycles
- Reduces the cost of testing

## Challenges in Lean Testing

Lean testing is a radical shift in the way the testing is performed in current times. As Lean testing teams work iteratively and in a different manner than other software teams, they must adapt their techniques of working to manage any challenges that might arise. Some challenges usually faced are listed below:

- Quality often comes at the expense of speed, but rapid release cycles need accelerated delivery
- Skill needs against accelerated delivery timelines
- It's difficult to contextualize the intent of the test while balancing tools and technology needs
- Applications are dynamically adapting to technology, Automation & Tests unable to keep pace
- Cost of Quality: When to Test & How Much to Test?
- Are we ensuring early verification and validation from a compliance perspective
- Influence stakeholders on Lean approach, especially not creating exhaustive test artefacts





## Suggested steps to address challenges

Some measures that address the challenges in Lean Testing are listed below:

- Automation framework plays a key role in accelerating release cycles within delivery
- Placing the right skilled people in the right place to meet the speed, agility & quality needs
- Use of rights tools and frameworks to achieve Lean testing
- Technology and Innovation becomes critical in bridging gaps for dynamically adapting applications
- Continuous analysis and optimization to achieve a holistic value delivery

## Conclusion

Lean QA is beneficial for businesses as it promises to eliminate waste (rework and defects) by holistically testing the system as a whole, early and continuously, including measuring what really matters to customers and incrementally improving quality thereupon. Agile and Lean QA can work hand in hand as both are complementary methodologies.

To make Lean QA a reality, organizations need to rethink their approach to the legacy way of working especially in the testing domain. Adapting to Lean QA requires mindset change of the team as well as management, it also requires continuously monitoring, measurement, and metamorphosis of the people, process, and technologies to achieve true Lean QA implementation to thrive in an organization.



IGT Solutions (IGT) is committed to simplify complex customer interactions while delivering a seamless experience. It provides integrated BPM, Technology and Digital Services & Solutions for clients across industries.

Established in 1998, with 100% focus on customer experience, IGT employs more than 13,500 customer experience and technology specialists providing services to 75 marquee customers globally. IGT's global footprint consists of 19 delivery centers in China, Philippines, Malaysia, India, UAE, Romania, Spain, Colombia and the USA.



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