View Point

# The Age of Extreme Automation

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## Key Drivers

The new drivers in the banking technology world are moving towards a shift left strategy, with emphasis on defect-prevention over defect-detection. This has led to innovative ways of validation, with intelligent testing taking preference over brute-force tests. Automation in this domain has also evolved to accommodate this shift-left strategy with all banks focusing on improved customer experience, speed-to-market and scalability demand as its key drivers. This has, inevitably led to smarter approaches, methods frameworks in automation, combined with the use of a set of tools very different from the conventional ones.

## What is Extreme Automation?

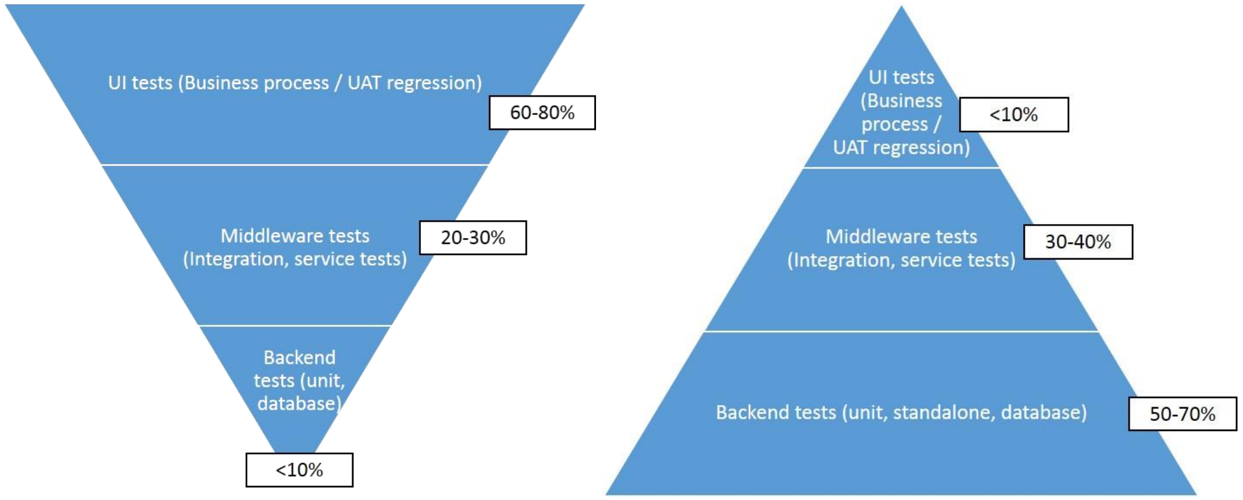
The main purpose of Extreme Automation is to cater to the new drivers in the digital banking technology landscape and also new methods in validation.

Automation, traditionally has been test-focused, subsequent to the development of the product under implementation. This implied that automation had maximum coverage on UI (application) based tests, followed by a small percentage of middleware / services tests, and a negligible percentage on the backend, unit / standalone tests and database.

However, with the evolution of extreme automation, this pyramid has been completely inverted, with a large percentage of automated tests being distributed across the middleware (services) and backend (unit / standalone and database) and only a small percentage of tests (mainly structured exploratory tests) at a UI level. This, coupled with the orchestration of data, has resulted in a significant reduction of defects across the SDLC.

Traditional Automation Target areas

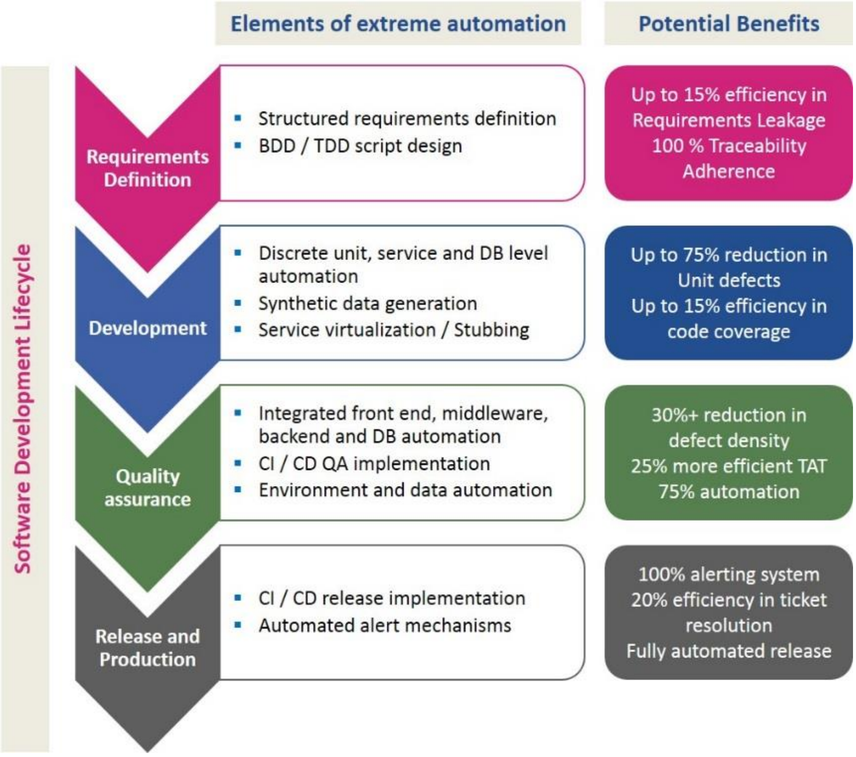
Extreme Automation (inverted automation triangle)




## Extreme Automation in Practice

In practice, implementation of extreme automation is best achieved through mapping its various elements across the SDLC. Every phase of SDLC incorporates a certain element of automation, which through its introduction, has a significant impact on key measures in that phase. This is, agnostic to the delivery model, waterfall or agile, and the implementation of these can be taken up in a phase wise manner, explained in the way ahead section.

Below is a representation of many extreme automation elements and how they fall in place through the SDLC phases. Also, defined are the significant impact on some of the measures at the respective stages and the efficiencies and intangible benefits that would result from implementing these elements.




## Way Ahead

While there is no one-size-fits-all method for extreme automation, there are some broad principles by which we can achieve implementation across the enterprise in a phased manner.

Big bang approaches towards such implementation have often met with limited success in practice, due to the extremely broad spectrum of changes that an enterprise needs to undergo in all phases of the SDLC in order to achieve desired outcomes.

Therefore, it is essential to start with one business and technology layer, implement the necessary changes in the respective layers in three phases of implementation, and then move on to the next set of business and technology layers.

Since the implementation of extreme automation is largely still seen as a QA-led initiative in most organizations, it is best to implement the elements of extreme automation initially in the QA phase, with efficiencies being shown through rapid automation (ref diagram). This, very quickly, will translate into significant QA efficiencies, reflecting in lower defect densities, significantly increased automation percentages and automation effectiveness percentages. In this phase, there is also an ability to implement the CI/CD frameworks which would drive continuous delivery throughout the QA phase, right from data automation to test environment and release automation

The subsequent approach is to address the elements at the requirements validation phases, through the introduction of structured design languages and model based test design. These would, in effect, introduce a very robust method of requirements validation and traceability, along with the ability to use the structured design in subsequent of automation of both code, and test.

The final phase of introduction of extreme automation at the release stages, where the principles created at the QA phase for continuous integration and delivery, can be implemented from an enterprise level for an automated end-to-end requirement-to-release DevOps engine. This, is usually done as the last stage, since it would require significant buy-in from the IT Ops with regards to a risk, operational acceptance and compliance perspective.

## Conclusion

Effective automation among financial services is around 20%. This should double in the next three years due to the maturing of various automation tools, as well as the need to adopt such solutions to meet the business demands. It is imperative to have an early start here as it would help in enabling an automation index to track the progress across various stages along with it coverage across the enterprise.



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