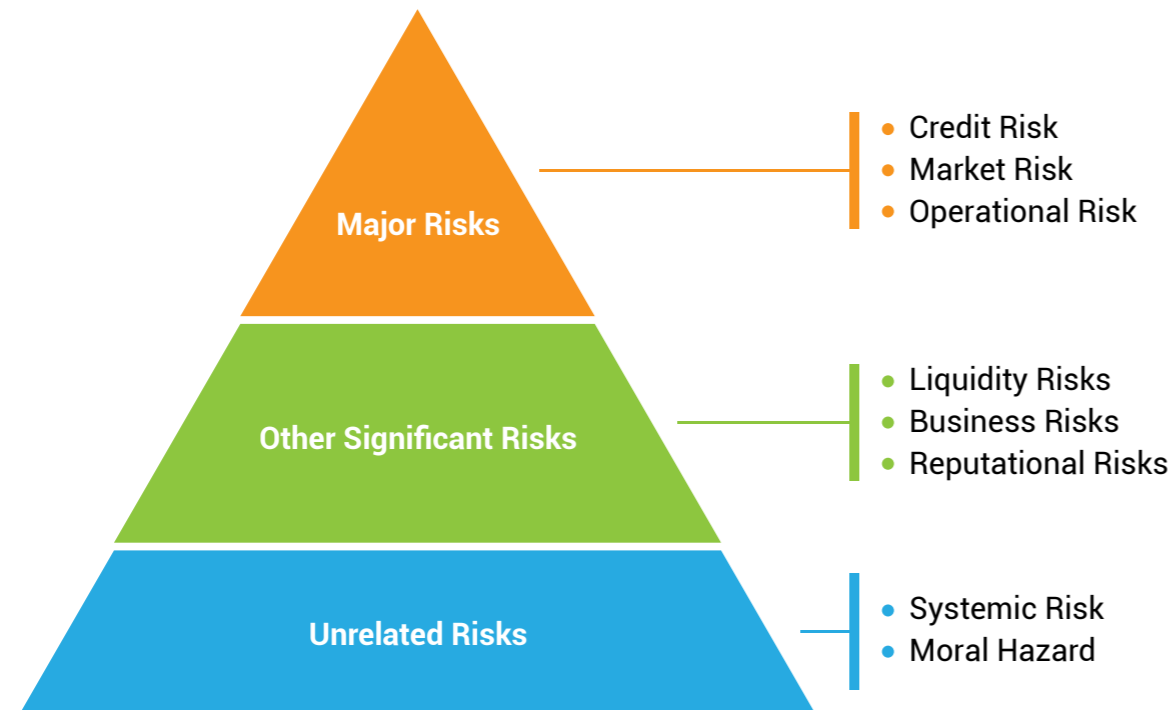


# Automation in Banking Addressing Financial Risks



# Risk Management in Banking

Banks are obliged to establish a comprehensive and reliable risk management system, as all banking systems are subjected to temporary failures. These include, but are not limited to, expected or unexpected events in the economy or the financial markets, to take a basic example. The risks can be classified as follows:



A Risk Management System helps the management to continuously measure the risk of its current portfolio of assets, loans, liabilities, deposits, or other exposures. A given risk profile acts as a trigger for other bank functions to reduce or mitigate any potential loss.

# Banking Automation

Banking is one of the most data-intensive areas which is controlled and monitored by regulatory authorities. The regulations mainly include the finance and risk management functions, KYC, money laundering, risk assessment, disclosures in specific intervals, etc.

For a long time, banks continued to use traditional technologies that required manual effort, but with the rise of digitalization and increased demand of customer experience on digital channels, the management of various banks had to make a strategic decision. This decision, taken at the enterprise level, was to undergo a transformation from traditional technology to Automation technology.

In this digital agile world, banks are matured enough to adopt Automation technology by leveraging more specialized solutions instead of nurturing a one-solution-fits-all mindset.

Automation helped banks to increase productivity by implementing changes in less time. It also helped them confirm quality delivery by leaving a digital presence, offering best-in-class customer experience, which in turn helped banks to increase profit.

In particular, banks are now replacing legacy systems by taking off all the typical process (as well as repetitive) tasks through Automation, which is a clear example of how banks are managing the exchange/tradeoff between man and machine.

Now by leveraging this Automation technology, banks too need to come out of adopting traditional approaches. They require a vision with which to plan a strategic approach - it can be achieved by designing new processes while building solutions which can optimize as well as leverage Automation with minimal human intervention.

# Compliance Testing

Compliance testing in banks determine the compliance of a system with internal as well as external standards. Of late, regulatory bodies have increasingly looked forward for banks to meet compliance requirements. The testing strategy is expected to conduct a risk assessment and define the compliance controls, upon which the testing is to be based. The high risk areas act as the radar, and key compliance risks are to be mapped to the respective business units and processes where they are more likely to occur.

For controlling the financial risks and to adhere to compliance requirements, banking automation is highly based in Artificial Intelligence (AI) and Robotic Process Automation(RPA). Even though there were some setbacks in the application of AI & RPA in earlier stages, there are positive signs ahead considering the maturing technology and domain expertise. By the next decade, more than 25% of bank functions will be handled by machines. Banks too need to align themselves to this new evolving order by designing new processes that are optimized for automation.

## USE CASE

The compliance test cases can include restrictions imposed on the different transaction areas like ATM Deposit/Withdrawal, Transfers, etc., which span across multiple channels. There will be multiple combinations as guided by Bank policies as well as driven by the regulatory board. Financial risks are bound to this and well-versed testing is bound to cover this as well.

Considering a typical bank in the Middle East, the expected test scenarios to adhere to the compliance is as follows - where approximately 83% of the test scenarios are exposed to financial risk.

Component	Test Case Count
ATM Card issue	144
ATM CASH WDL	137
CAS CHQ ORDER	280
CASH DEPOSIT	29
CASH DEPOSIT CARD	110
CASH WITHDRAWAL	64
Credit Card Payment(Debit)	611
Credit Card Issue	112
CASH DEP	36
International Incoming Transfers	344
International Outgoing Transfers	757
Local Incoming Transfers	192
Local Outgoing Transfers	583
Opening Account in foreign Currency	453
Bill Payment(Debit)	589
<b>Grand Total</b>	<b>4441</b>

# Artificial Intelligence(AI)

As per a study conducted by banking industry experts, roughly **90%** of all data generated is unstructured data. With the introduction of cognitive analytics, using NLP(Natural Language Processing), sophisticated algorithms can derive insights from unstructured data. Financial companies must leverage these cognitive technologies to anticipate and proactively manage risks to gain competitive advantage. The cognitive analyses include a bidirectional method so that the potential discrepancies found by NLP can also be further analyzed by a human and the source of discrepancies can be found. The NLP is induced with the finding and thus, the program gets smarter day by day as it narrows down the risks.

## Potential Risks in using AI

- **Program Errors**

An incorrect algorithm will give misleading results which cascade into risk prone areas, giving wrong interpretation of data which can impact revenue, opportunities, customers, etc.

- **Cyber Attack**

Within the last year, Indian companies lost \$800,000 to cyber-attacks and 76% of Indian businesses were hit by cyber-attacks - and a majority of them were financial institutions. Personal data and confidential information are, at times, the sole reason for hacking.

- **Wrong Feed**

AI depends on the historical input data. If the data fed to AI is biased, then the outcomes of the AI system will not be reliable.

- **Legal Risks**

Limited regulations are implied at the AI level as of now. The GDPR may be a game changer in areas where a large amount of personal data - including financial data - is used.

# Robotic Process Automation(RPA)

Financial companies are adopting automation as a disruptive force to address the challenges in their daily operations, which includes the majority of financial transactions. The same companies need to align automation with other factors like productivity, cost, and efficiency. Traditional automation of workflows through Test automation tools or AI have been boosted with advanced RPA. RPA introduces virtual workspace 'robots' which can be used to automate high volume data and system tasks to address the financial risks involved in it.

## Approach for RPA implementation can be considered with the following factors:

- Defining the vision/standard for RPA – The strategy, including operational readiness and benefit realization, needs to be defined. Also, the operating model with virtual workforce has to be defined.
- Defining the life cycle – End-to-end methodology, including identification, prioritization, and development - needs to be marked. Repository management considering future tasks also needs to be framed. Performance monitoring in every risk aspects to be planned, with exception handling as well.
- Value Adds – Key process indicators and Key Risk Indicators to assess the program health have to be delineated. Operational and performance metrics also need to be defined to tackle production concerns. ROI can then be measured to assess the success of the program.
- Organizational Adoption – New Competencies, learning paths, and workforce planning are subsumed within this factor.

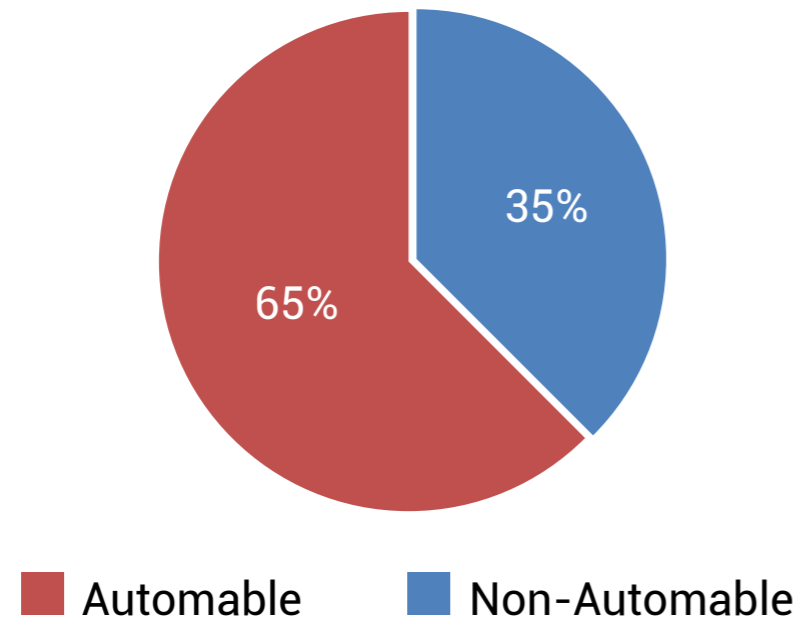


# RPA Use Case

The Loan Origination System automation in one of the Middle Easter banks was considered for PoC. It was observed that the traditional tools had limitations, while automated workflow-based applications can be integrated with other systems like thick clients (eg. IVR System) and Web Portal to perform certain tasks which were presently handled only with manual Intervention. Also, other challenges included a scenario in which the tool validated only one particular identified object, while invisible objects were excluded from the verification. Briefly stated, a heterogeneous environment is observed as a challenge when it comes to automation with traditional tools.

In such a heterogeneous environment, it was identified that only 35% of the test cases could be automated.

## Automation Coverage on Loan System



To overcome this challenge, the analysis resulted in identifying RPA tools which supported in validating cross-platform checks and running the script execution without any manual intervention. Also, as a result of this, the validation scope stands much extended beyond the limitations posed by traditional tools. The other major value-adds available are:

- Rich built-in capability for handling Excel, Word, Email and other common desktop applications
- No extra utility plugins required to read/write the data from these applications
- Attended and Unattended mode of script execution
- Parallel execution by multiple robots can reduce the execution time
- Trigger workflows by system events independent of any user action
- Windows application integration is standard and supports keyboard-level integration to invoke shortcuts or simulate keystrokes.
- Stronger in ability to recognize an image on the screen
- Installation/execution in the \*Citrix Virtual Machine reduces dependency on multiple desktop/laptops
- Integrating with a web browser is straightforward and offers advanced features including Java and Javascript within a web page

## Compliance Testing

Compliance testing in banks determine the compliance of a system with internal as well as external standards. Considering the above features, it was observed that the Loan Origination Application test scenarios' RPA automation achievement could be up to 95% in comparison with the 35% that was attained with traditional tools. The effort savings projection sampling is as below for

- Development effort requires closely to 900 Hrs.
- Execution effort requires closely 148 Hrs to complete the execution of total 80 cases
- RPA Features Benefited
  - 16x5 Unattended script executions - Effort reduction by half, equalling a total of just 75 Hrs.
  - Multiple Robots: 3 Robots – Reducing effort to just 25 Hrs.

Area	Total Scripts	Automatable with RPA	Automatable Test Scenarios Count			Execution Effort-RPA				Unattended Execution (16/5) (Hrs)	3 Robots (16/5) (Hrs)
			C	M	S	C	M	S	Total Hrs		
Auto Loan	11	10	0	10	0	0	4	0	4	2	1
Residential Finance	48	45	25	16	4	75	6	1	82	41	14
Personal Finance	27	25	20	5	0	60	2	0	62	31	10
<b>Total</b>	<b>86</b>	<b>80</b>	<b>45</b>	<b>31</b>	<b>4</b>	<b>135</b>	<b>12</b>	<b>1</b>	<b>148</b>	<b>74</b>	<b>25</b>

# CONCLUSION

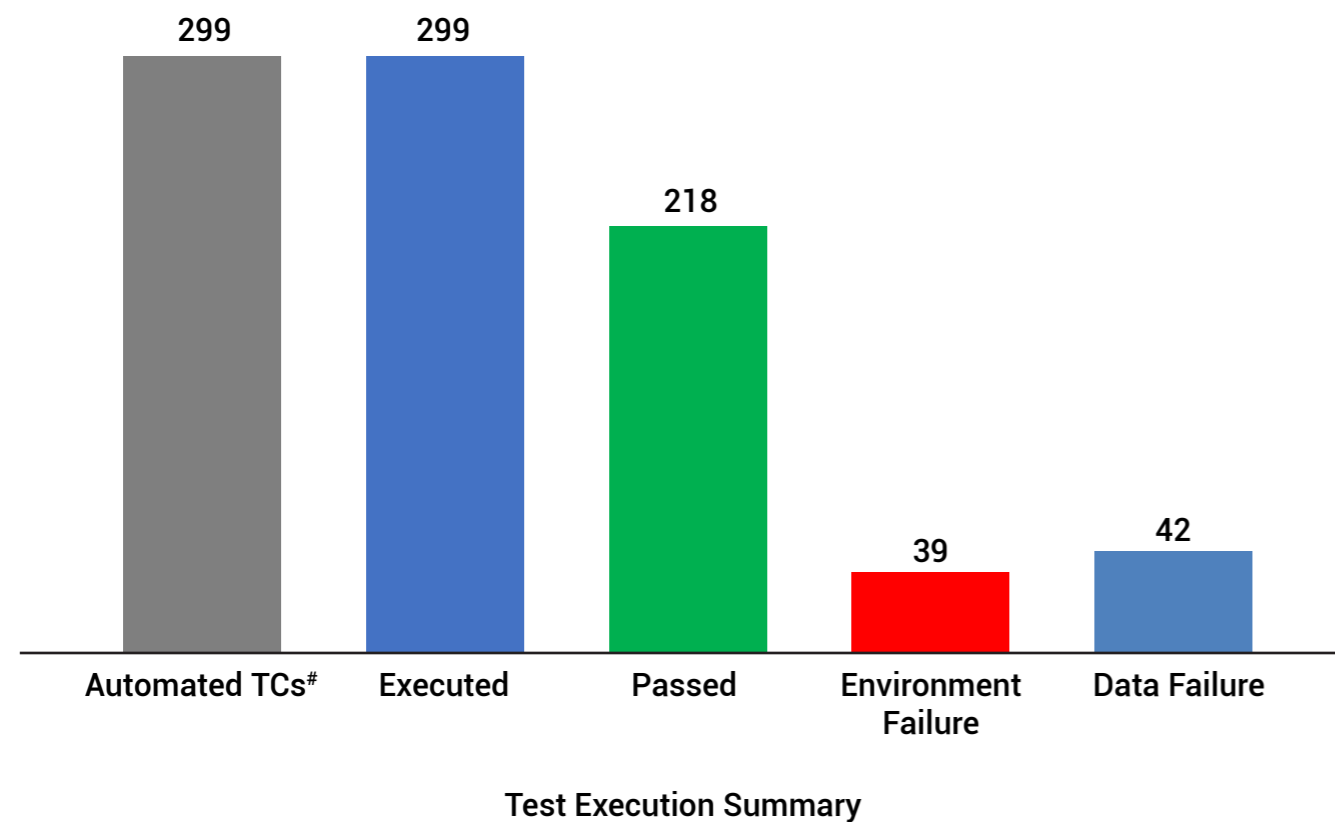
Time to Market is the mantra for financial products and ensuring the stability of the latter through continuous support of the products is the utmost challenge in this case. Financial institutions should prefer automation suites which address risk areas like financial impacts, including monetary, regulatory, as well as compliance factors. Considering the priority of the product's time to market deployment, a financial institution can take the call to have the validation on the primary areas where there is comparatively less financial impact.

The test scenarios for the financial products can be classified into Priority 1(P1) and Priority 2(P2), where P1 includes Financially Impacted test cases. The recommended test execution methodology is given below.

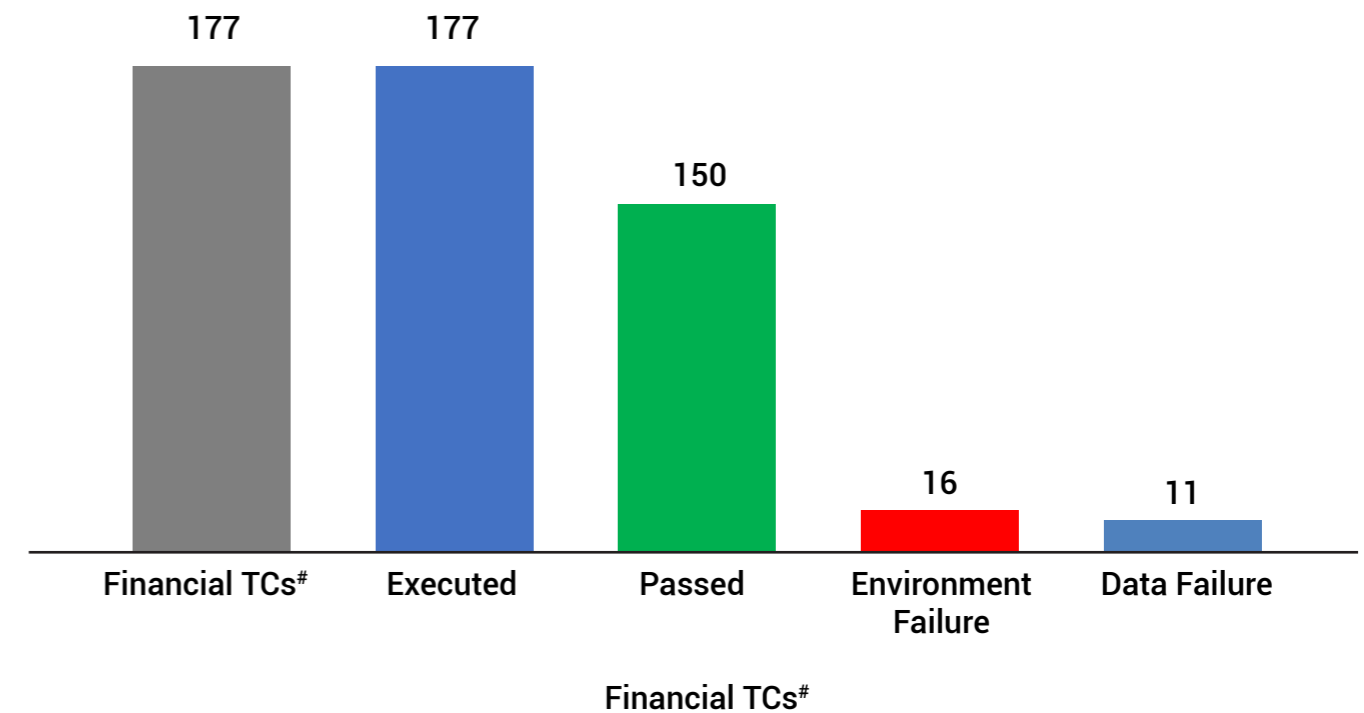
Type of Delivery	Test Suite Type	
	P1	P2
Projects/BAU	✓	✓
Emergency Release	✓	

The reporting structure can be as follows:

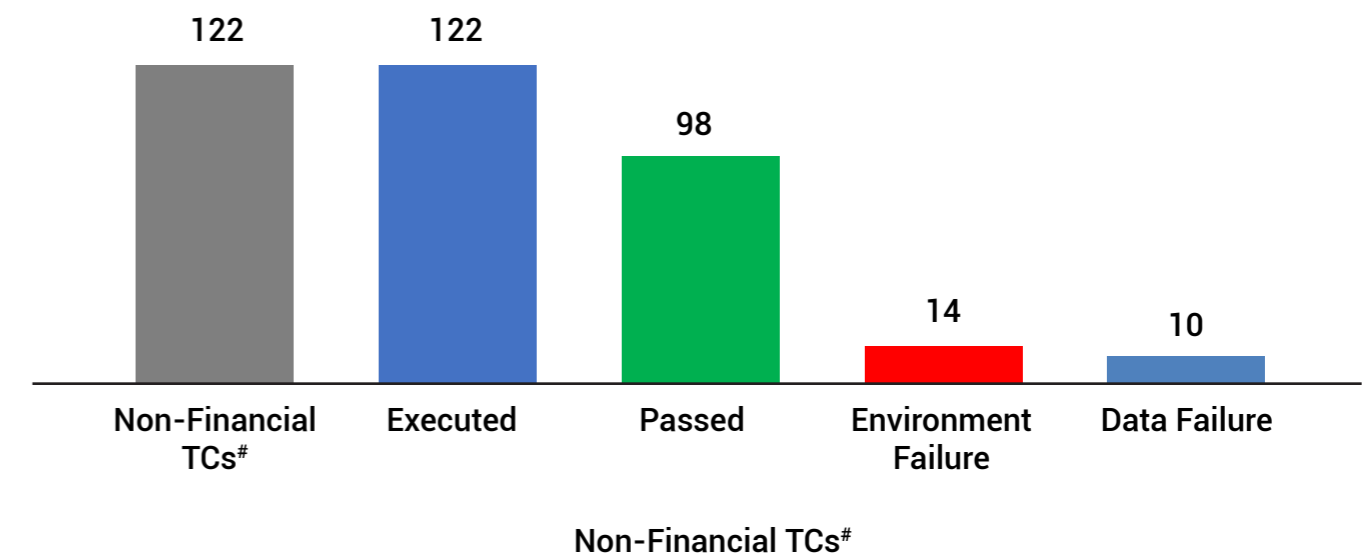
## Digital Channel Systems



## Financial TC# Execution Summary



## Non-Financial TC# Execution Summary





## Author Profile

Rolex T Damien is Senior Project Manager in ITC Infotech with extensive experience in executing and ramping up testing projects within time, budget and quality parameters. He holds exposure to a wide range of domains like Banking, Logistics, Infrastructure and Ecommerce. Rolex has built a sustainable delivery governance framework and processes for harvesting best practices across the

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