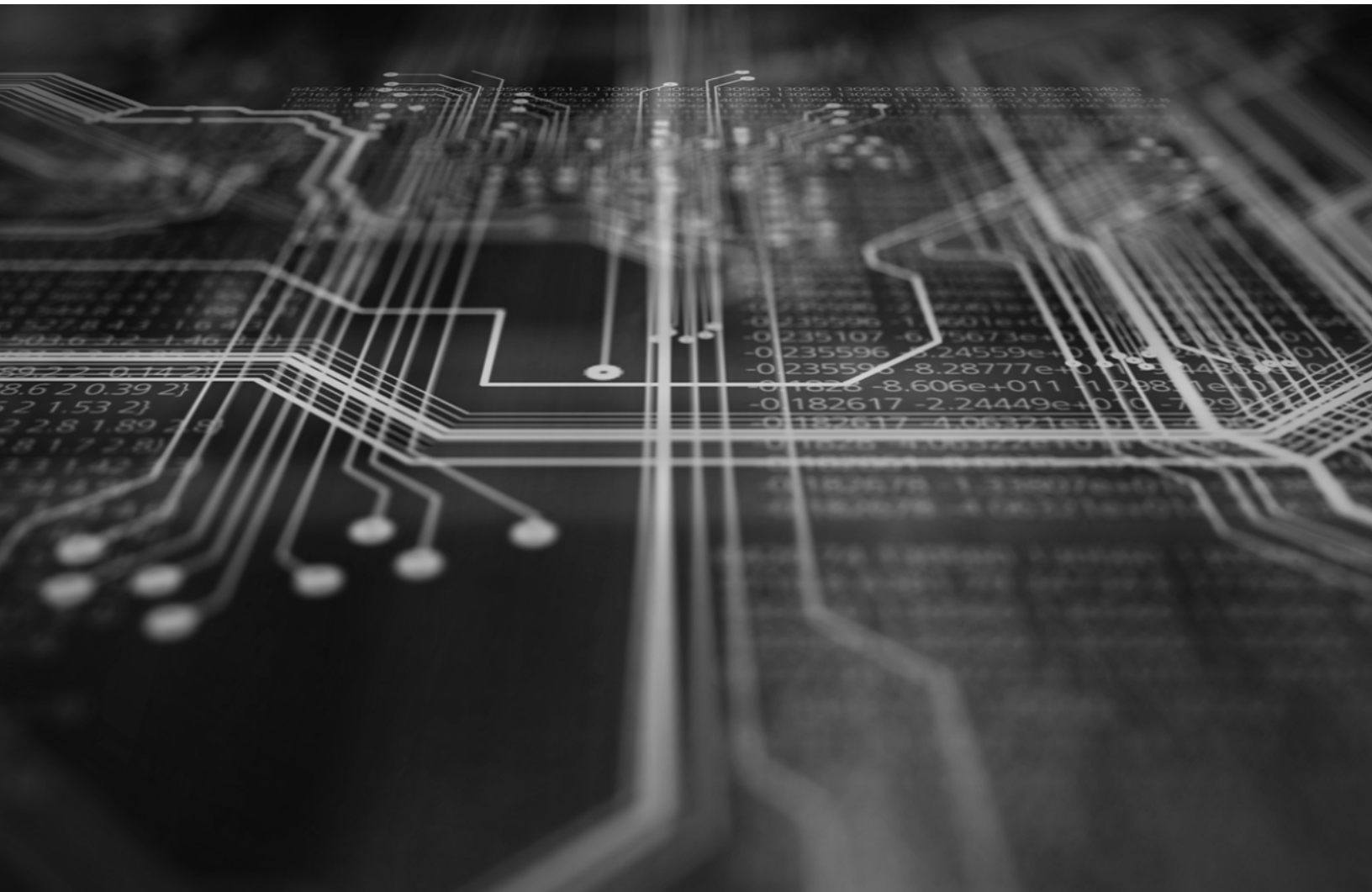
CAPCO

TRADE LIFECYCLE TRANSFORMATION

THROUGH RPA



INTRODUCTION

The pressure to keep pace with the ever changing dynamics of the financial markets has led to adoption of innovative solutions. One such solution that is seeing accelerated uptake within the industry is the move towards digital automation. Financial institutions (FIs), in particular, are mobilizing and taking steps to enhance digital customer journeys and transform risk/regulatory processes to achieve greater efficiencies while reducing costs.

Previously, investments in technology were largely made to support improvements in the front office[1] space to drive growth, while the middle and back office[2] (mid-back office) barely saw any enhancements to its labor intensive, paper shuffling processes, thus creating operational inefficiencies. This has led to increased operational risk forcing firms to re-evaluate their legacy mid-back office ecosystem and look towards disruptive low cost technologies like robotic process automation (RPA), artificial intelligence and machine learning, collectively called 'intelligent automation (IA)' for solutions.

In this whitepaper, we will explore the challenges in today's trade lifecycle process and how the implementation of IA is transforming and streamlining this industry.

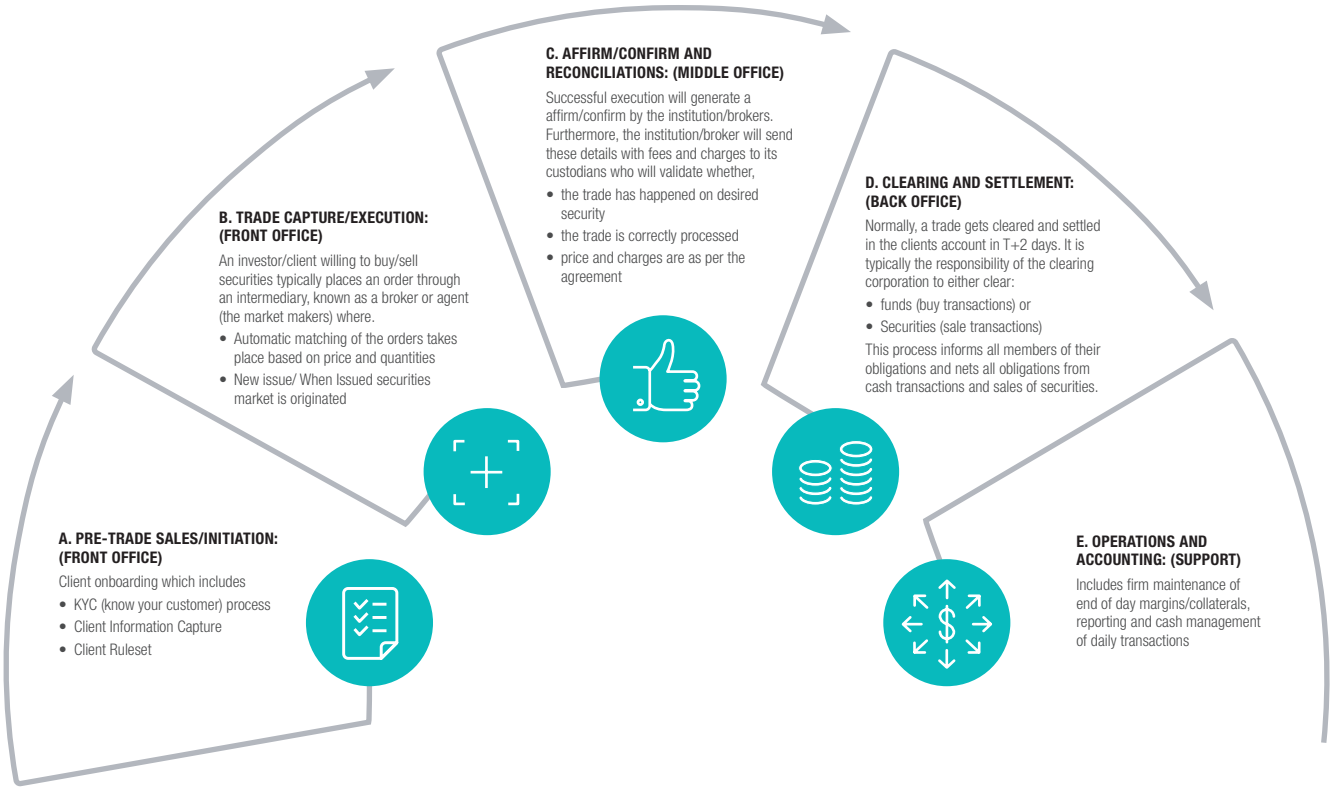
> *"Nearly 75% of financial executives are currently using or expected to use robotic process automation (RPA) within the next two years."*
>
> – Bain Finance decision making survey

CAPITAL MARKETS – TRADE LIFECYCLE

Definition: Business Dictionary defines capital markets as "a financial market that works as a conduit for demand and supply of debt and equity capital. It is not a compact unit, but a highly decentralized system that helps channel money through financial instruments (bonds, notes, shares) – collectively called securities, through a) stock markets, b) bond markets c) money markets."

History: There is so much technology integrated into modern capital markets now that it's easy to forget where we started. For example, in 1792, New York Stock Exchange trading was represented by a group of people standing around a buttonwood tree at 68 Wall Street, shouting at each other on days when it did not rain or snow, which eventually lead to the first buttonwood agreement.[3] However, it was not until the birth of modern stock exchanges and the introduction of central securities depositors(DTC)[4] that high volume trading in secondary markets became possible, resulting in a fundamental change of the global financial markets landscape. Furthermore, the introduction of high frequency and algorithmic trading has led to significant increase in trading volumes, taxing the legacy infrastructure that forms the backbone of a capital markets trade life-cycle.

A typical trade lifecycle process[5]



CHALLENGES FACED WITHIN THE INDUSTRY

Traditionally, due to the focus on top-line revenue (through mergers and acquisitions, addition of product lines, and organic growth), the industry has seen accretion of multiple and sometimes incohesive systems/platforms. This has contributed to a resulting mid-back office architecture with various siloes along asset classes, business lines, geographies and functions. We describe the key challenges of this current state below:

Technology: Legacy technology is required to maintain multiple sourcing/clearing platforms, manage breaks/exceptions, report different data types and handle electronic bookkeeping. In performing these functions, it is forced to stitch together manual and repetitive processes, thereby increasing the margin of error while decreasing the availability of staff for higher-value, cognitive tasks.

Straight through processing (STP): While equities enjoy higher automation, certain products in the current infrastructure (derivatives, structured products) lack STP capabilities. Manual work is required to enrich data, load on correct platform for allocation/matching, and send to back-office systems for clearing/settlements. This deficit creates inefficiencies and bottlenecks, resulting in suboptimal processing times and a heavy workload on mid-back office systems.

Labor: Existing inefficiencies within client lifecycle management creates a need for manual intervention at different stages. For example, a typical KYC process needs separate teams to conduct client onboarding, risk assessment, documentation, reporting and client servicing. This has led to a bloated back office workforce that is required to perform mundane, repetitive tasks, thereby increasing regulatory and compliance risk.

> *"Capco has delivered end-to-end solutions within capital markets landscape and hence understands the challenges and the difficulties in digital optimization. Capco works with you through the entire process from identifying inefficiencies through achieving strategic objectives."*

Data accuracy: Most firms lack the required data management/reporting workflows, documentation, and audit-trail capabilities. Not surprisingly, brokers/dealers have seen an explosion of risk, control and assessment processes in their mid-back office operations, primarily driven by rigorous compliance requirements. Outsourcing to low-cost locations is no longer enough, nor is it sustainable.

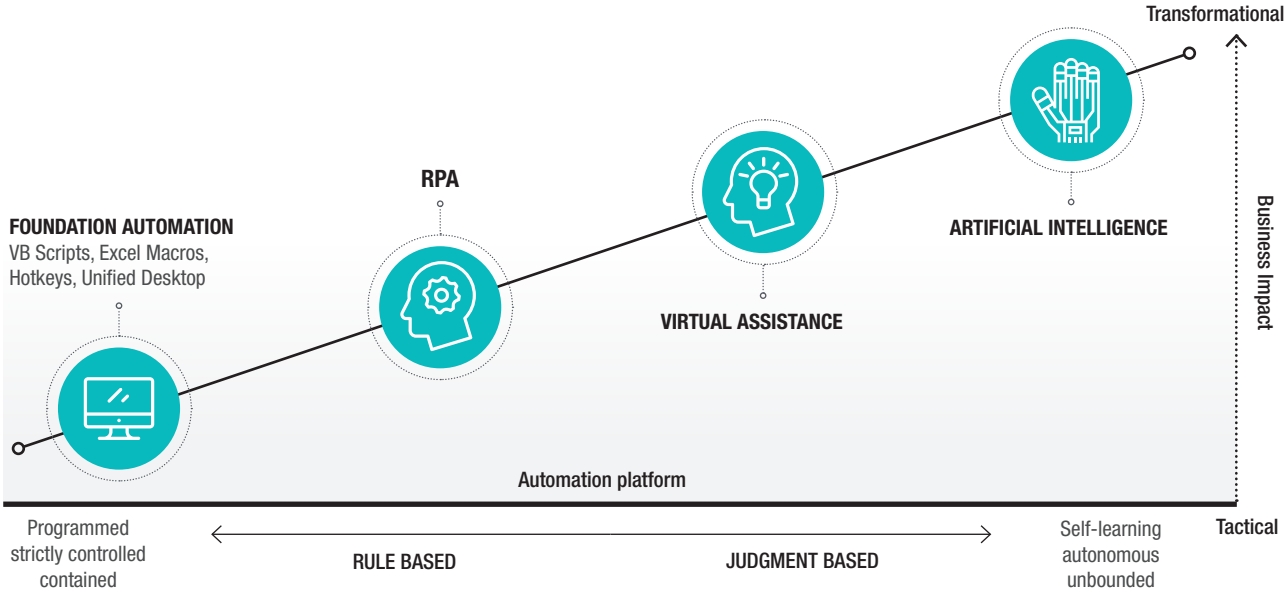
WHY AUTOMATION?

Intelligent automation (IA) promises to offer significant operational efficiencies by mimicking the behavior of end-users to find, evaluate, transform and enter data according to established rules. IA alleviates the need for investments into large scale transformational projects while helping reduce manual interventions. Although firms are exploring more advanced forms of automation such as machine learning (ML) and artificial intelligence (AI), robotic process automation (RPA) has been in use for some time now. This is especially so in horizontal functions with its scope and adoption rapidly expanding in the mid-back office space.

Robotic Process Automation(RPA): The Institute for Robotic Process Automation (IRPA) defines RPA as "the application of technology that allows employees in a company to configure computer software or a robot to capture and interpret existing applications for processing a transaction, handling data, triggering responses and communicating with other digital systems."[6] In many ways RPA is a data-enabled, machine centric mechanism for aligning processes and technology. It is a component of intelligent automation geared towards 'do' versus 'think.' It achieves this through:

- **Task bots** – Complete simple repetitive process involving structured data
- **Meta bots** – Integrate between systems using API for bi-directional processing
- **IQ bots** – Analyze and make decisions based on a vast amount of data.

RPA – part of a journey towards machines replacing humans



RPA promises to be a game-changer: RPA offers firms an incremental, modular approach to technology transformation. Traditionally, financial institutions rely on large-scale technology-transformation projects, which are costly, time-consuming, and cannot adapt to rapidly changing regulatory requirements. However, RPA provides a new solution designed to have minimal impact on existing IT infrastructure while enhancing the client experience. RPA software works to implement modular change, such that it does not create integration dependencies for its functioning. As such, RPA is less costly than traditional technology-transformation, can be implemented more quickly (typically deployed within six weeks), and provides a sustainable avenue for a continued response to upcoming regulations.

KEYS TO SUCCESSFUL RPA ROADMAP

Bill Gates once stated: "The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency."[7] To ensure RPA is a success within the organization, financial institutions must create a comprehensive roadmap that models RPA as a strategic platform driving tactical change through 4 key stages: Plan initiative, run pilot programs, implement robotic operating model (ROM), scale to steady-state

1. Plan Initiative:

A comprehensive plan should first be established that lays the foundation for the initiative based on well-defined business objectives. This ensures that the goals of the roadmap are aligned with the firm's overall strategy. This plan should include

- Vision for enterprise automation
- Definition of RPA governance
- Strategy for building support within key stakeholders
- Firm-wide implementation approach

2. Run Pilot Programs:

Once a plan is established, the initiative should move to the pilot stage. This will allow the firm to demonstrate RPA value to stakeholders, identify pitfalls and gaps within the plan and recalibrate expectations and timelines. It is necessary within this stage that firms:

- test on a scale that requires minimal investment
- collaborate with a trusted vendor that has prior experience and can understand the firm's needs, walk them through the tool selection, execution process and cost of ownership audit success/failures to decide if business goals are being achieved in accordance to plan expectations and identify areas of improvement

3. Establish and test enterprise-wide ROM:

This is a critical step in the process of establishing maturity, standardizing methodologies and building a solid foundation for scaling up. The ROM should, at the minimum include :[8]

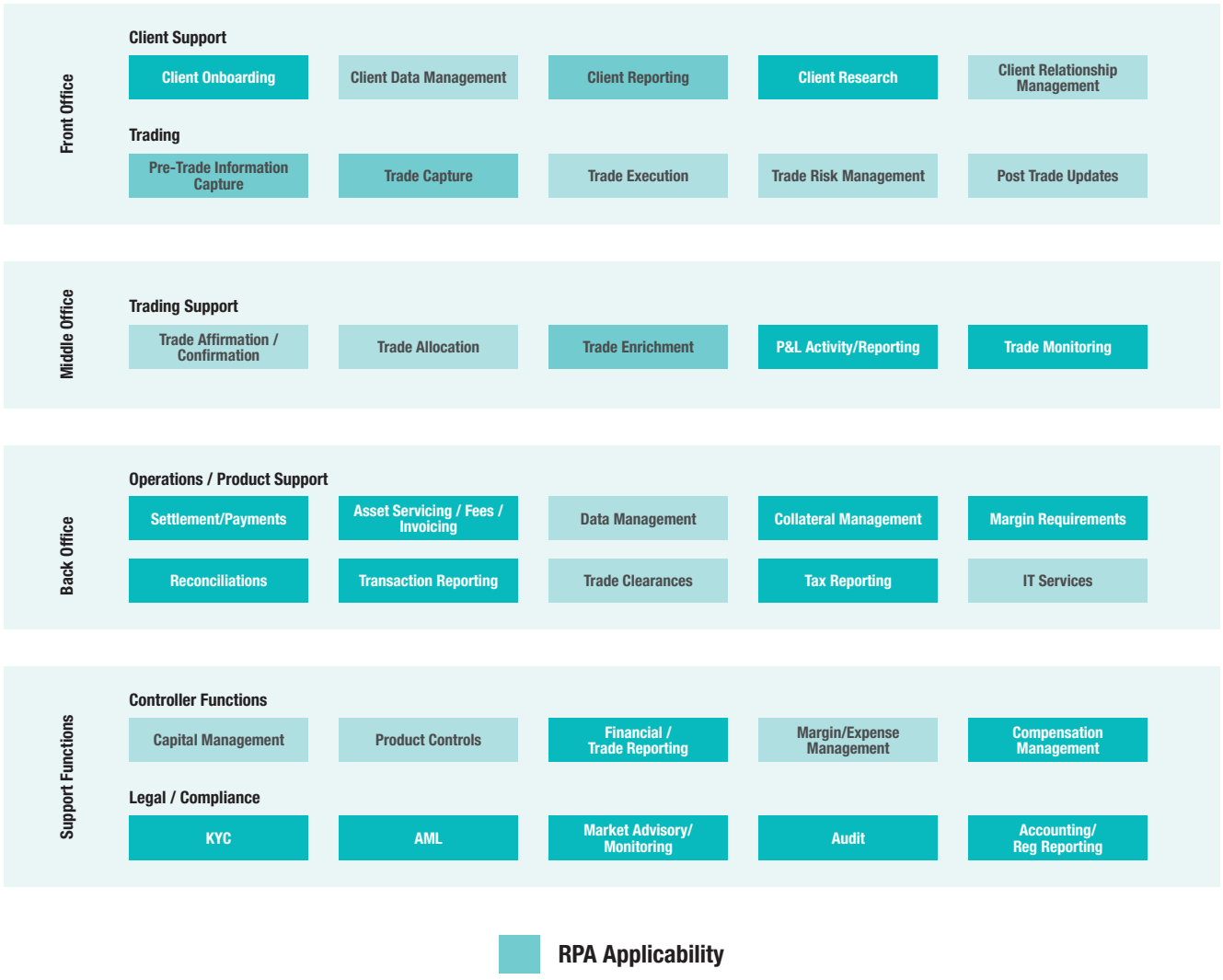
- A framework that is in alignment with expected business benefits
- An established Center of Excellence (CoE) that defines an organizational structure to best support RPA delivery, including roles and responsibilities
- A governance pipeline to optimize process selection
- An engagement delivery model for rapid and efficient development in a structured, controlled, and reproducible format
- A technical architecture that can support scalability
- A training program ensuring upskill across key RPA competencies

4. Scale to steady-state:

Retaining the ability to evolve organically should be the goal at this stage. Fostering alignment between business and technology teams through an established CoE will avoid stagnation. Supporting operational teams with tools needed to manage a mixed workforce of humans and bots and involving HR to retroactively redeploy the workforce to alleviate the anxiety that comes with this change.

Roy Amara, past president of the Institute for the Future, once said that "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run."[9] Like many other roadmaps before, setting the right expectations in terms of what it should achieve is critical to success. However, firms also need to acknowledge that the roadmap is no fixed silver bullet but a strong foundation that should be flexible enough to evolve and mature over time.

Trade Life-Cycle Activities



USE CASES WITHIN TRADE LIFECYCLE SPACE

Most large financial institutions have completed some form of RPA pilots within the mid-back office space, leveraging multiple vendors to establish tool of choice and short-listed proof of concepts (POCs) based on extensive due diligence exercises and use of RPA ROI metrics.

We demonstrate a few use cases within the capital markets landscape that has already added value for financial institutions

USE CASE 1: Client KYC Onboarding

About the Process

Client onboarding (including KYC/AML) is a highly iterative & manual process that requires multiple customer-facing touchpoints and rigid documentation/regulatory requirements. The current state client's process required a team of 12-plus resources globally to support new client requests and yearly refresh process (dependent on risk rating). Although the client developed an internal workflow application to manage onboarding globally, there were still highly manual tasks required to fulfill new onboarding requests and refresh requirements.

Challenges

The overall scope of a potential client's onboarding is dependent on numerous factors including, formation, risk rating, business purpose, location, etc. The internal client onboarding (COB) team engages the client in an iterative process (usually via email) to collect the required information and procure the required documentation and details to complete the onboarding workflow. Once the documentation is provided from the client, the COB team needs to perform the following manually:

- Track all documentation received from client and review for accuracy,
- 'Lift' required information for input from the documentation into the Client Onboarding platform
- Reengage client if the information is missing or inconsistent
- Translate foreign language documentation before upload into internal repository
- Scan information against negative news databases

Advantages

The to-be process design uses bots and OCR capabilities to automate the on-boarding process including; workflow initiation, retrieval and auto-classification of client data, scanning client information for translation and negative news checks as per business rules and providing an audit trail dashboard to end-users. The new process is helps achieve the following:

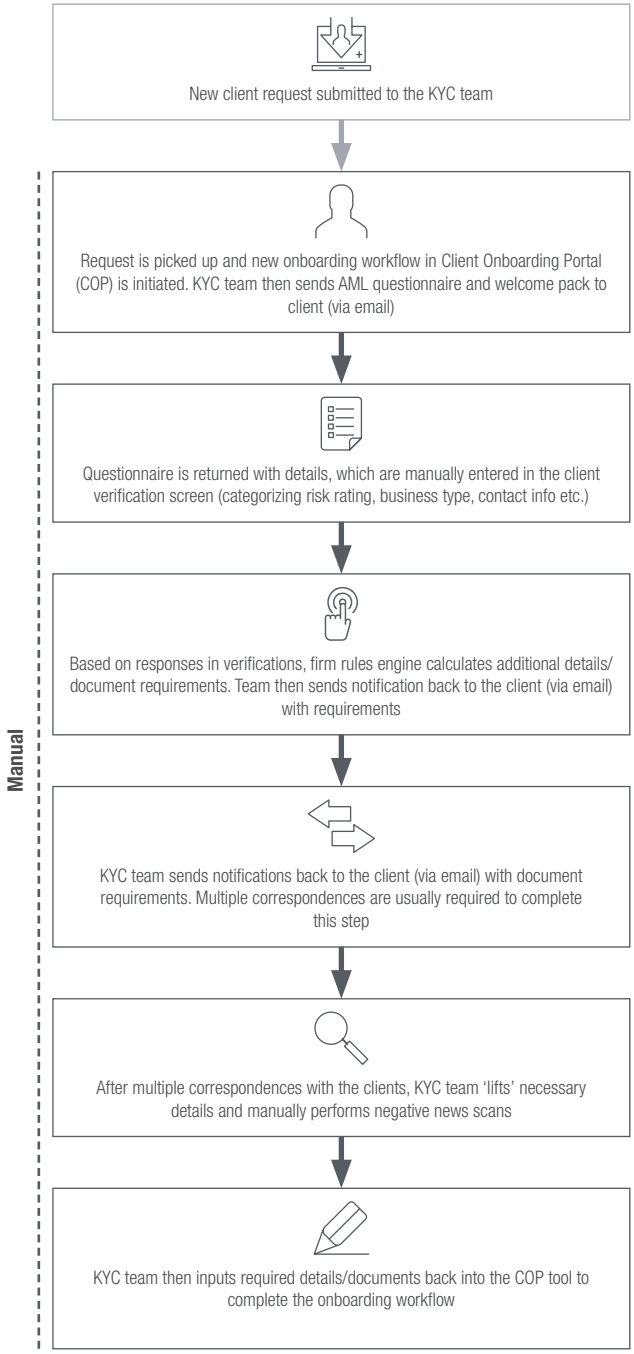
Cost Savings
Estimated 30% reduction in headcount globally with improved accuracy resulting in increased customer satisfaction

Quality Assurance
Better adaptability to future regulatory changes and expansion of client base KYC requirements.

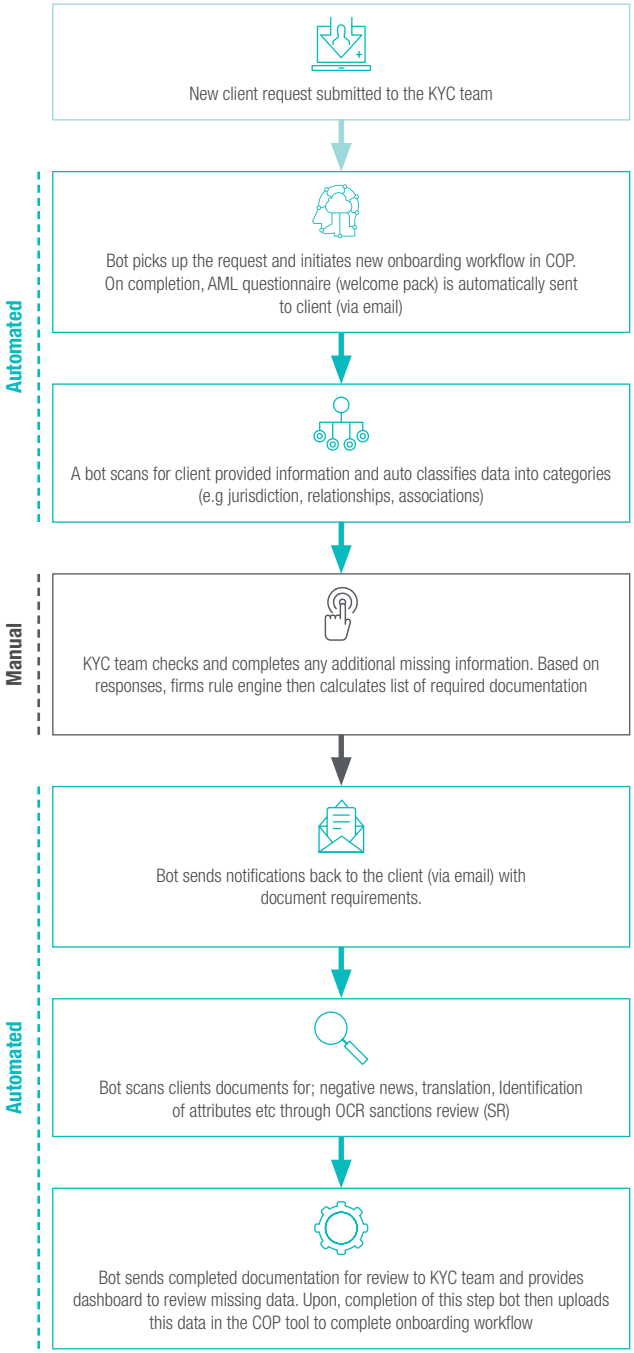
Cost Avoidance
Potential legal fees associated to incorrect interpretation or manual review of client documents and foreign fees to translate foreign language documents.

Minimum cost of Scale
Existing tool can be leveraged across other divisions within the firm with minimum additional cost to scale.

As-is-Design



To-be-Design (with automation)



USE CASE 2: Finance and Operational Reporting

About the Process

As part of the post-trade lifecycle process, daily report generation is required to support the controller, compliance, capital management, regulatory and audit functions within operation and finance. This is a mostly manual process, utilizing humans to perform repetitive tasks of capturing data from multiple customer and internal source systems. One such example can be found within Securities Finance where daily reports are generated to provide an overview of the client's firm-wide inventory, generate push lists for banks, brokers/desks and counterparties

Challenges

These reports are manually generated, utilizing a host of internal (Bloomberg, Reuters) and external (OCC stock loan, Smart Loan, etc.) source systems/applications. Moreover, they are required to be generated multiple times a day. This often creates a dependency on resource availability and subjects the process of data manipulation errors, consequently leading to inconsistencies in frequency and timing of reports.

Advantages

To to-be process design uses bots to automate the end-to-end reporting process, extracting relevant data from underlying source systems, manipulating, and enriching as per business rules and publishing to the relevant end-users. This new process is helping to achieve the following:

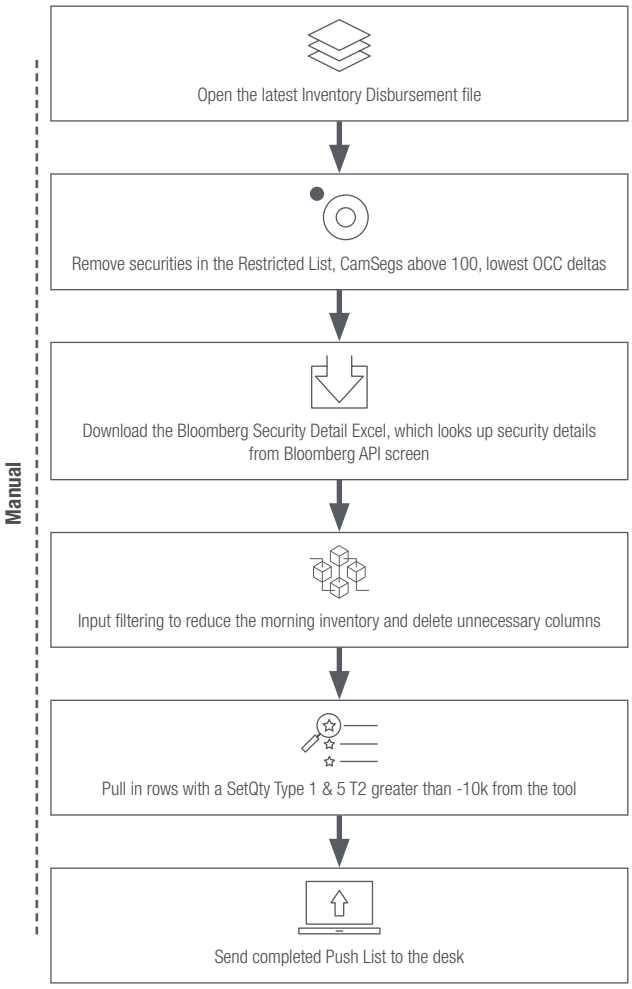
Speed & Time Savings
Automated processes are run on a separate server with no interruption to the team's machines, which means that tasks can be performed in parallel (e.g. automated report generation and manual high-touch tasks)

Compliance & Controls
Audit logging capabilities to ensure transparency of all bot processes. Additionally, bots are onboarded and credentialized, enabling segregation of duties.

Time-to-Market
RPA time-to-market is shorter than the standard ETL automation: it took 1-2 weeks to automate the Sec Fin reports, while ETL automation can take up to 8-12 weeks

Capacity
Capacity is increased across the team to perform more strategic, higher-touch tasks with the elimination of report compilation responsibilities

As-is-Design



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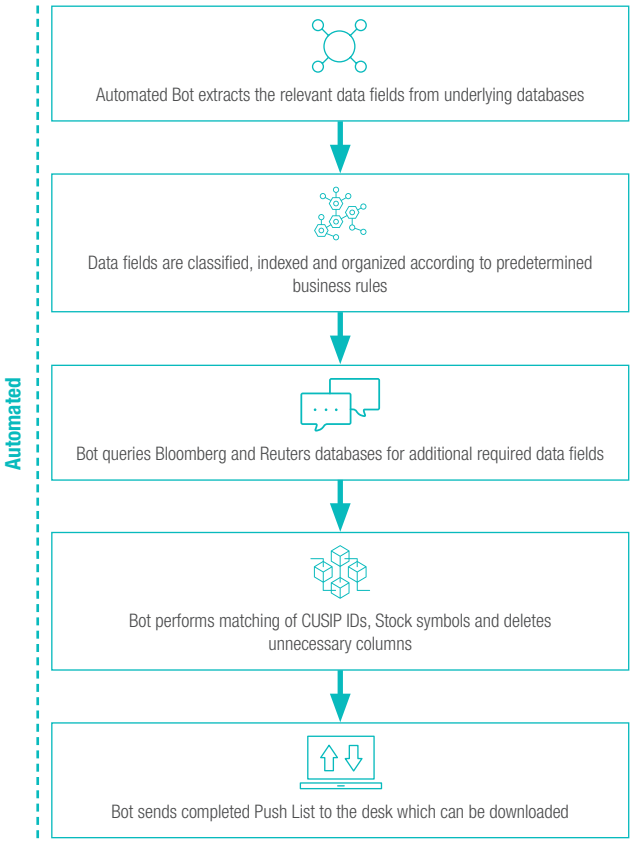

CONCLUSION

The trade lifecycle process within capital markets is at the period of transition, where legacy systems can no longer sustain the complexity of today's financial markets without major investments. Intelligent automation, especially in the post-COVID-19 work environment, has been helping financial institutions in effectively transforming capital markets through an incremental, modular approach without the massive infrastructure costs that typically come with large technology projects. They are already demonstrating instant ROI benefits within pilot use cases for early adopters within the industry, thus helping firms meet the gap between increasing workload and reduced funding.

Capco's Digital Workforce practice, an offering within its Digital domain, is already partnering with clients within the industry to provide innovative automation solutions that helps drive efficiencies and improved service delivery. Digital workforce works with its clients to:

- Conceptualize long and short-term business goals to establish a strategic automation roadmap
- Stand up CoE that helps define organizational structure to best support automation delivery
- Demonstrate proofs of concept and prototypes to validate capabilities within the client environment
- Help scale the ROM framework through the client enterprise network to achieve maximum benefits

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AUTHOR

Imran Parekh, Senior Consultant

CONTACT

Rob Lederer, Head of Digital Workforce at Capco
Jon Herna, US Lead, Digital Workforce at Capco

ABOUT CAPCO

Capco is a global technology and management consultancy dedicated to the financial services industry. Our professionals combine innovative thinking with unrivalled industry knowledge to offer our clients consulting expertise, complex technology and package integration, transformation delivery, and managed services, to move their organizations forward.

Through our collaborative and efficient approach, we help our clients successfully innovate, increase revenue, manage risk and regulatory change, reduce costs, and enhance controls. We specialize primarily in banking, capital markets, wealth and asset management and insurance. We also have an energy consulting practice in the US. We serve our clients from offices in leading financial centers across the Americas, Europe, and Asia Pacific.

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