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Chapter 3: Reimagining financial back-end operations with intelligent automation and robotic process optimization

3.1. Introduction

Intelligent automation to reimagine back-end financial operations across sectors and institutions is still novel and unfolding, while generative AI is stirring conversation and excitement around automation possibilities across the workforce. Because of its critical role in any enterprise, FBO—recording and reporting all economic transfers—has limitations for adoption of new AI technology, notwithstanding its transformative potential. Proponents of financial re-imagination argue first that greater adoption of intelligent automation will improve accuracy and timeliness of back-end financial processes and let financial operators focus on more value-add activities, and second, that accelerating current initiatives around FBO will result in a shortcut to the promise of new generative technology and help bury the legacy that limits that promise (Hevner & Chatterjee, 2010; Gupta, 2020; Iman, 2020).

The FBO is an indispensable foundation and mirror of enterprise real economic activity. Ex post reporting facilitates analysis, cognition, and sensemaking. Corporate accounting lubricates market function by providing transparency into the distribution of enterprise economic risk and return, forming a basis for enterprise market value and enabling market participants to assess asset allocation and enterprise performance. Corporate financial statements act as a scorecard for enterprise and economy performance, and regulation of their preparation, including setting of accounting standards and independent auditing, signal the critical importance of accurate and timely back-office accounting and reporting (Jagtiani & Lemieux, 2019; Kaplan & Haenlein, 2019).

3.1.1. Background and Significance

The finance function has seen many innovations over the past two decades, from accounting hosting structures to cloud-based integrated global enterprise resource planning systems with workflows controlled by business process management and intelligent business process management services; design thinking has also entered the finance function. Multilevel analytics have become commonplace to illuminate the dimly-lit back corridors of financial transactions, key performance indicators, or economic variables. Yet, current estimates suggest that the efficiency of the finance back end remains lower than desired, with as much as 70-80 percent of the activity still drowning in misalignments and redundancies. 70 percent of back-office tasks are still repetitive and rules-based in a function that has long shifted from mere scorekeeping to a high-value design and execution role. Intelligent automation has surfaced as a candidate disruptive solution, yet awareness of how to deploy is very low among senior management, despite enormous potential.

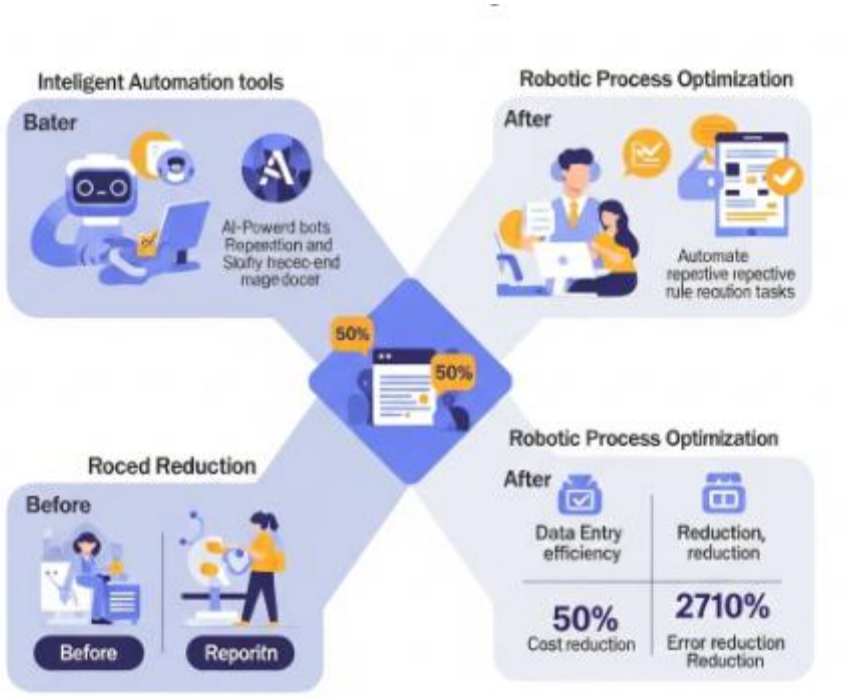

Fig 3.1 : Reimagining Financial Back-End Operations with Intelligent Automation and Robotic Process Optimization.

Intelligent automation varies from the simple automation of a particular task using business rules and robotic process automation to intelligent orchestration of task combinations within a complex process using advanced business rules to cognitive automation of process and sub-process designs using advanced artificial intelligence

incorporated in intelligent business process management software. Seeking to illuminate multiple pathways for applying intelligent automation in the finance function of large organizations, we turn first to seed-planted findings – dependent on characteristics of the function, organization, and environment – and methods of inquiry grounded in service sciences grounded in behavioral and standard operations management. We look at transactions, products, and services and how to characterize tasks and flows; link particular automation techniques to task types; introduce the Role Tree Model of multiple actors engaged in creating and using information to gain insight into complex, knowledge intensive, product-service systems; and present and validate a multilevel process framework for exploring the entire dance floor of finance with special focus on complex work involving a small share of financial transactions or entities.

3.2. The Evolution of Financial Operations

In this chapter we first provide a succinct overview of the evolution of financial operations over the last several decades, focusing in particular on the impact of technology. Then, utilizing benchmarking data, we provide an outline of the changes now underway in financial operations. Our conclusion from both is not dissimilar from that of others: the traditional back-office transaction-processing functions are set to undergo a profound transformation as they evolve from a cost-center punching paper into a value generator supporting the core enterprise.

The observation of the evolution of financial operations is based upon a combination of first-hand experience and research material. On the one hand, the study of financial processes, driven by Total Quality Management principles, has been taking place inside the organization for more than 20 years, and the firm has published extensively on the topic. Those published papers describe a holistic framework for process mapping and redesign, based on Lean Manufacturing methods and extending them to Branch, Laboratory and Office environments. In particular, the firm has been a pioneer in the area of financial operations, having developed and refined specific mapping tools and metrics for the area and published case studies documenting successful efforts undertaken by client companies. In parallel, the firm has also been conducting research into key performance metrics in Financial Operations. The focus of this study is to outline the historical context of discovery resulting from this work.

3.2.1. Research Design

The research design is exploratory in nature, as both robotics and artificial intelligence capabilities are new entrants in the automation world; therefore, a qualitative method is used to better address underlying questions regarding how and why companies decide to

use these tools, and why they see different efficiencies compared to traditional automation. The interpretive nature of the qualitative method will help describe the research domain in detail and provide new and richer insights. Qualitative research through interviews has been successfully used for similar purposes and for similar areas. Semi-structured interviews have also been successful in the current field of study, producing reliable and valid data, and allowing several follow-up questions to reach a more detailed description of the topic investigated. Thus, semi-structured interviews were conducted with 27 companies to investigate their current situation as well as for future insights related to their use and considerations about robotics and artificial intelligence. These companies were selected based on the fact that they already have implemented robotic process automation and chosen industries that use these technologies more intensively. The industries that are invested more intensively in these processes are engineering and construction, financial services, manufacturing, insurance, oil and gas, telecommunications, and healthcare and pharmaceuticals.

The current implementation varies from 10 to 20000 process bots in these organizations. The interviews were conducted online or by telephone during 2021 and 2022. The average duration of the interviews was around 41.4 minutes. Each interview was recorded, and field notes about non-verbal cues were generated. This study focuses on the initial stage of implementing robots based on their usage reasons. However, we also present insights related to future developments and AI-driven dialog robots. All interviews were conducted in English, which is the primary language for business by these companies and interviewees.

3.3. Understanding Intelligent Automation

Intelligent automation (IA) is defined as the combination of robotic process automation, cognitive technologies, and artificial intelligence tools that is integrated into enterprise digital transformation programs. Intelligent automation enables organizations to drive the digital transformation of their transactions and processes at scale, working across organizational silos—such as procurement, finance, customer service, as well as in specific business ecosystems or supply chains—to deliver improved stakeholder experiences, lowered costs, and reduced timeframes for both transactions and business insights.

Intelligent automation includes software applications that process data to deliver transaction services with minimal or no human intervention, and which can learn and adapt to perform more complex tasks over time. Robotic process automation (RPA) software bots perform structured tasks in an automatic manner within predefined and unchanging rules. Machine learning, deep learning, and natural language processing

algorithms make intelligent automation systems learn from patterns and insights delivered by processing big data to become more expert and intuitive over time.

Intelligent automation:

1. Delivers significant cost savings through greater processing efficiencies and reduced employee on-boarding and training times.

2. Develops better stakeholder experiences through enhanced transaction times, greater accuracy, and reduced levels of transaction errors compared to human decision making and processing.

3. Provides better quality of information for decision making through improved analytics and reporting dashboards that analyze trends across extended timelines, integrating and processing data from across multiple disparate systems, to support data-driven risk management decisions across various business processes.

4. Drives faster development of more accurate forecasting and predictive models used for revenue management, and risk management decisions such as in loan approvals in financial services, and in supply chain planning in manufacturing and other sectors.

5. Enables predictive alerts to keep management aware of potential problems before they emerge, such as in service delivery tickets with overly extended turnaround times to warn of potential customer service problems.

3.3.1. Definition and Key Concepts

Just as the name suggests, Intelligent Automation is the use of technology to automate processes. However, don't let the simplicity of this definition fool you. Intelligent Automation is about taking automation the next step, using interconnection of advanced technologies to give the intelligent business outcome. Intelligent Automation is the way of the future, giving organizations the ability to leverage technology to automate processes and drive business outcomes. Through increased speed and scale, organizations are able to use Intelligent Automation to reduce execution times, reduce labor costs, improve accuracy, and increase compliance. Intelligent Automation can drive higher quality results, provide enhanced customer experiences, and support continuous growth. While many focus on Robotic Process Automation as the key element of Artificial Intelligence and automation, IA is much. Overall, IA encompasses a number of different technologies including AI, RPA, Machine Learning, Business Process Management, Process Mining, and Natural Language Processing combined with orchestration to achieve an Intelligent Automation result.

Intelligent Automation is the use of technology to automate processes and deliver business outcomes, but it is much more than robotic process automation. Intelligent Automation encompasses the integration of the various technologies that touch the automation landscape including RPA, Business Process Management, Process Discovery, Machine Learning, and Artificial Intelligence. Orchestrating the interaction of these different technologies with the specific goal of delivering a measurable business outcome – focus on business outcome – is where organizations find true success with their Intelligent Automation programs. By understanding the Intelligent Automation technologies and stack in context of each other, organizations are able to optimize their use and capability. While there is no single intelligent automation "stack," there are a set of common capabilities that most Intelligent Automation programs will deliver on.

3.3.2. Benefits of Intelligent Automation

Automation is not a new phenomenon. It is one of the primary drivers of the process-optimization playbook that has been around for years. RPA is a specific category of tools within the automation domain that promise to make it much easier and cheaper to build automation solutions and has been around since the early 2000s. It is described as the next-generation automation tools that enable fast automation of a specific set of rules-based and rules-driven business processes. RPA is much easier to implement.

RPA is easy. Pre-2016, RPA was before. There was lots of heavy lifting and required business-users to be fairly proficient with IT tools and very versed into the business processes. Since then, RPA has made great strides in making it more accessible. But doing RPA isn't yet easy. You still need to have coders involved. You still need to put together a cadre of robots and really trust them to do the work and maintain them along the way. Certainly, while there are different flavors of RPA tools that emphasize business-user access or IT software-development rigor and depth, reducing the barrier to entry for automation solution building is an important theme, indeed.

Automation, thus, while facilitating efficiency, accelerates speed along the path to a transformed support operating model, having developed into a proven way to simplify that approach. A number of benefits can be expected from intelligent automation. Through deploying robotic systems into the work environment, business executives can expect cost reductions of at least 20-50 percent for repetitive, transaction-intensive tasks. 1-10 percent of company revenues are spent on these tasks. These are on account of, typically, a combination of excessive labor usage and error correction, and hidden costs related to low quality of service and cycle times.

3.4. Robotic Process Automation (RPA) in Finance

Robotic Process Automation (RPA) has been adopted in many financial operations over the past ten years. Most of the proprietary RPA tools involve robots running in a virtual environment interacting with applications over the graphical user interface, mimicking the action of users. Little new development or customization is required. RPA is seen as a quick, low-cost way to achieve automation and is typically 25 to 50 percent lower in cost than systems development in its fundamental way of deploying automation. RPA does not include "intelligent" functionality — exceptions in RPA processes are typically routed to humans. RPA is not a technology replacement for enterprise system workflows or Business Process Management technologies but complements those tools.

To date, RPA has been used predominantly in back-office operations among a reasonably small number of use cases and where the potential for FTE reduction is reasonable to expect. The business case for these deployments is appealing. The areas of core accounting, treasury management, procurement, accounts payable, financial reporting, order-to-cash, or tax processing/external audit support are typical candidates for RPA deployment. Major transactions in these areas including purchase authorization, vendor selection and assessment, order management, product and service delivery, collection issues, travel and expense management, accounting and journal entry validation and management, preparation and review of financial and performance statements, inter-company settlement, agreements with third parties, and direct and indirect tax preparation and review are often reasons for the implementation of RPA.

3.4.1. Overview of RPA

In recent years, entering the new era of "smart automation", a compelling new generation of software assistants, known as robotic process automation (RPA), has emerged in the automation space. Leading automation experts have turned their attention to this new tool. Generally speaking, RPA deploys robot software to manipulate existing and descriptive applications in the front and back office in the same ways human users do to automate relatively simple, transactional processes that previously depended on completing repetitive tasks across multiple, complex business applications.

At its core, RPA mimics how people interact with software in any desktop, web-based, or enterprise application. RPA tools allow organizations to create digital workers that can be used as "cyber-conductors" to carry information between systems, execute simple rules-based functions, and even interact with customers or employees making inquiries through email, chat or other channels. RPA can be "heterogeneous" or "homogeneous". RPA can also function in both unplanned mode or planned mode. While mostly a desktop or server-based tool at present, "cloud RPA" is coming.

Fig 3.2 : Overview of RPA.

3.4.2. Use Cases in Financial Operations

Banks and financial services organizations process transactions in thousands to millions each day, and typically about 70% of the transaction volume is handled in a straight-through manner, otherwise known as fully automated. These organizations are constantly searching for processes that have transactional volume that can be mechanized and allow for services to be provided without manual input. They do this because there still is a relatively large percentage of cost or spend of sales associated with the cost of processing financial transactions. Financial process transactions are primarily focused on the movement of assets and liabilities both within the functional boundaries of the financial company and across the company's interfaces to external users or agencies.

The function spends little of its money on the capital items required to perform the inputs of basic traditional financial functions. It spends much of its money in the form of services needed to perform the operational execution of financial performance processes. RPA is assisting with both management of small transactional elements by supporting modularization of activities that comprise what is considered a major process and allow for uploading/downloading of assets, liabilities, or cash flows between the company and its partners or users. The following are use cases of RPA in financial operations that fit

within the framework identified above. Transaction verification, auditing, reports generation, tax arrangement execution, transaction event notification, balance reconciliation, transaction feed auditing, statements auditing, transactions potential fraud detection, transactions money laundering regulation compliance, onboarding KYC compliance document-checking verification, and account closing notification, to name a few.

3.5. Integrating Intelligent Automation with Existing Systems

The financial back office already has a rich set of mission-critical facing systems tracking, controlling, and automating various functions such as procurement, supply chain, accounts payable and receivable, equity, and treasury. Automating and intelligentizing some of these functions can be done without modifying or building more wrappers around the existing systems. In some implementations, a case-handling capability has been directly integrated with the core ERP. At the same time, intelligent process optimization is on the rise as a mandate to rationalize and reduce the number of systems that organizations maintain, replacing several wrinkle solver systems with a single solution or orchestrating many different plug-and-play point solutions to meet different business needs.

While few organizations are in a position to abandon existing mission systems, there is no question that these systems must become more flexible in order to meet business demand. However, these systems have been built over many years and represent significant capital investments. Moving an organization to a recognition where many transactions, especially front-office-facing transactions with so-called interactive customer service staff, become the province of seamless intelligent automation would be an enormously disruptive task. The trick will be doing this while continuing to deliver the informative and management reporting roles that these systems fulfill with no loss of credibility to the business.

Many organizations have been hurt by the poor or non-integration between intelligent automation and the core business management systems. Staff members who are responsible for managing these business systems often have poor impressions when it comes to intelligent automation. Intelligence automation must be either uncoupled in some way, or made to look like a solution to the staff users of the leader business back office systems. Organizations with little internal intellectual property related to machine learning, decision support systems, software process automation, and other components of intelligent automation, will need to rely on partner organizations to develop custom solutions for their specific needs. This is not a technical challenge. Rather, it requires the generation and maintenance of strategic relationships to address and solve specific business requirements. For this reason, intelligent financial back office operations would

like to put itinerant stores of permission-based consulting services that make any real difference, to paint logistical processes with business function fingerprints to help catalyze and facilitate these projects.

3.5.1. Challenges and Solutions

Intelligent automation and robotic process optimization projects are seldom implemented in a vacuum. More often than not, they form part of a larger organizational landscape with an array of existing platforms in various domains that have been built at different points in time, and are updated at varying frequencies, either internally or externally. These platforms include Enterprise Resource Planning systems, Data Warehousing and Business Intelligence systems, Corporate Performance Management applications, Treasury Management and Operational Banking systems, Project Management platforms, and internal policy configuration databases, among others. Traditionally, back-end financial operations are data and workflow intensive; absorbing transactional input from multiple channels, processing transactions in the hub of existing systems, cross-system communicating for data validation, verification, approval, payment processing, and regulatory compliance, and finally developing managerial insights for reporting and decision making. Such systems and processes are enablers of effective functioning of core finance functions – accounting and reporting, FP&A, tax, treasury, and compliance.

Most of these existing systems provide data either for input processing, or for reference and validation, or for approval and regulatory compliance check, or for managerial reporting. However, the present mechanisms for interfacing with these systems are fraught with issues of fragmentation, inaccessibility, and unreliability – leading to governance, risk, and compliance issues and somewhat impaired quality of decision making – both at an operational and a strategic level. Hence, a finance function's ability to effectively implement intelligent automation and robotic process optimization for mid- and back-office operations would depend on whether the solutions built across these domains are integrated seamlessly, securely, and reliably.

3.5.2. Best Practices for Integration

When implementing automation, integration also needs to be defined and set up early in the program so that the protocol and methodologies can become reusable across all automations. While not all automation requires integration with enterprise systems, even desktop automations are more effective when proper data protocols are established as part of each development effort. Your tool selection will shape how the “integration” acts. In the end, this integration can either impact feasibility and cost to the organization

or be an incredibly easy way to enhance the automations and therefore organize benefits. Any automation that interacts with information kept in enterprise-level systems should be integrated using the appropriate method. This ensures that all relevant security and data integrity features are leveraged, allowing for type-safe code with error-handling and failover mechanisms. It reduces support and maintenance costs by offloading risk from the automations and provides higher availability through business service monitoring.

Robust integration methods shield automation creators from constantly having to worry about coding low-level integration features. Instead, the integration should be treated like any hardware or software module, with clear APIs and deployment packages designed for ease of use and ease of debugging. This is accomplished by working with integration tool vendors to understand, and in some cases participate in, the building of centralized connectors that can be leveraged by automation development groups. Lastly, the automation actors should be built as self-documenting components to provide an easy understanding of how the integration can be used, what errors to expect when interfaces are used incorrectly as well as provide detailed error messages with explanations when usage errors occur.

3.6. Impact on Financial Reporting

The traditional model of financial reporting has restricted finance functions to present past performance information. However, in today's real-time dynamic environment, this limitation is no longer valid, as finance has a unique lever for real-time adjustments. Technology is continuously reducing the time required to produce financial information. Pervasive technology is also changing the nature of finance information, moving to a more trusted environment in which external partners can view the same information as internal stakeholders. In this context, the primary purpose of classic financial statements is to repackage the same accounting data that was probably distilled at an earlier point in the month or quarter. The historical information in the traditional financial statements has become less relevant during the task of analyzing the important activities of the day, week, or month, which allow for a quick decision. On the other hand, almost all companies escalate in complexity their investor communication.

With closer integration of internal and external reporting, the pace for completing legal compliance will be accelerated to the point where documented assurance can also be obtained on the internal reporting decks that are presented to company board meetings. Furthermore, whether FRS or IFRS, the underlying data system that completes statutory accounts should have to be capable of applying those rules automatically for banks and insurers. In the digital future, legal compliance could involve all material activities being subjected to some kind of supervision, irrespective of complexity. The lifecycle of core

business transactions would be monitored in real time, alleviating haste, omission, or error for historical monthly and quarterly financial reports.

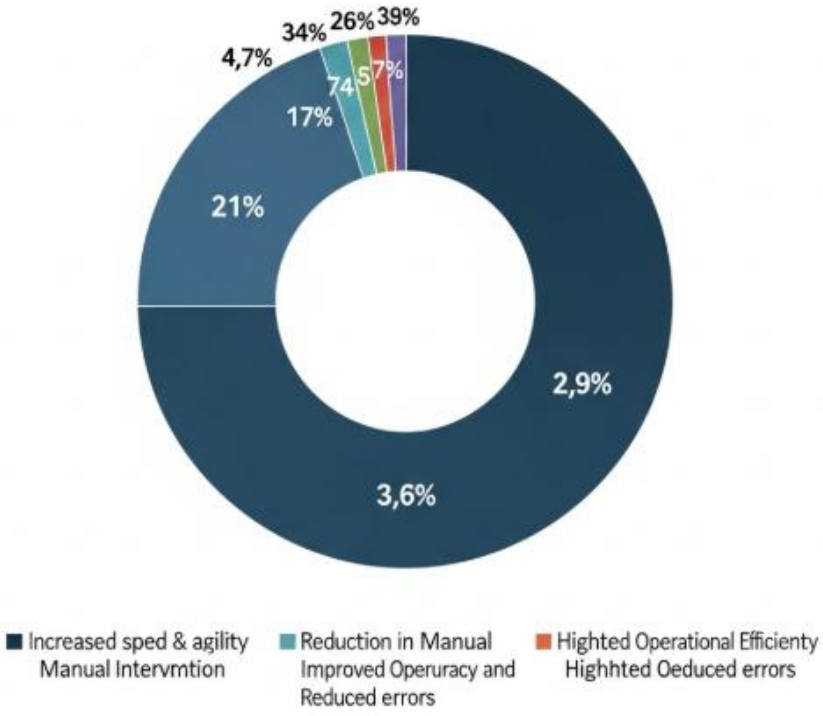

Fig : Reimagining Financial Back-End Operations with Intelligent Automation and Robotic Process Optimization.

3.6.1. Real-Time Data Processing

Historically the data flow and format used for financial reporting have not changed much. Data is first input into transactional systems, then downloaded into an enterprise resource planning solution and updated periodically, and finally downloaded into a reporting tool. Thanks to the advent of cloud technology, it is now possible to align processes and systems in near real time, allowing for 365-days-a-year continuous performance monitoring. This ability can also improve operational efficiency, as there is no longer a need to close monthly results.

The shift in financial operations caused by intelligent technology provides a great opportunity for finance organizations. Traditionally, the finance function has followed the data: Back-office functions such as accounting or internal audit have focused on where the data is stored, its nature, and how and when it is processed, ensuring purchase order alignment and that accruals for revenues and expenses exist for material

transactions. Intelligent financial technology flips this dynamic, emphasizing how and why data should be processed to reflect business activities in real time. Predictive analytics and advanced monitoring capabilities process heaps of unstructured transactional data and detect emerging risks such as significant delays in receiving goods that have been ordered before the invoice request. Intelligent technology allows the finance function to shift the conversation with business operations toward understanding outliers, enhancing business performance, and increasing profitability. The balance sheet and the income statement cease to be the finance function's primary concern simply because they have become increasingly irrelevant. What matters are the so-called third-party transactions: the contractual obligations with vendors or customers that make up the majority of any organization's business.

3.6.2. Improved Accuracy and Compliance

Introduction of intelligent automation, with its ability to easily configure solutions to connect various ERP or accounting systems and bank payment files to enforce data integrity checks, remove duplicate data, and correct missing, incorrect, or mismatched data inside transactions will obviously provide substantial accuracy and compliance benefits. In fact, with intelligent data capture and automation directly linked to the ERP, full transaction details could even be sent to the ERP for any accounting transaction. The days of journal entries simply being tablets and ledgers or designated as location codes will likely be long gone, helping allow for full transaction details and lower error rates. The potential for intelligent VAT or tax auto-coding on-the-fly, together with linked, supporting data and inferring prior transaction patterns may optimally allow for online tax compliance if implemented with tax authorities cooperating.Robo CPA tools for intelligent automation of period close work, tax accounting, and other back-office functional accounting and finance work could allow for full compliance with different country accounting rules, but also regulatory policies at the same time. The automation in the cloud or on private cloud servers carrying the robots in joint missions will be a full partner on the critical path for period closing since it largely will have no delays. The internal or external software robots may just automate various countries' compliance tasks in a scheduled automated fashion, allowing for no delays and year-round operations as required.

3.7. Cost-Benefit Analysis of Automation

The acceleration of technology investment was a trend that was already happening in the market for several years and, nevertheless, was severely impacted by the pandemic context. IT spending is expected to grow 6.2% in 2022 and accelerate to 8.5% in 2023.

It contrasts with the global economy, which is forecast to pull back 3.6% in 2022 before recovering with 3.2% expansion in 2023. For companies, in particular, the increase in technology investment will be driven primarily by the need to evolve and develop their technological infrastructure to capture and retain customers and for cost control, together with revenue growth and efficiency increase. For component services for which companies are not planning to boost technology spending include some areas of consulting services and business process consultants.

To understand the return on investment (ROI) side, we further break it down into two different perspectives – costs of investment and cost reduction from automation through efficiency gains. Automation and technology help companies by increasing the level of efficiency that lowers the cost variable without affecting the quality of the service offered. The efficiency brings several factors that could embrace different aspects, such as speed and turnaround time. Bringing technological investment, the construction of an ROI for automation solutions should be supported on the increase of efficiency gains divided by the share of operational costs for the past maintenance. Bringing project portfolios that may have an investment period much shorter than several years. The guarantee to quickly be able to recoup the investment that is being done in automation is forgetting a little bit of what it is to take financial projects to be healthy and with several ROI aspects that improve portfolio cash.

3.7.1. Initial Investment vs. Long-Term Savings

Out of all considerations, the most influential is whether the upfront investment on automation will ever yield enough savings to merit the cost, org-wide disruption risk, and fatigue that comes with any automation program. To a finance practitioner, an intelligent automation project is simply another Project Cost, hence a Project Investment, with the same parameters as any other long-term investment project:

- A Capital Investment - for purchase & development of the process automators

- A Rate of Project Return - which represents the entire set of savings from the bot, over its entire useful life, divided by both the annualization factor for the depreciating Capital Investment and additional Funded and Unfunded Costs

- A Project Useful Life - generally 3 years or longer in intelligent automation, and more depending on the choice of hardware, software, strategy, and use cases.

Essentially, the answer to the question of how to accurately and adequately estimate savings from intelligent automation in back-end functions is that it should come through an assessment of the entire set of change- or outcome-induced savings over the useful life of the automator minus other extra costs that either come to life or decline, in a given

year or multiple years. To this, we need to add how long the automation tool should be funded for. Effectively, should intelligent process automation "robots" be funded for the duration of the investment project, which might only be 3 or so years? Or more? Such a choice could eliminate 70% to 80% of the interest costs of the investment project.

3.7.2. Quantifying Efficiency Gains

As we use this example to augment our understanding of simple math around automation in critique of the hype, it is equally critical to delve more deeply into the various parameters of efficiency gain calculations which can lie behind and may lead to upside surprises. Further, despite the reference to double-counting, the comprehensive quantification of the effects of automation on efficiency is so well understood in the manufacturing domain that it is whatever may be asserted by most automation providers—hardly in the right frame of mind to be recognized as a sole authority. Some of the time-tested methods of quantifying efficiency gains beyond simple math—applicable back to the time of factory time-keeping by Taylorism which is being endlessly evoked via its modern-day iterations of digital twins and digital engineering—apply equally well to the back-end automations of enterprise functions.

Back to first principles, in any enterprise function in finance or any other business function for that matter, various underlying enabling processes may lead to the achievement of a couple of higher-level client outcomes between themselves. Broadly stated, these high-level client satisfaction outcomes are prediction of the financial state and forecast-oriented generation of transactional instructions from upstream internal and external parties to optimize the timeliness and accuracy of execution. These outcomes in turn would have an impact on the enterprise financial efficiency determined by the full economic consequences of the firm's financial transactions relative to the economic resources used as reflected in the financial cost of those transactions.

3.8. Conclusion

Despite the growing number of enterprises willing to invest in process optimization and digital transformation, the overall RPA and Intelligent Automation adoption rate has been slow. Many enterprises, already equipped with RPA capabilities, are struggling with the transition towards an Intelligent Automation ecosystem that is easy to scale and leverage. These enterprises are stuck in a pilot mode of limited and one-off automation with little impact on their overall operational efficiency. In a macroeconomic setting of spiraling inflation and falling demand, these enterprises must urgently invest in building an Intelligent Automation capability that is enterprise-wide in nature for tangible returns. Spurred on by accelerating digital transformation with adoption of cloud, AI, ML, and

business process solutions like Low Code, No Code, and Digital Twins, it is very likely that enterprise spending on Intelligent Automation scale-up for improved operational efficiency will become widespread and accepted as a norm in the coming years. We hope this research work can be a catalyst in that direction with streamlining of financial back-end operations towards realizing tangible value and improving customer service experience through Intelligent Automation and Robotic Process Optimization.

3.8.1. Future Trends

This section summarizes key findings and offers guidance on future trends for intelligent automation and robotic process optimization in financial back-end operations. Intelligent automation and robotic process optimization are poised to radically change financial back-end operations by enabling remote collaboration, reducing costs, improving accuracy, supporting business requirements and offering strategic advantage through scaling. Automation can deliver substantial benefits in terms of accuracy, efficiency, and resource reallocation. However, companies need to be mindful that as technology emerges, it does evolve and, as with any paradigm shift, not every existing player will be best suited and equipped to take a leading role. Businesses will face pressure to optimize their back-end financial operations. Business leaders should continuously assess their automation capabilities and aim to create a repeatable roadmap for digital transformation.

Intelligent automation and robotic process optimization are at the forefront of the fourth industrial revolution. Drawn by the promise of cost reduction and improved accuracy, companies in finance and other business functions have explored intelligent automation, including different approaches to robotic process optimization. Intelligent automation is characterized by multiple advanced technologies; robotic process optimization is typically used to describe early enterprise adoption of automation best practices. Robotic process optimization is a combination of business process management and automation technologies used to improve productivity and worker satisfaction. Successful implementation changes not only technology but also back-office functions, most significantly enabling knowledge workers to redirect focus from transactional tasks to more strategic, higher-value activities.

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