An Empirical Study on Robotic Process Automation Implementation: A case study on MetLife Investment Management Client Services Group

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University of Wales Trinity Saint David

2020

DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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ABSTRACT

Purpose and Objectives: This research is designed to establish a best practice model in implementing Robotic Process Automation (RPA) for client services group (CSG) of a large investment management firm operating in the UK financial services industry. The objectives are to systematically review the existing best practice schools of thought highlighting factors that aid to mitigate challenges in RPA implementation and for the researcher to adapt a unique model that incorporates benefits, limitations, challenges and best practice (BLCP) framework specific to CSG through conducting a field survey, including a series of interviews and a case study.

Research Methodology: The empirical part of this qualitative research has been conducted over a period of three years. The researcher examined RPA implementation elements through a systematic literature review combined with semi-structured interviews involving key members that would be involved in RPA implementation within the investment management firm as well as RPA experts worldwide.

Throughout this study, the researcher has been employed in an institutional investment management firm's client service group (MIM CSG) which provided her with the appropriate platform to investigate the potential uses of RPA as they relate to processes within CSG, to determine if RPA is a viable automation solution aligned with the digital transformation strategy of her employer.

Key Findings: Based on the evidence presented in this research, it is the researcher's finding that RPA is the right automation tool for MIM CSG, and it is in fact in alignment with the overall digital transformation journey of MIM. Furthermore, the BLCP framework is versatile tool and can be used to establish an overall best practise framework in digital transformation journeys.

Key Contributions: RPA is a new technology that is fast evolving, this research significantly contributes to academic research in this field from investment management sector point of view. Additionally, from practitioners' perspective, the findings represent a major contribution on how to approach RPA implementation in the client service team of complex and global investment management firms by establishing the researcher's own unique BLCP framework.

Table of Contents

List of Abbreviations and acronyms

AI – Artificial Intelligence

BOT – Software robots

BPA – Business Process Automation

CoE – Center of Excellence

CSG – Client Service Group

DT – Digital Transformation

FCA – Financial Conduct Authority

IA – Intelligent Automation

IoT – Internet of Things

MIM – MetLife Investment Management

OCR – Optical Character Recognition

ROI – Return on Investment

RPA – Robotic Process Automation

List of Tables and Figures

1. Chapter 1: Introduction

1.1. Synopsis

This dissertation provides a critical analysis of RPA implementation across the many industries RPA has already penetrated and to reveal challenges as well as established best practice to overcome them in implementing RPA. Other industry implementation cases are leveraged in the analysis to develop successful implementation best practice for the purpose of this dissertation.

The researcher then examines the anticipated best practice implementation strategies for the seamless, sustainable and scalable implementation of RPA for CSG in institutional investment management firms operating within the United Kingdom financial services industry, specifically within her own organization.
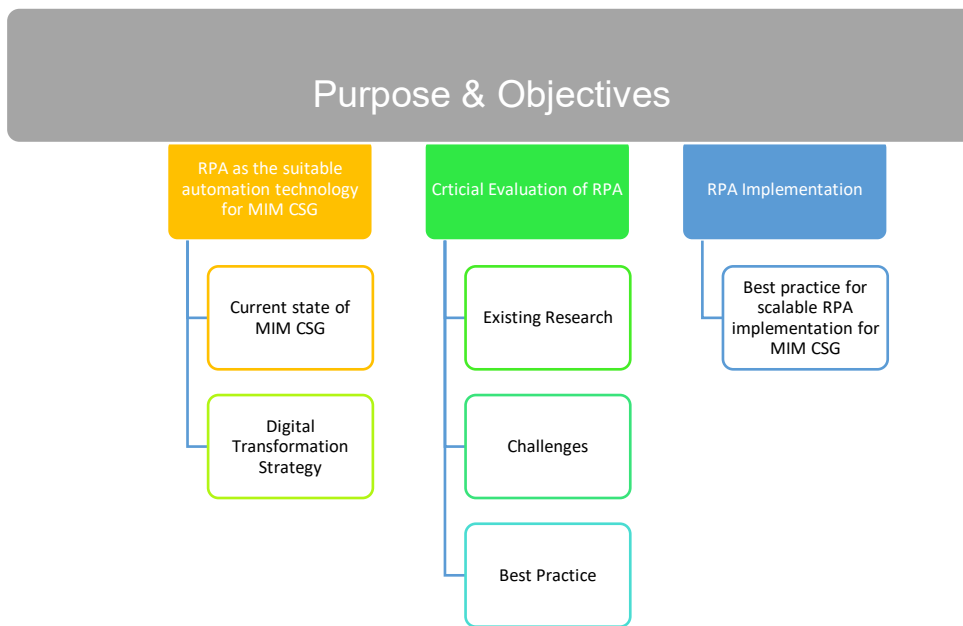
Figure 1.1: Purposes and Objectives of the Dissertation - image self-created.

<u>*Structure of this Dissertation:*</u>

The dissertation is formed of six chapters:

1. <u>Chapter One</u> sets out the rationale and structure of the research, and introduces research questions, context and background.

2. <u>Chapter Two</u> provides a literature review on existing research and findings on the investment management sector, the role of client services and the

challenges faced in the sector. Then it explores the current worldview on RPA by examining its uses across different industries to determine if RPA is a technological tool that is applicable to client services in institutional investment management firms. In Chapter Two, a critical evaluation of existing empirical evidence is set in a benefits, limitations, challenges and best practice framework that is used as a baseline for investigating if RPA is the right automation tool for CSG.

3. <u>Chapter Three</u> sets the conceptual framework of the research, interlinking factors that led the researcher to investigate the topic as an extension to the existing body of knowledge as its baseline, to critically analyse if RPA is the suitable automation tool in MIM CSG.

4. <u>Chapter Four</u> details the research methodology and motivation behind the methodology selection for this qualitative empirical case study, rationalizing the research philosophy, process, phases, and techniques.

5. <u>Chapter Five</u> provides an empirical case study on RPA implementation analysis for MIM CSG in five phases presented in three parts. In Part 1, Phase 1, the researcher examines the benefits, limitations, challenges and best practice (BLCP) framework through analysis of existing research and case studies overlapping as they apply to MIM CSG in order to identify suitable processes that are candidates for automation. Phase 2 states the findings of participants observed in a field study and interviews related to CSG to confirm or disprove applicability of the BLCP framework and identified processes. Part 1 is an internal analysis while part 2 starting with phase 3 is external analysis of the research. Phase 3 is an analysis of interviews conducted across RPA field experts to confirm or disprove the research progress within the BLCP framework, as applicable to MIM CSG. Phase 4 serves to confirm or disprove the findings through field research conducted across sector related events. Part 3 is a case study presented in, Phase 5 which provides analysis of participant observed in the field study in conducting RPA implementation in a different department that is independent of but interrelated with CSG, as a test case in using the BLCP framework.

This core chapter distinguishes this research from existing research and uncovers the researcher's contribution to practical and academic research surrounding RPA implementation.

6. <u>Chapter Six</u> is the concluding chapter summarizing the findings of the research questions and its implications. It includes policy recommendations as well as suggestions on areas for further study.

1.2. Rationale for Research

This dissertation is written to satisfy the thesis requirements for the Doctor of Business Administration (DBA) program delivered by the University of Wales, Trinity St David (UWTSD). The researcher examines the achievement of companywide competitiveness through the successful implementation of Robotic Process Automation (RPA) in an institutional investment management firm's client services department. The researcher, employed in client services of a large global institutional investment firm, has been able to leverage first-hand work experience combined with existing research and also performed own in-depth field research, through webinars and conferences (as a participant, speaker and attendee). She has also conducted a series of in-depth analyses in the form of interviews to draw conclusions that are key contributions to the existing research on the implementation of RPA from the perspective of a client service department of a large institutional investment management firm. The research was conducted to cover the period from November 2016 to November 2019. The future of RPA and projected beneficial uses are out of the scope of this study and are areas for further research.

1.3. Research Aim

The aim of this research project is to examine if RPA implementation is a value-added digital transformation solution for the client service department of an institutional investment management firm. The researcher sets the following research objectives to achieve the research aim.

1.4. Research Objectives

Objective 1: To examine the current state of Institutional Investment Management Client Services Group (CSG) processes, with a view to identifying potential areas suitable for RPA implementation.

Objective 2: To critically evaluate RPA to assess if it is a suitable automation solution for CSG.

Objective 3: To investigate obstacles to and potential challenges for the implementation of RPA, with a view to generating a set of best practices for the IM CSG sector and thus adding value to all stakeholders. Objective 3 aims to advance existing knowledge in RPA through combining what is already known about RPA with CSG culminating in the establishment of a unique framework suited for RPA implementation in CSG.

Objective 1	Objective 2	Objective 3
• To examine the current state of Institutional Investment Management Client Services Group (CSG) processes and tasks to identify opportunities for RPA implementation	• To critically evaluate RPA to assess if it's the suitable automation solution for CSG.	• To investigate obstacles to and potential challenges for the implementation of RPA with a view to generating a set of best practices for the IM CSG sector and thus adding value to all stakeholders.

Figure 1.2: Research Objectives - image self-created.

In Chapter 1, baseline definitions and the context for the research provide the framework for the study. Chapter 2 aligns existing research to the research objectives set above. Chapter 3 details the conceptual framework of the study while Chapter 4 details the research methodology. Chapter 5 is the core analysis presentation with Chapter 6 providing the concluding remarks of the study.

1.5. Problem Statement

In this research, benefits, limitations, challenges and the best practice of RPA implementation are analysed from the point of view of the client service division of an institutional investment management firm. This is intended to provide a framework to determine if RPA is a suitable technological tool that will contribute to the overall companywide digital transformation strategy of MIM CSG.

1.6. Research Questions

The research is framed around the core and secondary research questions below.

Core Research Question:

Is RPA the right automation tool to be implemented in CSG to support the IM firm in its digital transformation journey?

Secondary Research Questions:

1. What are the challenges in CSG that warrant automation enhancement?

2. What are the solutions available to enhance client servicing?

3. Can RPA address challenges faced in an CSG better than other available solutions?

4. What would be the benefits of implementing RPA?

5. What are the limitations of RPA?

6. What are the core challenges to RPA implementation?

7. How is the success of RPA measured?

8. Is established best practice in RPA implementation, that emerged from previous RPA implementation attempts in other areas, applicable to CSG RPA implementation?

9. Does CSG exhibit an environment for RPA implementation according to available best practice?

10. Will RPA implementation in CSG benefit the IM firm overall?

The answers to the above questions are presented in Chapter 5 which is the core research chapter.

1.7. Anticipated Key Contributions to Existing Research

In concluding the analysis on RPA as a reliable tool for automation, the Literature Review in the next chapter will provide an in-depth analysis into existing research, which is relevant to RPA implementation, in order to determine if RPA is the right

automation solution for MIM CSG. This is the core research in the case study in Chapter 5.

RPA is a new technology and while there is countless research being conducted in all areas of RPA, there are many aspects that are yet to be studied and analysed and there is a clear research gap. As RPA was emerging as a technology tool, London School of Economics published a series of research on RPA with the stated objective of the series as "Potential adopters need exposure to actual and realistic client adoption stories. Academic researchers can help educate potential adopters by objectively researching actual RPA and CI *[Cognitive Intelligence]* implementations in client firms, by assessing what the software can and cannot yet do, and by extracting lessons on realizing its value" (Lacity, Willcocks and Craig, 2015). This is precisely how the researcher uniquely contributes to existing knowledge in RPA from both academic and practitioners' perspectives.

The key academic, as well as practical, contribution of the researcher to what currently exists is the analysis and findings from researching implementation of RPA in a specific area which has not yet been carried out with published findings. The study conducted in this dissertation presents four key academic and practical contributions to research.

Key Contributions

The first contribution is the unique research into examining RPA in a very specific area within a specific industry. As discussed, RPA is widely accepted as a valuable automation tool. However, while it is the expectation of the researcher that investment management firms have already started implementation or at least exploring implementation of RPA in their client services team, there is no published research evidencing RPA implementation in CSGs.

The second contribution is the unique approach in combining various existing studies from RPA experts' points of view compared to consultants' worldviews on RPA. While studies exist on both platforms, to the knowledge of the researcher, a study overlapping the research on both platforms' body of knowledge on RPA implementation does not exist, therefore it is a unique approach combining various sources of knowledge on RPA implementation.

The third contribution is how the researcher uses triangulation in collating the body of knowledge on RPA implementation with various RPA related events. The researcher is uniquely placed as a practitioner in conducting analysis within her own company; the researcher simultaneously analyses data obtained through experts in RPA field and through field research in participating in RPA events. This is important in formulating a framework on best practice in RPA implementation to overcome implementation challenges, through exploring what the current market views

The fourth contribution is the unique BLCP framework that the researcher creates in implementing RPA in MIM CSG within the companywide effort of adhering to the digital transformation strategy overarching the organization.

1.8. Introduction

Currently, the investment management sector is facing several external pressures which cause firms operating within this sector to focus on their internal core competencies and to examine external factors that can positively impact on their competitiveness. Enhancing their operational flows within their client services departments to provide enhanced client experience (also referred to as CX) is one of the internal areas of focus, while investigating how to effectively adapt to technological advancements is an external focus area. Technological advancements in the past five years have had a great influence on reshaping a firm's mission, vision and strategy that enable businesses to continue their existence. Integrating technology with current operations has become crucial as expressed by business analysts and leaders (Digital technologies: Do or die, n.d.; Global Asset Management 2019: Will These '20s Roar? 2018). The term used to drive integration of technologies into non-tech industries is referred to as digital transformation (DT) and firms which do not integrate DT in their strategy are doomed (Salesforce.com, n.d.; Deloitte, 2019; Temenos, 2019).

Robotics Process Automation (RPA) rapidly penetrated the business world across various sectors as a solution to business process automation (BPA) and is considered an available tool for firms in their digital transformation journey. RPA, which is a software, aims to automate repetitive, manual tasks thereby providing many advantages for business, such as freeing up valuable time so that employees can focus on other tasks where decision-making, experience and expertise are

required. RPA technology does not require breaks and can operate 24/7 allowing tasks to run faster and in bulk. It also provides advantages vis-à-vis regulation as it is completely transparent and auditable. RPA is a non-invasive technology, easy to implement and operates across multiple platforms and pre-existing programmes, which enable it to be versatile in its application and integration. This automation technology does come with its limitations and challenges, which are addressed in detail in this research.

Despite the benefits both outweighing the limitations and promise of speedy return on investment (ROI), RPA falls short of fulfilling delivery of the full spectrum of benefits promised during the "sales pitch" or beyond the initial hype.

 In the literature review of this report, the benefits, limitations, challenges and best practice will be explored in detail beyond the initial promise to uncover reasons for failed RPA implementation attempts. The report provides examples on opportunities for improvement that are sought for seamless and sustainable implementation to achieve scalability of the automation tool synthesising various suggested best practice of RPA implementation to remedy implementation and usage challenges. As RPA is a relatively new digitalisation solution, the projected future levels of the technology are highlighted as they complement and augment its uses. The outcome of this research is to uncover challenges as well as best practice and identify the effective implementation choices as a general worldview, from general to specific.

RPA is currently widely used by individuals as well as large corporations across many different disciplines. At the time of writing this dissertation, while there are ample proposals that RPA is to revolutionize the financial services and investment management industry, there is also a lack of research and evidence specific to the implementation of RPA across client services departments in large institutional investment management firms. This dissertation explores RPA implementation as a solution to digital transformation efforts, specific to the client services departments of large institutional investment management firms.

The researcher examines the existing practices of, and the emerging themes from, RPA implementation in a framework comprised of promises and limitations, benefits and challenges, to best practice of RPA implementation. In detailing the existing challenges and failed attempts compared to successful RPA implementation, this

dissertation focuses on how to fully benefit from RPA by expanding the definition of digitalisation and viewing RPA implementation as part of the digital transformation that can be applied to one particular department - client services - within a particular sector – institutional investment management. Any transformation from the current state to a desired state requires thorough analysis of a suitable and effective change management model, which in the case of RPA implementation as evidenced in the existing research of its effectiveness, is orchestrated by a centre of excellence (CoE) team. The dissertation demonstrates that, in fact, RPA as a technology is straightforward in its implementation. The focus should be on implementing an effective change management plan that incorporates RPA in order to facilitate the digital transformation in client services departments of large institutional investment management firms.

1.9. Context and Definitions

This section introduces the topics addressed in this dissertation to enable the reader to contextualize RPA and institutional client services, within the investment management sector to provide the concepts addressed in this paper. It provides definitions of the Investment Management Industry, the current landscape of the sector, followed by definitions on technology and digital transformation, leading to RPA as a digitalisation solution that fits within digital transformation efforts. It addresses what RPA is, what it promises to achieve, best practice to deliver on these promises and why this research is conducted for the institutional client services departments within investment management, placing the research within the borders of this dissertation.

1.9.1.   Context

The following sections set forth the institutional investment management landscape that is undergoing rapid transformation, as it is under pressure from financial, regulatory, technological and operational arenas and how these pressures have created a need for differentiation in order to gain competitive advantage. One way that competitive advantage can be gained is through adapting to the ever-evolving environment better and faster than competitors: in other words, to achieve differentiation through applying and adopting technology. Business process management (BPM), business process automation (BPA) and continuous

improvement (CI) efforts are all examples of areas that have been focal points in searching for generating or increasing profitability/decreasing costs and waste. A major feature that impacts on the current environment is technological advancements. Technology is connected to all the above focus areas: BPM, BPA CI. Technology itself, today, is divided into various definitions such is digitization, digitalisation, digital transformation, all with the ultimate aim of either leading in times of digital disruption – or of causing it, and at the very least, avoiding businesses to evaporate. Almost all firms have incorporated "digital transformation" as part of their overarching strategies and those who have not are viewed as destined to perish, "Companies must now be continuously reinventing their business – with technology at the core – or watch from the side-lines while their market is disrupted by organizations proficient at digital transformation" (Fenwick and Shadler, 2018). One of the most popular technological tools applicable across all industries today is RPA.

The Institute of Electrical and Electronics Engineers (IEEE SA) defines RPA as the use of a "preconfigured software instance that uses business rules and predefined activity choreography to complete the autonomous execution of a combination of processes, activities, transactions, and tasks in one or more unrelated software systems to deliver a result or service with human exception management" (Medium, 2018). In simpler terms RPA automates certain types of tasks which benefit the firm in many aspects such as reduced manual processes, increased employee morale, auditability and compliance vis-à-vis regulations in a secure environment, all of which contribute to enhanced client satisfaction. RPA for these reasons has also penetrated the financial services industry rapidly and the return on investment (ROI) numbers published are promising and enticing. However, there is lack of research in the implementation and penetration of RPA into the client services sector within the financial services industry.

Currently, RPA alone is not an intelligent automation (IA) tool but a tool for automation existing processes, allowing users to work smarter. RPA itself is not "smart". The projection of RPA is to enable it to become smart by coupling the tool with artificial intelligence (AI) to enable intelligent automation (IA) or "hyperautomation".

RPA, as it stands has not been fully exploited as to what it can do in the client services department of institutional investment firms. This dissertation aims to analyse this gap in order to aid investment management firms to position themselves accurately at a time that RPA merges with AI so that they can be better prepared to augment their workforce with IA, creating their virtual workforce alongside the human one. Through findings from existing research on RPA implementation, an effective change management plan needs to be implemented. The proposed body to manage a successful implementation for RPA implementation is commonly referred to as a Centre of Excellence (CoE).

There are examples of successful and failed attempts of RPA implementation. These are relevant, as use cases to identify similarities as a baseline in order to draw conclusions in supporting RPA implementation research in client services in institutional investment management firms. In the following sections, implementing RPA best practice is addressed, considering existing examples of the identification of RPA tasks, suitable to both vendor landscape and benefits, as well as challenges.

Overall, the success of RPA implementation depends on an effective change management plan which should accurately address the identification of simplifying processes, which is imposed through the concept of a "Centre of Excellence". Going through the exercise of streamlining processes contributes to efficiency gain even if in the end RPA is not adopted. It will have made room for the "next new thing" to create a competitive edge in the investment management industry. An effective CoE enables distinction of suitable tasks and helps prioritize the pipeline for the most effective implementation of digital transformation. It incorporates addressing all resourcing concerns, not just in tasks and processes but also in terms of the workforce, both human and digital which is referred to as the augmented workforce.

1.9.2.   Definitions

1.9.2.1.   Investment Management

Investment Management comes under the financial services industry sector. It is a business where investment management firms engage in investing assets on behalf of their clients to achieve profits. Investment management firms invest on behalf of their clients as well as for themselves, under a set of pre-determined and agreed upon financial goals and guidelines to drive maximum financial gain. Officially, the

Investment Management UK website defines investment as: "the process of redirecting finance towards profit generation. Investment management involves the professional management of various financial securities and assets belonging to an investor for the purpose of earning maximum benefits (Investment Management UK, 2019)". Investment management can be also referred to as asset management or wealth management. While there are nuances that differentiate these businesses, for the purposes of this dissertation, the terms are viewed interchangeably, and refer to investing financial resources which are assets or wealth to drive maximum profits for clients (internal and external).

The clients of investment management firms can be retail or institutional. These clients, who as individuals are referred to as retail clients or high net worth individuals (HNWI) are serviced by the private wealth management arm of investment management. Clients can also be governments or companies or other institutions. They are referred to as institutional clients which is the focus client group referenced in this research. Institutional clients' expectations, serviced by investment management firms, are within the scope of this work, while private clients are not. Institutional clients are considered sophisticated investors compared to private clients who have different needs and are under tighter controls by regulating entities and therefore should not be the primary focus for RPA implementation. As set forth above, the financial services sector is heavily regulated. The institutional investor segment of the source of funds is regarded by the FCA (Financial Conduct Authority) as including sophisticated and knowledgeable investors and therefore require a high level of client services.

The Investment Management sector in the UK "is the largest in Europe and second only to the US globally" (Barclay Simpson UK, 2019). A report published by the UK parliament states that, "The UK asset management industry is estimated to represent approximately 1% of GDP" (Parliament.uk, 2019). The Investment Association's latest annual report states that total assets managed in the UK is estimated at £9.1 trillion (Theia.org, 2019):
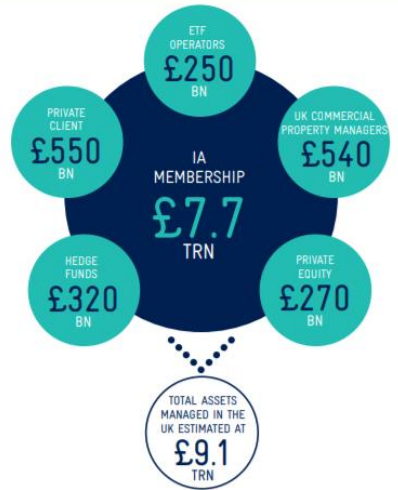
Figure 1.3: Estimated UK AUM in 2019 - Source Theia.org, 2019.

Investment management firms generate financing through their investments, in addition to applying a fee to their clients, "asset managers generate revenue by levying fees proportional to the value of the assets being managed, with charges typically expressed as a percentage of assets under management" (Fca.org.uk, 2016)". Investment management firms provide their clients with the service of investing in financial products. The term 'service' implies the importance of client satisfaction. These firms compete in the performance of their investments and the fees charged to their clients which are tangible, but they are also measured by client servicing which is intangible and harder to measure.

Globally, the investment management industry, has profited from the nine-year period of a bull market. A bull market can be defined by the rise of the equity market (share prices) of more than twenty percent year on year, which stimulates more investment (buying). However, there is caution in analysts that a shift may be approaching to mark the end of the bull market (Brett, 2018, Santoli, 2018, Vincent, 2018). Investment management firms are under pressure to outperform competitors despite the expected downturn in the markets, the heightening of regulatory requirements and a shift in investor preferences causing investment management firms to reduce the fees that they charge clients. These combined pressures have forced investment management firms to adopt what is referred to as a continuous improvement concept, "Continual operational improvement is one avenue for investment managers to alleviate the pressures of shrinking margins. Operating models across many investment management firms can be incrementally improved

13

by investing in talent, technology, and processes" (2019 Investment Management Outlook, 2019). Continuous improvement (CI) can be defined as "an ongoing effort to improve products, services, or processes" (How continuous improvement can build a competitive edge, 2019). The focus of this dissertation is an analysis on how RPA is one way in which both services and process can be improved and in turn aid profitability and gaining a competitive advantage for investment management firms. One area that has not yet been fully exploited in this arena is the client services team within investment management firms.

1.9.2.2.   Institutional Client Services

Investment management firms generally operate within the traditional front, middle back-office model with the client service group represented in the middle of the revenue centre (front office) and cost centre (back office). A simplified version is summarised below.

Traditional Model		
Front Office	Middle Office	Back Office
•Lenders & Borrowers •Portfolio Management & Trading •Marketing & Sales/Distribution	•Client Services •KYC/AML •Billing •Reporting	•Order Entry, Settlements & Reconciliation •Reporting
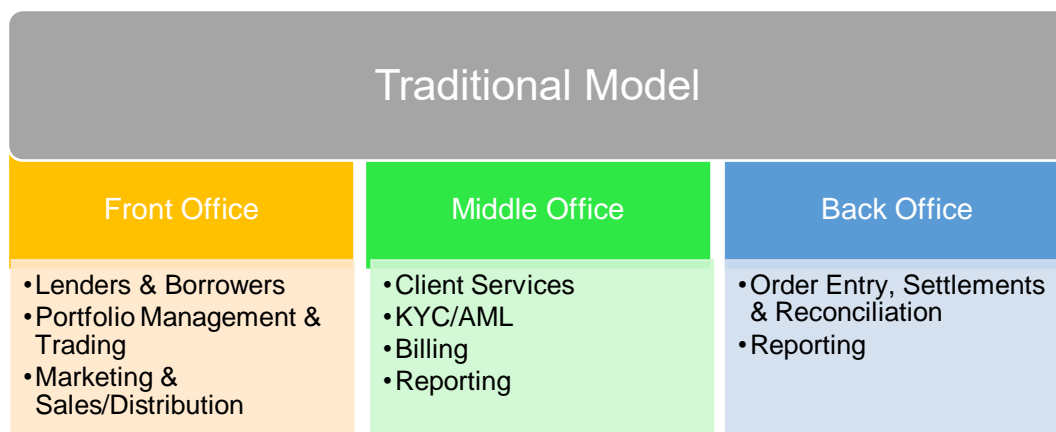
Figure 1.4: Traditional Investment Management Model – image self-created.

The generally accepted client journey begins with either sales team-initiated contact where the investment management sales team approaches a client or reverse solicitation whereby the client issues a request for proposal (RFP). At this stage, the sales/distribution team works closely with other front office teams such as portfolio and product managers as well as middle and back-office teams. Once a mandate is won, the middle and back offices of the client and the investment management firm start working together for onboarding functions such as know your client (KYC) and anti-money laundering (AML) as required by regulation, negotiation of the investment management agreement (IMA), portfolio/account set up, various reporting, invoicing,

reconciliation requirements and flow of the BAU (business as usual). The client services teams traditionally sit in the middle between front and back offices, coordinating the front office with the client requirements and the daily client requests with the back office for smooth BAU. The client services tasks are repetitive in nature, done in the same way for efficiency and scalability. This research is conducted to identify the repetitive tasks and analyse if they are RPA suitable; if RPA suitability is confirmed, the research further examines what its value is and how value can be driven by implementing RPA.

The researcher selected an institutional client service as a focus of this RPA research, being employed in this area. She found that while there is ample research into implementation and benefits of RPA across many sectors, there is a clear gap in research into this specific department.

The client service department is responsible for servicing the clients' needs, providing end to end support. This requires the client service representative to be available for the clients' queries and knowledgeable about their accounts. However, the representatives are often occupied with repetitive tasks that could potentially be automated via a tool such as RPA, thereby freeing up resources for more value-added requests that are better handled via human interaction. The typical and generally accepted client service functions are provided in the table below:
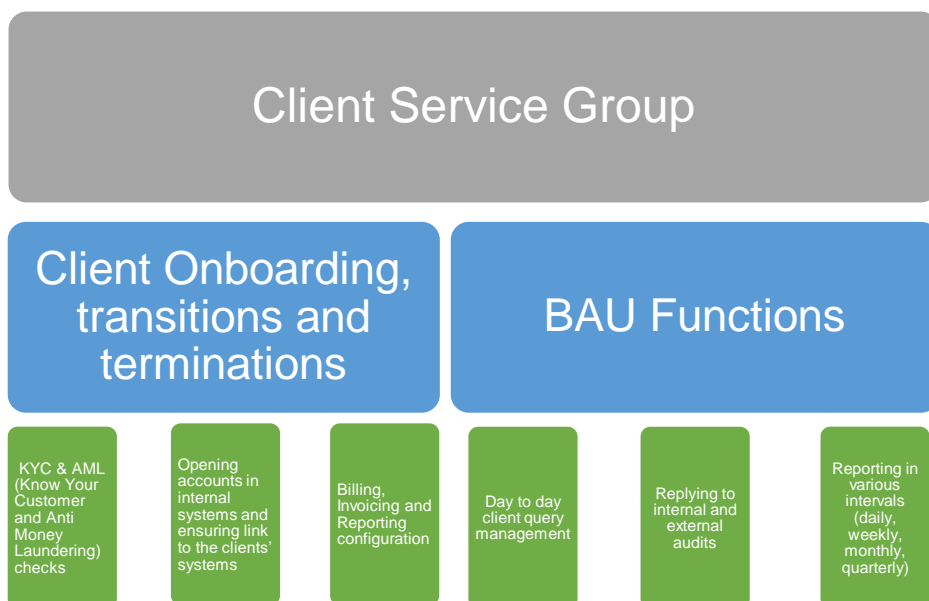
Figure 1.5: Client Service Group Functions – image self-created.

In the current investment management landscape, various pressures such as competition have imposed reduced fees and compressed margins. Competition in

this instance not only refers to other firms but also in terms of active versus passive investment. Traditionally, investment management firms outperformed the market by their active investing strategies which was cause for justifying higher margins. Today, passive investment (i.e., investing on benchmarks) return comparable performance therefore making it more difficult for active investing to be as attractive. Another external factor that has required large sums of investment is caused by the tightening of regulations and meeting regulatory requirements. In light of these pressures, it has been extensively studied that one way that an institution can achieve competitive advantage is through differentiating itself through its enhanced client service experience, "Driven by more demanding customers, global competition, and slow-growth economies and industries, many organizations search for new ways to achieve and retain a competitive advantage…The next major source for competitive advantage likely will come from more outward orientation toward customers, as indicated by the many calls for organizations to compete on superior customer value delivery" (Woodruff, 2017). In the section below, the functions and tasks that fall under client services are explained with the proposal of how RPA implementation can contribute to profitability directly through ROI and indirectly through gained efficiencies. In the analysis section of this dissertation (Chapter 5), interview and field research form an empirical case study to provide full details of RPA implementation for CSG.

1.9.2.3. MetLife Investment Management (MIM) Client Services Group (CSG)

MIM is the institutional investment management arm of MetLife, Inc. which launched in 2010. MIM offers real estate and public and private fixed income investment services to institutional clients. Its headquarters are in New Jersey, USA. MIM is considered large with assets under management (AUM) of US$ 596.0 billion as of 30 September 2019[1]. The CSG global head is based in the USA with offices in London, Tokyo and Hong Kong. The researcher is based in the UK office, MetLife Investment Management Limited and as at the time of this research was the only CSG London team member.

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[1] https://investments.metlife.com/

The researcher has been employed by MIM CSG in the United Kingdom since 2016. In November 2019, she was promoted to Institutional Business Development, where she is currently employed. When the researcher started her employment in the client services team of this large institutional investment firm, her team was based in the United States and she was the only team member in UK. She observed that quarterly tasks, mainly in reporting and invoicing were heavily manual and therefore consumed a considerable amount of time. At the same time, quarterly time scales tend to be periods of high client queries and demands, requiring information gathering from existing sources to provide to clients in their requested and customized formats. This led the researcher to seek out how these processes could be improved so that client-specific decision tasks could be performed without the pressures of manual, repetitive, "copy-paste" functions. The researcher approached her department head in order to investigate RPA which was approved. The researcher then submitted her academic Research Proposal in October 2017 to establish the validity and direction of the research and obtained approval to proceed, with the approval for the required administrative documents such as ethical clearance detailed above. The researcher commenced with the literature review and participation in sector specific events to identify potential research participants and mediums. The researcher followed an iterative process in data collection and evaluation/analysis to cross-check the validity of her investigation as well as to identify potential newly emerging themes given that RPA is part of a rapidly evolving technology. It is important to highlight that at the start of initiating her research, RPA was not a technological tool used in her company whereas today it is part of the overall digital transformation strategy of the firm, which adds more value to the research being conducted by the researcher. It establishes best practice for RPA implementation specific to a group and can be a proposal for implementation in MIM CSG in the orchestration of the companywide digital transformation journey.

1.9.2.4. Digital Transformation as Process Transformation

In researching RPA, related research articles emerge on business process management (BPM), business process outsourcing (BPO) and business process automation (BPA). These concepts provide a framework in which to contextualize RPA. Processes can be managerial, operational or supporting, collectively providing the framework of any business. Any business is formed from these three processes.

For the purposes of this dissertation, the researcher focuses on only the operational process, which describes the sequence of tasks required to perform the core of a business.

Business Process Management (BPM), Business Process Automation (BPA), and Business Process Optimization to continuously improve and achieve efficiency gains are not new concepts and the concept of process efficiency is ever evolving.

Business process management is not a novel thought, its roots can be traced back to Adam Smith's famous Pin Factory anecdote in "The Wealth of Nations" in which Smith demonstrates that division of labour to maximize output can lead to considerable increase in productivity; rather than having one factory worker produce one pin in an eighteen-task sequenced process, each factory worker can focus on one task which would lead to collective increase in output of completed pins (Smith, 2019). Researching RPA, the terms BPM and BPA are often used interchangeably, and RPA is quoted as a complementary concept as opposed to being competing concepts and research suggests that BPO tasks are identified as most suitable for initial RPA implementation analysis. BPO generates value by creating shared services or outsourcing of repetitive, manual back-office tasks that do not require decision-making. Tasks such as data entry, copy-paste, validation, formatting, uploading, downloading, reconciliations, standardized report generation are examples of processes that businesses outsource to a third party – these are called BPO.

RPA, as a complement to BPO has made its way into BPO "The most innovative Business Process Outsourcing companies are recognizing that they can leverage RPA in their operations to enhance their offerings and lower their transactional costs" (Terrell, 2017). The matured BPO segment can no longer derive value out of replacing human labour with cheaper human labour and automation such as RPA is the next organic growth opportunity. BPO is no longer as profitable, it has matured and "labour arbitrage" as it is called, is no longer as profitable. Additionally, there have been numerous regulatory requirements around BPO servicing, "New requirements for existing outsourced services, as well as the opportunity to offer new services are prolific" (Parker and Potter, 2018) which in turn have increased investment in BPO and therefore though continuing to grow, BPO growth, especially

in offshoring, has slowed down which indicates it has matured and in parallel, other BPM tools have emerged such as RPA. In published research, Deloitte placed RPA as the high speed and predictability of execution with low disruption to existing business (Deloitte AG, 2016):
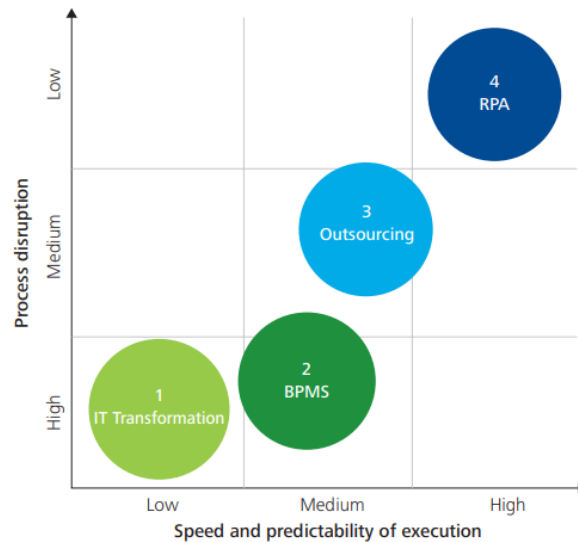
Figure 1.6: RPA compared to traditional process transformation approaches –Source: Deloitte AG, 2016.

RPA is considered a tool in process improvement transformation and is accepted as a digital transformation tool: "RPA implementation kickstarts a successful digital transformation campaign by replacing manual processes, improving productivity, and growing technology usage among employees" (Helpsystems.com, 2019).

1.9.2.5.   RPA

BPM itself developed out of a plethora of studies on how to make businesses run more efficiently and in turn contribute to profitability, be it in speeding up output, enhancing the quality of output or in the form of an enhanced product or service. A simplified, non-exhaustive, timeline below depicts this development, highlighting the continuous improvement in the studies and application of producing more, better and faster:
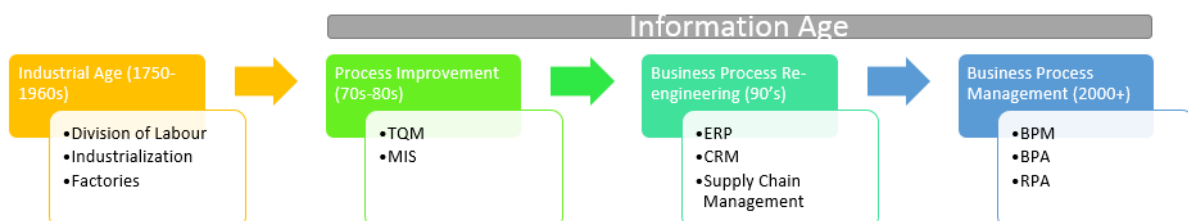
Figure 1.7: Continuous improvement timeline. Image adopted from Lusk, Paley and Spanyi, 2005.

BPM, at its core, requires a process to exist so that the expertise in completing tasks end-to-end is no longer employee reliant and minimizes the inherent risk of human error. It can be in the form of a standard operating procedure (SOP) document or in the form of checklist, listing each item in a sequence to complete a process to achieve the desired result (Brandall and Henshall, 2019). Even prior to the development of RPA, as discussed above, there have been automation efforts, such as through macros. However, solutions have not been scalable and are mostly employee reliant. Often enhancement maintenance would cease with the departure of the specific employee who implemented the original enhancement. RPA promises scale and speed in implementation as well as in return on investment in an orchestrated manner. BPM is viewed as a management practice while RPA is a tool to achieve best results with an effective BPM system: "BPM is end-to-end, so while RPA can be part of a BPM approach, it will not replace BPM" (Quirk, 2018). This has been made evident where RPA is placed within the efficient business process management, when viewed holistically.

The term RPA itself suggests its definition. It is a form of automating processes using robotics. It is automation, specifically of clerical tasks which are instrumental in client servicing, where parts of the tasks are client facing while others are clerical.

The term robot is rooted in the Czech word 'robota' and was made famous by Karel Capek in his 1920 play Rossumovi Univerzální Roboti ("Rossum's Universal Robots") (Temple, 2017).   The Online Etymology Dictionary provides the meaning as "forced labour" (Etymonline.com, 2019). In the current use of the term RPA, robotic refers to technology developed that allows replication of human actions as they workflow through processes at work.

 Individual tasks performed in a sequence to achieve a final result collectively form a work process; the tasks are interrelated and necessary to complete the overarching goal. Process automation can be defined as "the use of digital technology to perform a process or processes in order to accomplish a workflow or function" (Tallyfy, 2019). The use of digital technology aims to remove human intervention in one or more of the tasks that form the specific process. Combining these definitions together, RPA aims to automate the workflow performed by humans through a technology collectively referred to as robotics. Automating or exploring ways in which to

automate tasks is not a new concept; understanding the importance of process automation highlights the importance of the newly emerged RPA technology.

RPA is an emerging and still evolving technological tool in automating workflow processes, eliminating the factor of human intervention through the use of software called robots or more commonly referred to today as bots for short, as the software is just a program and not an actual robot functioning with artificial intelligence (AI) – *yet*. RPA is an organic development of BPM, BPA and BPO and digital transformation has been the enabler for RPA providing a platform for collective effort.

As detailed in the above sections, there has been a long journey, in fact a continuous journey towards process enhancement. While business theorists compiled models around how to implement BPM, technological advances continued. It can be stated that RPA is borne out of BPM and of Enterprise application integration (EAI). RPA "has moved beyond the days of basic 'screen-scraping and scripting' to automate repetitive tasks for a solution that can work alongside existing EAI and BPM deployments to automate more complex processes and activities" (Barnett, 2015). Screen-scraping is a technology that allows automated data entry and extraction that runs off a user interface based on scripts created by developers. The interface eliminates the need for human intervention. However, screen-scraping has not been scalable because it would not function if a pop-up box appeared or changed location (Senter, 2016), rendering the technology limited and improvements on these technologies made way for RPA development.

Business processes require inputs from various systems and tools and these inputs are sometimes incompatible with the existing systems' architecture. Integrating various tools have been achieved through IT implementation via usage of APIs. Without APIs, data integration from any source can be done through data mining, extraction or exporting then translating the data to be inputted to the target source for final output, i.e., the completion of the process. One reason why this integration has been difficult, costly and time-consuming is to make switching costs high, therefore enforcing consumer loyalty in the tool or product. The other reason is that most large firms use legacy systems which are incompatible with new technologies.

Prior to further delving into what RPA is and what it promises, a hypothetical business user case will be exemplified to aid in providing the framework for the RPA

application. Traditionally, business user A (BUA), performs a series of daily tasks in a sequence to complete certain processes required for their job. The wider business introduces a new product or a requirement which is not supported through the current system's architecture. BUA opens a case with the IT department and upon completion of several requirement gathering and approval steps, IT will initiate testing. When all testing is successful, a deployment date will be given. In the background, the IT department will have implemented an application programming interface (API) that provides access to the existing operating system for the new product or requirement to be able interact with the existing environment.

 This journey is time consuming, open to risks in implementation, requires constant monitoring and re-tweaking. Users, implementers, as well as researchers in the field agree that this technology, "is imprecise and tends to break down when dealing with complicated applications that lack accessibility and test APIs" (Lockwood, 2016). RPA enthusiasts agree that RPA is more than screen-scraping as it can identify pixels and launch mouse clicks. One of the major RPA vendors, UiPath states that bots can act autonomously to "orchestrate" applications from the existing systems architecture, legacy programs to any new application that needs to be used and integrated with existing systems (Masters, 2014). An RPA bot can mimic the sequences of applications used by an employee just as the employee would do it. It has been argued how RPA is different from running a macro, which still uses a script to accomplish the computation faster than an employee would. However, macros are limited to excel programs. RPA is not limited in using any existing platforms, it can navigate across them and it is a different and superior technology to any other automation technology applied to date.

RPA is a software technology that is integrated with firms' existing systems that are used in processing tasks. It is "technology agnostic" which means that no matter what current technology the firm uses, it does not matter for RPA software as it is compatible with all systems. If a human can do it, RPA can also do it. This is particularly important, and a differentiator of RPA compared to other automation systems because many problems found with any new software technology have been that the new technology being more advanced than existing systems, is incompatible with the existing "legacy" systems. In order to render new technology compatible with legacy systems, traditionally, IT departments would spend enormous

amounts of time in development and testing before any value would be generated from the new technology. RPA, as it is technology agnostic, means that there is effectively no time spent on rendering technology compatible with legacy systems. RPA is non-intrusive in the existing system's architecture, and it allows multi-system integration (PWC, 2017 and Terrell, 2017). The Director of Product Marketing at one of the leading vendors of RPA, Automation Anywhere, said in an interview with Forbes, "They can interact with any system or application the same way you do" (Tulli, 2019).

There are two main types of automation, attended and unattended, with a sub-type of hybrid automation. Attended automation refers to the business user prompting the launch of the bot, it is also referred to robotic desktop automation (RDA) (Quanton, 2018). Attended automation is mostly for processes that cannot be automated end-to-end. Research indicates that this type of automation augments employees' work by allowing employees to focus on the client or task that may require decision making. This is instead of being tied up in tasks that are manual and time consuming but do not require any human intervention for certain steps of the process. It is a collaboration of bot and human: "Humans collaborating with robots can get more done, faster, and with fewer errors. Their robots can do the dull, tedious tasks so employees can focus on the work they love" (Nott, 2018). In automating parts of the process, automation allows the processes, employees and therefore the organization to be more efficient.

Unattended automation refers to end-to-end process automation without any human intervention or prompt to launch a bot. The bots are invoked on a schedule or on demand and achieve what can be referred to as straight through processing (DMG Consulting, 2019). Unattended automation is possible for repetitive and stable transactions that consume time but do not require any decision making, such as bulk reporting for example. Attended and unattended automation are not mutually exclusive, they can be utilized in tandem which is hybrid automation (Leibowitz, 2018).

RPA systems observe the sequence of tasks to complete processes in a workplace through a graphic user interface (GUI) then mimic the same sequence in the same way without being limited to any particular system. It is code free, as RPA does not

need to be scripted. No coding knowledge is required, which makes it available to anyone, not just IT specialists with knowledge of coding. It does not require any changes to an existing system's infrastructure. The bots function as virtual employees, just in the same way as human employees, therefore processes are accomplished more quickly. Human error such as fat fingering or lack of attention to detail is completely removed. RPA works in the same way as the human worker completing the task would do, only better and without manual errors, which is one of the benefits of RPA in processing highly manual repetitive tasks.

RPA benefits and limitations are explored in detail in the following sections. This section does not attach any value to RPA but rather states factually what tasks are suitable for RPA and therefore, as a result, highlights some of the limitations of RPA which the researcher leverages in the core research presented in Chapter 5.

1.9.2.6. RPA Benefits

RPA aims to automate repetitive, manual, mundane high-volume tasks that do not require expertise but take up valuable employee time which increases the risk of errors and delays while decreasing the time employees spend on tasks that require human interaction or the expertise of a highly trained employee. Errors and delays can cause financial, regulatory or reputational loss to organizations. If implemented correctly and is used for the right tasks, RPA can minimize these operational risks that are inherent in any back or middle office function of organizations such as investment firms.

One immediate attractive benefit of RPA is quick ROI. Basics for any ROI calculation are derived out of taking the profit of an investment over the cost of the investment, this produces a ratio or a percentage (Chen, 2019). In order to measure ROI in RPA there are many proposed models, Chief Strategy Officer of UiPth, Vargha Moayed, argues that while most organizations calculate ROI based on processes in periods of shorter than a year, "My recommendation would be to build a business case for your RPA program over a 24 to 36-month period. To do so, you would need to identify the benefits on the one hand, and all the related costs on the other" (Vargha Moayed, 2018). The ROI calculation methodologies are detailed Chapters 2 and 5.

RPA vendors, RPA solution providers, as well as consultants agree that there are numerous application areas for RPA. In an in-depth guide, entitled: *61 RPA Use Cases / Applications / Examples: In-Depth Guide [2019],* AI Multiple listed 61 examples to the benefits of RPA. Additionally, the bots can operate 24 x7 without any breaks.

Several sources indicate that client services present good opportunities for RPA implementation with examples of RPA uses in client services across several industries due to the client facing nature the client services groups hold. However, use cases and scenarios are not publicly available yet for client services of institutional investment management firms and therefore present a gap in the research.

RPA promises speed, reduced errors, continuous operation and auditability of mundane manual tasks, while guaranteeing compliance to rules and regulations. This frees up valuable employee time which will inevitably increase employee satisfaction and one or several of the above points will in turn increase client satisfaction.

The bottom-line benefit of RPA is that it promises rapid return on investment (ROI): "a return on investment anywhere from 30% to 300% in the first year" (McEachern, 2018) through:

- Reduced operating costs

- Reduced time on automatable tasks

- Better resource allocation, allowing employees to focus on customers and non-mundane tasks in turn, increasing employee satisfaction and productivity

- Increased quality in production through reduced manual tasks that are prone to manual human error

- Auditability and consistency in processes

These benefits are achieved through implementation of a non-invasive technology which is decisively worth investigating for any firm alongside limitations.

1.9.2.7.   RPA Limitations

1.9.2.7.1. RPA Suitable Tasks

RPA is suitable for repetitive processes that have already been streamlined. The operating concept is in processes that have already been streamlined. RPA is not a tool to simplify a process, it automates what is already in its simplest form. The expectation is not having RPA simplify a complex process. Therefore, prior to any analysis on benefits of RPA it is important for firms which consider adopting RPA technology to have <u>clearly defined</u> repetitive, manual processes. The data that will be automated needs to be structured and rules based.

1.9.2.7.2. Data Structure

Structured data can be exemplified by a simple excel table, which is organized and housed in databases (Jones, 2018). Semi-structured data can be thought of as code behind a website. Email and web pages are examples of semi-structured data. Unstructured data can be best explained by plain text, image, video etc. RPA can quickly adapt to structure and semi-structured data. In order to process unstructured data, RPA bots need other tools such as OCR (optical character recognition) or NLP (Neuro Linguistic Programming) to name a few of these tools: "A current limitation of all RPA software robots is their inability to work with unstructured data. Recognizing this, the largest vendors are turning their focus to adding some elemental cognitive capabilities to their tools, such as for speech recognition, natural language processing, and extracting structured information from images such as scanned invoices and receipts" (Deloitte, 2017).

Within just two years after publication of the Deloitte report, UiPath, one of the early vendors of RPA, quote on their web site that RPA is able to manage the transition between structured and unstructured data, but their biggest challenge now is the volume of data requiring treatment (Deckard, 2019). Due to the speed that RPA has evolved, it is likely that unstructured data will not present the same level of challenge today. Research remains to be conducted on this point.

1.9.2.7.3. Rules-based data

Initial research on RPA suitable tasks reference having to be "rules-based". This requirement refers to the "if this then that" computer logic of rules which is

restraining. An expert on RPA clarifies what rules-based logic means for RPA implementation by breaking down how RPA functions. In the article published on the UiPath website, it breaks down work to be done into three categories: processes, activities and tasks. Tasks together form an activity and collectively activities can form a process. Rules-based requirements exist at the activity level which should not be a label attached to RPA implementation as a whole, "attempting to apply a robotic process automation criteria on the process level would be a mistake: rather, the activity level is where the relevant information is to be found…Some of those activities may be comprised of highly rules-based tasks while others may not' (Eddy, 2019). Rules-based terminology in RPA is relevant to activities that need to be completed in a specific sequence, otherwise it is misleading to restrict RPA as a rule-based tool.

The decision to identify processes suitable for RPA implementation has an accepted rule of thumb called the Rule of Five which suggests focusing on tasks that require fewer than five decisions in a chain of tasks, accesses fewer than five applications and requires less than five hundred mouse clicks (Le Clair, 2019). This rule of thumb presents a quick short cut into identifying RPA suitable tasks. The suitability challenges have been detailed further in section 2.2.3.1.3.

1.9.2.8. RPA Challenges

RPA implementation challenges originate with identification of which vendor to partner up with, what type of engagement and what to automate. Studies show that getting these two issues right from the beginning increase the success rate of RPA implementation (Lockwood, 2016, deloitte.com, 2018, Haliva, 2017). Yet at the same speed that RPA is spreading across organizations as a business process solution, most organizations do not benefit from RPA – this is because of not implementing it in the right way. Study on why firms "get it wrong" highlight that most organizations that fail at RPA implementation fail because of one or combination of the following factors:

- Lack of leadership: organizations do address digital transformation, however there is a lack of support in embedding technology as part of the overall strategy. RPA vendors emphasize the importance of leadership buy-in, planning and governance first, then they underline that for successful RPA,

the process that needs automation must be clear. Most organizations aim to automate the most complex tasks which may not be ideal for RPA.

- Automating the wrong processes.

- Organizations rush into the new technology: in order to remain competitive, firms are quick to launch RPA without the necessary due diligence.

In order to minimize the risk of failing due to one or more combinations of the above-mentioned challenges, organizations need to have a robust change management plan in place. Implementing RPA requires the same planning as any other change. Often this change management plan in RPA implementation can be referred to as being created as part of a Centre of Excellence (CoE) which is further detailed in Chapter 2.

1.9.2.9.　　RPA Best Practice

From the above section on challenges, it can be derived there are organizational, technological and process challenges. Best practice to overcome these challenges, intuitively would be then:

- To ensure the organization is prepared with an effective change management plan to address the people aspect of RPA implementation from ownership to employee engagement.

- To ensure processes are streamlined and adhere to the limitations of RPA implementation.

- To ensure technological suitability in process selection as well as vendor selection is appropriate and addresses the digital transformation strategy from a holistic approach.

1.9.2.10.　　RPA Market and Landscape

There is an influx of companies penetrating the RPA market. New entrants to the RPA market are both start-ups as well as established and existing solution or software providers who expand their offerings into the RPA market. The penetration of existing firms into the RPA market is through acquisitions and the discovery that some existing software is being used for automation and decide to enter the RPA

market directly rather than competing indirectly. In the case of start-ups which need to meet revenue targets, the quick and short-term solution is through price reduction – thus, the RPA market is rapidly becoming a buyer's market.

Analysts agree on the below depiction of the RPA vendor landscape:

Figure 1.8: Gartner's Magic Quadrant for RPA software -Image source Gartner, 2019

RPA pricing is usually based on an annual subscription of licenses charged per bot or can be component-based pricing. As the RPA market is becoming increasingly competitive, the vendors are pressured into adopting better price offerings to interested RPA users.   Gartner and other researchers' predictions are that prices will reduce further for bots. While even a year ago, there was ambiguity on how to monetize the value of RPA, today it is common practice to compare capabilities, commercial considerations, the total cost of ownership and ROI in examining the vendor landscape for the right RPA solution or vendor for the organizations. In the meantime, RPA vendors are going through a flurry of acquisitions and growing organically as well. The case study in Chapter 5 uses Blue Prism RPA technology which is considered a leading player among RPA vendors, as well as one of the first firms to launch RPA as an automation solution.

1.10. Conclusion to Chapter 1

In conclusion, market movements evidence that there is a diminishing growth rate in the investment management industry. The decrease in the speed of growth in the industry can be attributed to (i) change in investor preferences which cause investment management firms to reduce their fees, (ii) change in regulation and stiff requirements which requires additional resource investment, increasing financial and non-financial costs, (iii) change in investor demographics where client centricity (getting it right, not necessarily right now) is more important than ever, (iv) change in technology which is disruptive due to emerging tools such as RPA. Combined, these competing values highlight that firms need to identify opportunities that will allow them to remain in business or better, to gain a competitive advantage. As the change in industry and regulation applies across all firms, the two areas open for opportunities are combining technology and client needs to achieve their desired results.
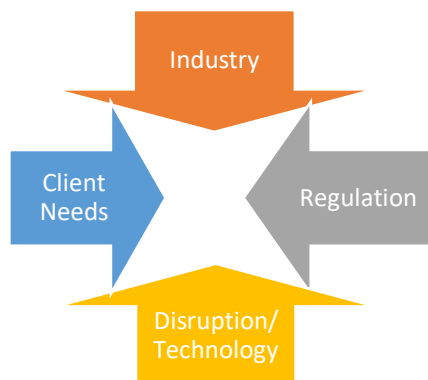
Figure 1.9: Pressures in IM – image self-created.

Even though firms seeking competitive advantage have long initiated continuous improvement programmes to enhance their business process management on an ongoing basis, the new pressures faced in 2018-2019 require businesses to seek competitive advantage in areas that have not been as exploited previously. These include client servicing and technology in relation to business offering in investment management. This exploration has forced firms to create a digital transformation strategy to stay ahead of the current disruption faced in the industry. One emerging disruptive technology is RPA. Its growth speed presents an area to match the change in client needs and enhance the client service experience.

RPA does not require any coding or knowledge of programming languages, though the implementation should involve IT departments from T-1: even before the analysis of whether RPA is suitable or not. The concept of IT involvement in implanting RPA has evolved during the period of 2016 to 2019.

When the researcher started investigating RPA, it was being marketed as a tool for business users, "One of RPA's main testaments that makes it so appealing is that the solutions are designed to be used by business rather than by IT developers to rapidly digitize processes - delivering significant value in short timeframes" (Haliva, 2017). Initially, RPA was "the tool to have". However, as will be uncovered in the following sections, partially due to lack of IT endorsement and involvement, the desired or promised outcomes to have not been achieved. RPA developed into being classified as another band-aid solution, a patchwork, a "parallel implementation where RPA is the band aid applied while a longer-term solution to the transformation of business operations through BPM, is deliberated" (Mahomed, 2017). A year later with cognitive automation developments, machine learning and NLP which are addressed in the technology section above, the marriage of RPA with AI promised what is called intelligent automation (IA) where RPA is projected to provide solutions that limit it today. RPA is commonly accepted as a first step into hyperautomation.

The digital transformation strategy is part of the overall strategy and as with any new initiative an effective, robust change management plan needs to be in place and the driving unit proposed to implement a successful RPA implementation in the journey to digital transformation is the CoE. RPA, its successful implementation, limitations, challenges and the role of CoE across industries has been researched extensively since the birth of RPA. However, how RPA can add value to CSG in large investment management firms remains unexplored.

It is the aim of the researcher to critically analyse RPA implementation for MIM CSG in the following chapters. Chapter 2 is a comprehensive literature review on existing research, setting the scene of the current status of investment management client services sector and providing the worldview on RPA. The synthesis in Chapter 2 leads into the conceptual framework and research methodology in Chapters 3 and 4respectively. The core analysis chapter is presented in Chapter 5 with Chapter 6 providing conclusions, findings and recommendations.

2. Chapter 2- Literature Review

"As industrial robots transformed the factory floor, RPA bots transform back offices"
(AppliedAI, 2019).

2.1. Introduction to Literature Review

This chapter is structured in alignment with the research objectives to critically examine both the existing research and literature which is significant to the investigation carried out by the researcher. The literature review provides information on the concepts within this dissertation with the purpose of bringing its importance to the fore, the familiarity of the researcher with the topic and to highlight any gaps in existing knowledge that forms the basis of this dissertation (Okpala, 2019). This chapter addresses the three main research objectives in detail.

The three objectives of this dissertation are the pillars that form the research; these are: (i) The current state of the investment management industry (IM) and the institutional client services department (CSG), and identification of tasks that are pain points and potential RPA candidates (ii) Robotic Process Automation (RPA) as part of a digital transformation strategy, critically evaluating it as a potential appropriate digitalization tool for enhancing CSG processes, uncovering it's benefits and limitations and (iii) Established best practice for RPA implementation as well as predefined challenges in its effective implementation to derive the stated benefits and overcome existing challenges in forming the basis for researching RPA implementation in MIM CSG through a specific BLCP framework. In creating this specific framework, the researcher leveraged established business, change management and user acceptance theories. The BLCP framework is built upon integrating concepts from PESTEL analysis, ADKAR change management model, , Technology Acceptance Model combined with best practice applications set forth in existing RPA research. The empirical case study has been based on qualitative research in three parts in establishing and then validating the BLCP framework. The chapter ends by re-enforcing the lack of research for RPA implementation in CSG in IM, highlighting the valuable contribution of this research.

The three objectives therefore, lay on the foundations of the theoretical framework of literature review:

(i)   **Issues** – understanding topics and issues relating to investment management, client services, related processes and tasks and current challenges faced to warrant exploring RPA as one of the available technology tools to enhance and optimize process flows (investigated in pillar one).

(ii)   **Concepts** – understanding what RPA is, process automation, optimization and outsourcing, cost of ownership and ROI (investigated in pillar two).

(iii)   **Models** – understanding the applicability of change management as well as, technology implementation models in RPA implementation specifically as they apply to CSG in IM (investigated in pillar three).

(iv)   **Theories** – understanding elements of Technology Acceptance Model (TAM) as well as ADKAR as a change management model in overcoming challenges (investigated in pillar three).

(v)   **Challenges** – understanding the perceived and established challenges in managing change generally and more specifically managing change as it applies to implementation of a new technology (investigated in pillar three).

Based on the theoretical framework, the first pillar identifies the current status of CSG within a specific institutional investment management firm where the researcher is employed. It provides the background for the motivation of the research. The second pillar critically evaluates the current state of RPA as part of a digital transformation automation tool. The last pillar overlaps with the need for change identified in the first pillar, with RPA as the potential solution in the second pillar. Each research pillar is supplemented with the research questions set out in Chapter 1 to guide the investigation of this dissertation. The chapter concludes with a table listing the research questions and a synthesis on the findings of the literature review conducted in this chapter.
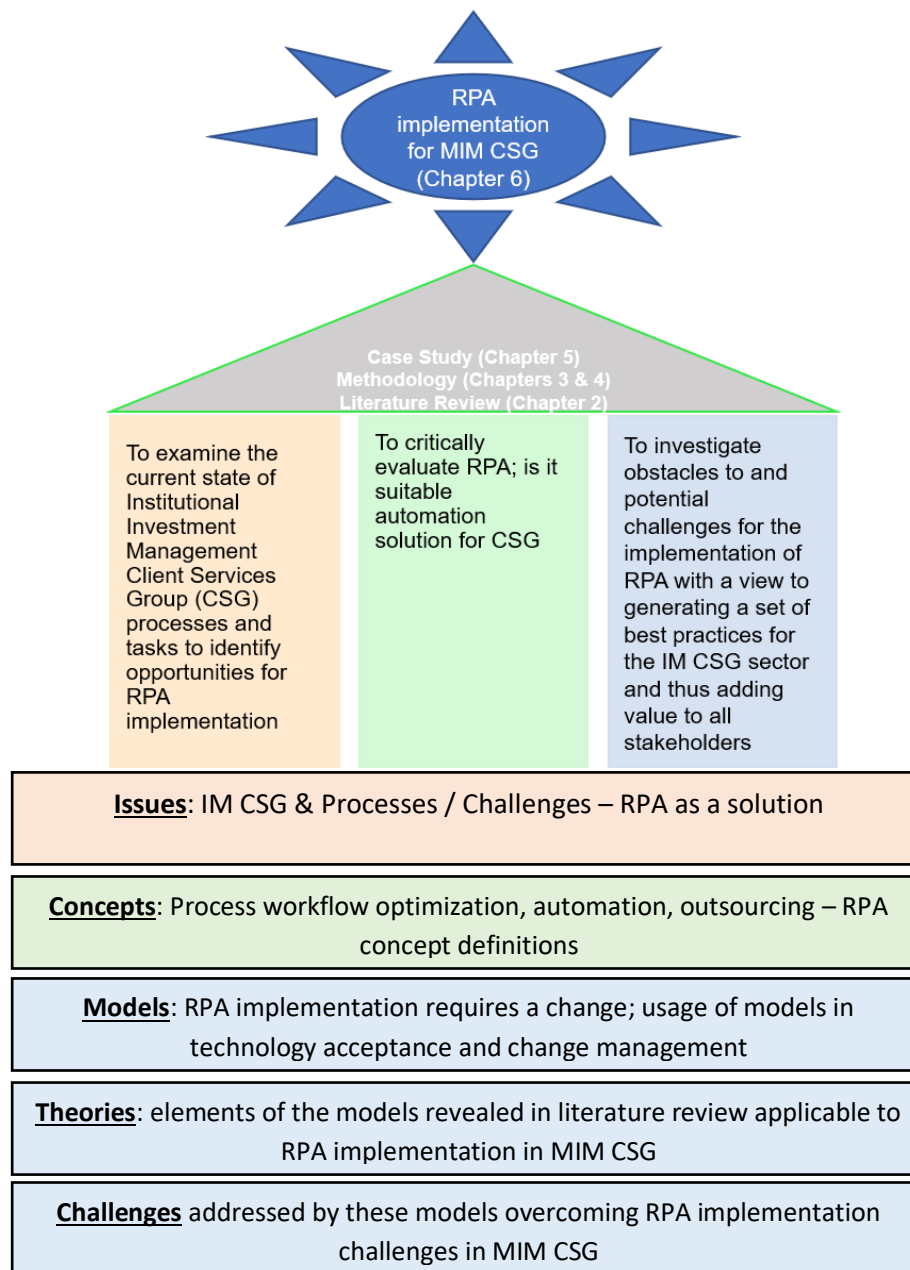
Figure 2-1 Theoretical Framework and the Three Pillars of Literature Review – image adopted from MacIntosh, 2009.

2.2. The Three Pillars

The financial services industry, which includes the investment management sector, has undergone significant shifts; viewing the past two decades, it is observed and argued that the liberalization of financial markets while it may have encouraged the strengthening of financial development, due to deregulation and globalization, liberalization has exposed the industry to "systematically becoming more susceptible to both currency and banking crises after financial liberalisation" (Weller, 2001). The late 1990's and into the first decade of 2000's, global financial crises

have led to the tightening of regulations once again. In parallel, the infiltration of technology into the financial services industry has created a sub segment, referred to as fintech which is a term that is derived by merging the terms 'financial' and 'technology' together: "Financial technology (Fintech) is used to describe new tech that seeks to improve and automate the delivery and use of financial services. At its core, fintech is utilized to help companies, business owners and consumers better manage their financial operations, processes, and lives by utilizing specialized software and algorithms that are used on computers…" (Kagan, 2019). Today, institutions allocate significant resources to technology – such as RPA - by inserting it in their overarching strategy in order to remain competitive. Through their "continuous improvement", "innovation" and "digital transformation" efforts, institutions strive to differentiate themselves. It is the aim of the researcher to analyse RPA as a digital transformation solution in IM CSG in the quest for differentiation in the competitive landscape.

2.2.1.   Pillar 1: Institutional Investment Management Client Services

Scholarly reviews on institutional investment management- and specifically the client services group- serves as the first baseline of this dissertation. It aligns with the research questions directly, in that understanding how institutional investment management firms generate profits and the role of the client services group will form an in depth understanding of how RPA can add value to maintaining market share (at worst) and by increasing market share (at best). In this section, the definition and history of investment management; institutional clients and the role of client servicing as well as processes that cause bottle necks could be potentially automated through RPA are documented through existing research. This is followed by exploration of the challenges faced in the sector to highlight the opportunity for enhancing client services as a way of remaining existent and competitive within the sector.

2.2.1.1.   Investment Management Overview

This section provides a detailed analysis of the industry. A thorough understanding of the industry highlights the opportunity for gaining a competitive advantage within it. The research aims to demonstrate that there is an opportunity to gain advantage through efficient implementation of technology, specifically in this case, implementing RPA. The scope of the analysis in this dissertation is the client services of large

institutional investment firms operating within the UK investment management sector. It describes how technological developments (such as RPA) can and should be applied within client services to enhance companies' offerings as a way of creating a competitive advantage.

Financial historians agree that while the concept of investment, trade and public companies originated about four thousand years ago (Kahn, 2019) the roots of investment management as we know it today can be traced back to the establishment of investment trusts in the mid-19th century. The Foreign & Colonial Investment Trust which was established in 1868 is the oldest investment trust (Gosling, 2019). JP Morgan Asset Management define "investment trust as a public listed company designed to generate profits for its shareholders by investing in shares of other companies" (Am.jpmorgan.com, 2019). Similarly, investment management companies today aim to generate profits for their clients, the investors, through managing the clients' wealth by investing in various financial instruments such as stocks, bonds, private placements/private equity, real estate, infrastructure, to name but a few of them.

As stated in the introduction of this dissertation, investment management is also referred to as wealth management, asset management and portfolio management; these terms have been researched interchangeably for the purposes of this dissertation. The investors form the clients of investment management firms and can be individual clients or institutional clients such as other funds, insurance companies, governments or educational establishments. Investment management firms generate their revenue by charging a fee based on the assets they manage; assets under management (AuM) and sometimes by additionally taking a percentage of the profits that they generated for their investors (Brightnetwork.co.uk, 2019). According to the annual industry report published by Boston Consulting Group (BCG), the global AuM was $74.3 trillion in 2018 (https://www.bcg.com, 2019): "The value of assets under management (AuM) fell by 4% globally in 2018, to $74.3 trillion from $77.3 trillion. This was the first significant year-over-year decline since the crisis year of 2008". The historically steady growth in the sector is demonstrating a softening, having plateaued in 2018 (Browne, Sundstrom and Worth, 2019). This reported decline is one of the sources for the urgency and importance of differentiation through enhancing offerings.

The Investment Association, "the trade body and industry voice for the UK's leading investment managers" (The Investment Association, 2019) published their annual Investment Management Survey 2018-2019 and referenced the BCG report in their estimation of the UK AuM figures £9.1 trillion, placing the UK as the second largest investment management centre after the United States.

According to the UK government's HM Treasury publication: "The asset management sector contributes £5-7 billion in tax revenue and generates around 1% of the UK's Gross Domestic Product (GDP)[2]". Based on the annual reports published by the Investment Association, it is observed that institutional investors remained constant through the period of 2008 to 2018[3]. This steady pattern in the industry, as well as institutional investors is depicted in the table below.
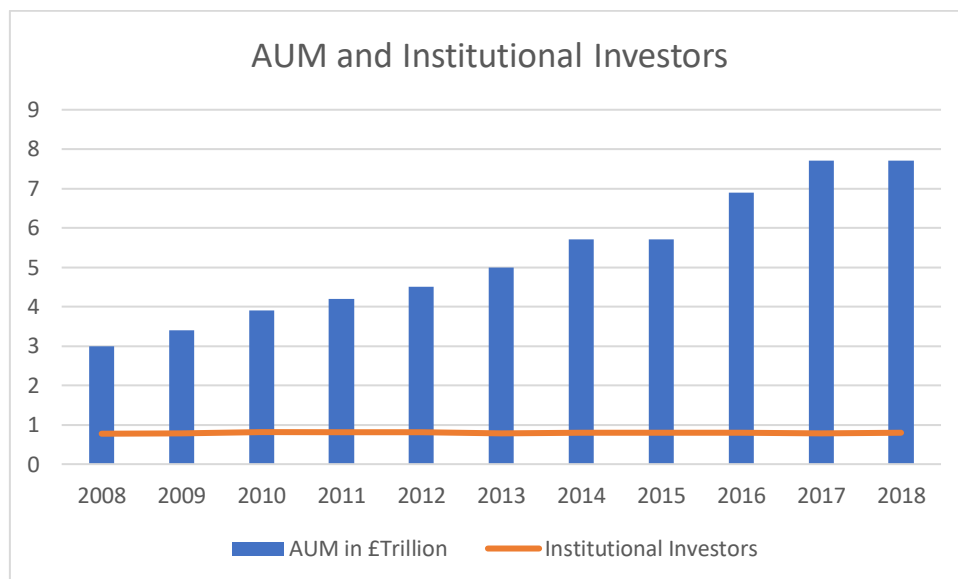
Figure 2-2 UK Institutional Investors AUM - image self-created using data from HM Treasury and The Investment Management Association.

It is therefore apparent that institutional investment management is an important industry within the financial services sector. In the next section, the researcher addresses the challenges facing the industry, to demonstrate the importance of the client service experience as an opportunity for advantage creation.

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[2] HM Treasury
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/665668/The_Investment_Management_Strategy_II.pdf
[3] The Investment Management Association Surveys https://www.theia.org/industry-policy/research/investment-management-survey

2.2.1.2. Challenges Facing Investment Management

The macro-environment can be summarized through the usage of the PESTEL analysis which provides a high-level understanding of the challenges faced in the investment management industry by separating the world in which it operates into political, economic, social, technological, environmental and legal factors. The PESTEL analysis is used to highlight high risk factors where risk can be reduced by a tweak in any factors, such as implementing technological change to impact external as well as internal environment:

Political (Medium Risk) -> Globally, firms are exposed to unrest which is true of the political situation in the UK. An additional risk factor in the UK is Brexit and all recent publications, white papers and analysis include the implication of it on the industry. Brexit exposes UK firms operating in the EU and globally, it is not a risk confined to only UK investment management. In a Financial Times article, Alicia Clegg explores the potential negative impact of diluting the EU regulated rules around employment laws in post-Brexit UK, should the UK be in an economic downturn requiring acquisition of cheap talent (Clegg, 2019). Other sources explore the opportunities that can be created post-Brexit: the client service experience can be leveraged in reducing the impact of Brexit as client service groups will need to be knowledgeable and able to navigate clients across the new landscape and regulations (Parekh, 2018; Cliffordchance.com, 2016; Bahel and Salemangi, 2016). The expectation is that client service teams need to have sufficient time to be able to deal with changing client demands; and delivering requests in a timely manner across various time zones is more important than ever. The client service workforce needs to be freed up from mundane repetitive tasks that do not require expertise but take up a lot of time, depleting valuable human resources.

Economic (High Risk)-> While the external economic impact on the UK investment management industry applies to all businesses, a differentiator will be in internal economic factors such as team efficiencies and productivity (Albrice, 2016). Talent attraction and retention are factors that can reduce internal economic risk, and this is directly correlated with employee satisfaction. One way to achieve increased employee satisfaction is through automation such as RPA (Ey.com, 2018).

In Chapter 1, it has been evidenced that compression in fees and tightening margins have impacted, and are projected to further impact, the investment management industry and there is an active and collective search for revenue generation. Automation, specifically RPA, is proposed as a quick solution to indirectly impact the bottom line of organizations. Deloitte published a study on how investment management can benefit from RPA and found that "limited organic growth, fee and margin compression" present challenging industry economics (Deloitte.com, 2018). RPA is the effective solution to create value and add advantage to organizations who adopt it efficiently.

Social (High Risk/Opportunity)-> Social implications are three-fold, (i) the purchasing trends (inclusive of purchasing investments) are changing (Deloitte, 2019), (ii) demographic studies evidence that the upcoming generation are looking for meaningful work which technology is projected to unlock (Vesty, 2016) and (iii) the demographic decline in working age population proportion to overall population (United Nations Department of Economic and Social Affairs, 2019). All three factors contribute to the case to derive benefit from automation trends such as RPA (Tayeb, 2018). Further published business research indicates that robotics is a necessity in the face of shrinking demographics (Watson and Wright, 2018). Confronted with these social challenges, RPA, as an automation solution promises to deliver value by automating tasks therefore allowing firms to utilize their talent more efficiently. Additionally, the cost of RPA is less than a salaried employee (depending on location) therefore firms would potentially be benefitting from reduced labour costs. Robeco, an institutional investment management company, who claim to be investment engineers have "research in their DNA" (Pure play asset management | Robeco.com, 2016). They conducted a study and predict that the shift in investor profiles will re-define the investment sector in the coming years, but they argue that by "incorporating technology, the customer relationship that was built up during many decades can be preserved and new customer groups can be served". The demographic shift has a global impact, and the UK is included in this trend. There are numerous studies demonstrating how the wealth management industry needs to accommodate this shift by addressing, on one hand the ageing demographics and on the other the upcoming generation which is projected to have different investment

behaviours – technology is believed to be the bridge to either side of the gap (Doidge, 2019).

Technological (High Risk/Opportunity) -> As it relates to the PESTEL analysis in this section, RPA is one of the technological developments that impacts the investment management industry as well as across all industries; its successful implementation promises to deliver a contribution to the bottom line of organizations. It is important to comprehend that speed is not the critical factor in adapting to new technologies, it is utilizing the technologies appropriately. It is insignificant if a report can be published within seconds, if this does not matter to the end-user/client. The concept of keeping client needs uppermost is what is relevant, not what the technology can accomplish.

Consultants, researchers, sector analysts all echo that the investment management industry is in a state of "disruption" (Lowry, 2016; Webber, 2018; LTI, 2019). Disruption refers to change in a business or sector that creates a new market or a new process. Digitalization is the main disruptor currently affecting the investment management sector. Referring to the digital journey of investment management firms, some research refers to the process of digitalization as digitisation and for the purpose of this research, these terms have been used interchangeably. However, there is a nuance between the two terms: "**digitisation** is the process of converting information from a physical format into a digital one and **digitalisation** is leveraging this process improve business competitiveness. (The results of this process are called digital transformation)" (WorkingMouse, 2017). An example of the importance of digital transformation is the February 2018 announcement that the Lloyds Bank Group would invest £3 billion in their digital transformation to achieve: "Broader and deeper digital transformation, simplification and progressive modernisation of our IT and data architecture, more agile and more efficient ways of working Investing to build key skills of the future" (Lloydsbankinggroup.com, 2018).

In a recently published report by Temenos (which is a company providing software to the banking industry), "digital transformation is a top priority for asset managers, however the significant constraints imposed by legacy technology systems, were cited by 54% of respondents globally as a major problem holding them back" (Temenos, 2019). In further sections, it is evidenced that RPA is a tool that bridges

legacy technology systems with current technology and can be used to reduce the impact of the risk existing in the technological environment.

Environmental (Low Risk)-> Climate change or as it is currently more commonly referred to as the climate crisis, presents risks as well as opportunities according to research as well as the major investment management companies. One such opportunity is ESG. Environmental, social and governance (ESG) is the new hype in investment management. ESG, also referred to as sustainable investing, requires companies to analyse their investments based on companies who are responsible environmentally, socially and within their governance. It is expected that the investment management sector is undergoing major changes due to ESG as well as AI (Flood, 2019): "AI can help sustainable investors process mountains of data that hold essential information for ESG investing" (Spglobal.com, 2019). Therefore, applying technology such as RPA enables companies to score higher in ESG platforms.

Legal (High Risk)-> Heightened regulatory requirements make a challenging landscape for the investment management industry; IM firms are investing heavily in their legal and compliance departments to ensure compliance with new rules and regulations. There is a strong case for automation in this arena to create a competitive advantage through RPA, which delivers an error free and auditable workflow.

Economic, technologic, social and legal factors of the PESTEL analysis present an environment of high risk for the investment management industry. RPA implementation has a direct positive impact on all four areas and therefore further analysis of which areas of IM can capture most benefits from the technology is evidenced next.

2.2.1.3.   Institutional Investment Management Client Services

Further detailing the traditional model of investment management from Chapter One, the groups within the investment value chain are: Front Office, Middle Office, Back Office, IT and HR.
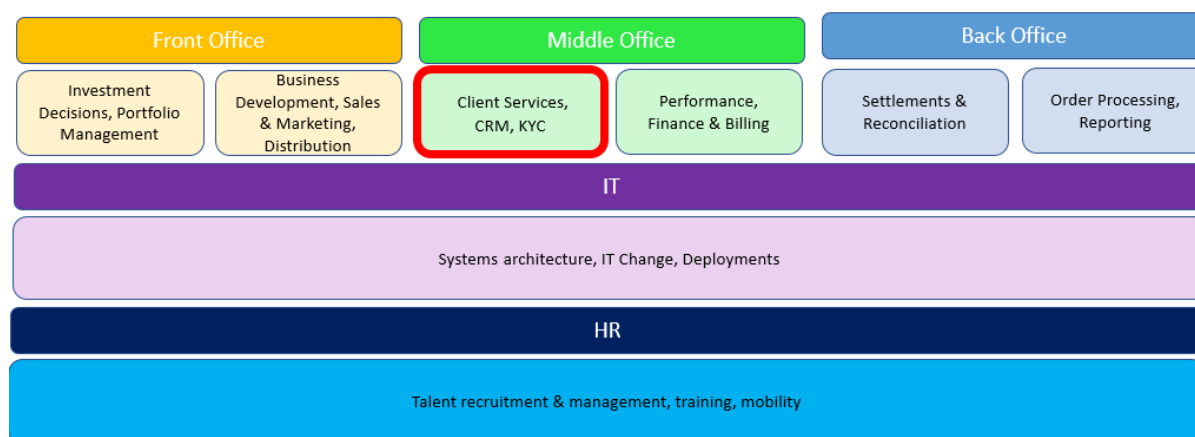
Figure 2-3: Investment Management Departmental View - image self-created.

There is existing independent research highlighting the same opportunities for efficiency gain within client services through automation. Deutsche Bank's Research Team, jointly with Oliver Wyman, published a report in May 2019 highlighting the importance of finding new operating models to reduce the time allocated by relationship managers to low value-added administrative activities (Oliverwyman.com, 2019). In their report, they highlighted client services as a focus area for proven potential to increase efficiency.

Client services traditionally have been placed as a middle office function, though more and more it is observed that the functions expected of client services also cross over with both front and back-office functions, as these teams directly interact with clients in whatever support service the latter may need: "They're directly supporting the people who are interfacing with clients (Butcher, 2019). Especially on the institutional investor front, investor teams need support directly from the investment manager. For example, a member of the front office at the investor's may require pricing information and the former will reach out to client services. Similarly, a team in the back office at the investor's may require reconciliation information and they too will reach out to client services. It is a centralized support function, also viewed as the first point of contact for any business-as-usual client queries.

Therefore, the role of client services is paramount to client retention, and firms which recognize the significance of this role are shifting their views in how client services teams are traditionally viewed: "To recognize client service's contribution to account retention, client satisfaction and asset growth, compensation was changed so that

the individual assigned to an account received a percentage of the fee revenue from the account" (Pensions & Investments, 2019).

Some back-office support functions cross over with processes done by the client services team. The allocation of these processes is an inefficient usage of the workforce. The CSG spend much valuable time on tasks that could otherwise be completed by bots which competes with time when CSG could be interacting with internal as well as external clients. Organizations have evolved in that most of the functions that can be outsourced or accomplished by back offices have already been aligned as such, yet there are still functions that can be automated to free up human resources. Research shows that only 30 to 40% of work is role specific (McKinsey & Company, 2012) which means that there still is an opportunity to enhance the majority of the work. This dissertation is designed to identify client services tasks in order to critically evaluate if RPA is the right automation solution to relieve resources in the CSG so that they can be productive in their roles by addressing role specific tasks.

2.2.1.4. Client Service Group (CSG)

Putting the client first is also not a new concept, however in asset management it has rapidly gained the spotlight in face of the increasingly challenging landscape. Traditionally, investment management firms differentiated themselves through their products (Kennon, 2019). More recently however, organizations realized that by enhancing their client service experience, they can create a competitive advantage. Research shows that firms focused on client experience are 50 to 60% more profitable than their competitors who are not (Knexus, 2018; KPMG, 2017; Powell, 2016). The investment management sector is facing new challenges and pressures from all sides; putting the client back at the centre is the focus of the sector today and CSG has been placed on the frontline. In their 2019 Insights report, Deloitte describe that the enhanced client experience depends on attitude and capability (Www2.deloitte.com, 2019). One way to prioritise clients is through placing CSG at the centre of business and optimising efficiency for teams by using technology.

2.2.1.5. Client Service Tasks and Processes

Research indicates that implementing RPA across client services teams is a necessary development for firms operating within the financial services sector: a recent study highlights several areas within IM value chain that bear significant opportunities for RPA implementation:

Front Office

Asset Allocation

| Equity | Fixed Income | Structured | Monetary |
| Diversified | Alternative | Savings Plan | Discretionary Management |

Client Relationship

| CRM | RFP |
| KYC | Client Services |

Marketing & Communication

Marketing

| Products & Fund Ranges | Services | Digital Marketing | Client Satisfaction Measurement |

Distribution

| Internal Network | External Distribution | Distribution Network Support |

Communication

| Digital Communication | Branding |
| Event | |

Business Decision Support

Operations

| Business Analysis | Forecasting |
| Internal Controlling | Project Management |

Controls & Finance Management

| Accounting / Tax Policy | Internal Audit |
| Financial Analysis & Controls | ALM |

IT

| Architecture | Service Delivery | IT Change |

Middle Office

Order to Cash

Order Entry	Billing
Cash Application	Collections
Bank Reconciliation	Treasury Management

Performance & Client Reporting

| CRM | RFP |
| KYC | Client Services |

Risk Management

| Operational Risks | Market Risks |

Back Office

Fund Valuation

| Fund Accounting | Fund Lifecycle Events |

Securities Services

| Asset & Fund Services | Clearing & Custody |

HR

| Recruitment | Savings |
| Training | Mobility Management |

Opportunities for Automation: low | medium | high

Figure 2-910: Investment Management Value Chain for RPA - image source: Deloitte.com, 2018.

The figure is of overarching investment management firms. As this paper is focused on client services, it therefore will not address all of the areas of the value chain, only as they are applicable to the traditional model presented in figure 3, Chapter One.

The tasks and processes ripe for RPA implementation as applied to the traditional IM CSG model are detailed below:

- KYC and AML – Regulating bodies require financial services firms to comply with stringent "Know Your Client (KYC)" and "Anti Money Laundering (AML)" requirements to satisfy appropriate customer due diligence (CDD). Prior to onboarding any client onto the books and records of the institution, CDD needs to be completed. These checks are manual and time consuming in nature, furthermore their integration into the institutions' systems provide an additional layer of manual and time-consuming tasks to be completed. Research shows that the additional requirements set forth by regulators to onboard clients cause

an increase in onboarding activities: "The average time to onboard a new financial customer is expected to increase from 28 days to 32 days this year" (Thomson Reuters, 2017). In response to the projected increase in costs in time and money to complete CDD, Kofax, an RPA solution provider, suggest that RPA be used for CDD to reduce processing times by ninety percent, increasing employee "productivity, service levels and capacity by thirty-five to fifty percent" (Kofax, 2017).

- Onboarding and off boarding – Onboarding and off boarding are triggered by the front office in collaboration with the client. The necessary information required to complete CDD are passed from the client and or front office to the client services team. This manual process is a major pain point that an RPA solution provides and claims to resolve by identifying any missing information going through countless documents much faster than human workers and only alerting the client services team when required. Bots can be configured to set reminders to obtain the necessary information as onboarding is time sensitive; onboarding and therefore no investment activity can be performed before completion CDD. The RPA then accesses the existing systems to set up the necessary accounts and portfolios, fully integrating itself with legacy systems (Sia Partners, 2019). RPA removes the bulk of manual requirements, freeing up time for the client service representative to focus on the client experience at onboarding.

- Billing and Invoicing – Billing and invoicing require many manual steps in comparing and validating the companies' books and records, comparing them to internal and external reports before publishing the final invoice. "RPA facilitates shorter invoice cycles and simplified approval processes" (Berg, 2019). Having to "crunch numbers", then to manually enter or to transfer them into the billing and or invoicing systems, then having them validated and cross checked by another member consumes an inordinate amount of time, utilizing 2 human resources. RPA implementation removes the manual component, adds speed to the whole process, enabling the team to focus on decision making tasks, discrepancies and errors.

- Reporting – Client services teams are held accountable to ensure that clients receive their requested reporting periodically. These reports can be daily, weekly, monthly on month end, quarterly at quarter end or yearly. Some clients expect a

certain degree of customized reports while investment managers push back on customization as the latter hinders scalability. On the other hand, being unable to customize reports hinders the client experience. In another example, clients in different time-zones tend to request reports before the start of the business day in their location, which may not coincide with the timing of the batch reporting timings of the institution. These two examples of client reporting requests present an opportunity to generate value through automation. Bots can access external systems at any time with their unique user ids and passwords, download information, cross-check/reconcile with internal books and records, reformat/customize reports, open and send emails at any given time, depending on if they are configured to be triggered or set to perform the task at given times (Empaxis, 2018).   RPA implementation in reporting functions of CSG therefore saves money and time while providing a fully digitalized audit trail; it also provides an enhanced client and employee experience.

2.2.1.6.   Conclusion of Pillar One

The core research question in this dissertation is: "Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?" The secondary research questions serve to provide a guide for analysis in answering this core question. The first secondary question is: "What are challenges in CSG that warrant an enhancement?". The above literature review addresses this question in that there is indeed a need for change, an enhancement to the current state of CSG.

	Research Questions	Literature Review Coverage
	Core Research Question:	
	Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?	To be researched
	Secondary Research Questions:	
1	What are challenges in CSG that warrant automation enhancement?	IM sector facing challenges and enhanced CSG activity can result in increased competitiveness and profitability

Figure 2-11: Research Questions Table Q1 - image self-created.

The pain points detailed above in CSG task processing overlap with other industries in which RPA has delivered a solution. It is worth researching further if RPA will be the right automation solution for CSG. What RPA is, it is limitations and benefits,

how it can be the driver for digital transformation in an investment management firm's effort to adopt to technology are detailed in the following section.

2.2.2. Pillar 2: Critical Evaluation of RPA; Limitations and Benefits

2.2.2.1. RPA and Digital Transformation

Robotics Process Automation's (RPA) critical evaluation of existing research serves as the second baseline of this dissertation. It aligns directly with the research questions in understanding how RPA functions and how organizations can generate value out of its implementation to achieve competitiveness. In this section, the world view on RPA is presented through existing research conducted by consultants, vendors and other publications to highlight themes in both the existing research and uncover emerging ones for future studies. The section continues with the benefits and limitations of RPA to support the findings of existing successful and failed RPA implementation case studies, to examine challenges and best practice in the existing research around RPA implementation.

RPA penetrated the software market in 2016 with revenues of US$ 271 million to revenues of US$ 846 million in 2018 (Statista, 2019) a growth rate of 63.1% compared to the previous year (Gartner, 2019). According to various industry analysts, the fastest growing software, RPA, is projected to reach US $8.75 billion by 2024 (Tulli, 2019). Other projections are more conservative, Forbes magazine reported that "Leading industry analysts believe the market will be worth at least US$ 4.3 billion by 2022" (Robbio, 2019) while another prediction totals US $ 2.9 billion in 2021 (Le Clair, 2019), yet another research study forecasts the global RPA market as reaching $3.97 billion by 2025 (Researchandmarkets.com, 2019). Conservatively, regardless of the projected market value, it can be stated that industry specialists all agree on the growth and potential of RPA to be impactful in the next two to five years.

In the short timeframe of a year and a half, RPA interest along with market share is estimated to have grown approximately ten-fold. Gartner's research has been tracking usage and client interest in RPA as of 2014. By 2018, there were more than 4,500 total reported inquiries over an 18-month period with a year-on-year increase of almost sixty percent. Gartner also states that RPA is among the top five

researched terms. RPA research from 2016 to 2019, followed various phases, starting with what the "difference between RPA, BPM and AI" are in 2016 to "Scaling RPA" in 2018. In 2019 there were more queries on "establishing centres of excellence", on achieving "sustainable ROI" and on the future of RPA: how to balance RPA with IA (Gartner, 2019). Forrester surveyed the top RPA service providers and found that over 50% of deployed RPA solutions have scaled up to beyond ten robots. Published research also agrees on the market leaders of RPA: Blue Prism, UiPath and Automation Anywhere. The existing vendor and solution provider landscape is detailed in the following section, while interviews with selected leaders and solution providers is analysed in Chapter 5. The predicted growth in the RPA market is correlated to the expectation that the usage of RPA within organizations will also grow aggressively. Therefore, the current trend is to incorporating RPA as part of the digital transformation strategy within an organization's overall strategy.

Another buzz word that is increasingly associated with any RPA related research, is the "tipping point" in the context of the future of RPA. Two factors contribute greatly to the tipping point: (i) RPA is increasingly being combined with AI and transforming into what is defined as Intelligent Automation (IA) (ii) Almost half of the organizations will be looking into new categories of automation as they will be experiencing buyer's remorse "due to misaligned, siloed usage and inability to scale" (Gartner, 2018). The management of future growth in IA, misalignment and the challenge for scale are remedied by the proposal of a change management plan set forth by effective centers [sic] of excellence to guide firms through their digital transformation journey. In either of the cases of the tipping point, RPA is a bridge to the gap where businesses are now technologically and what they will become in five years' time.

RPA is a software robot, not an actual physical robot, with roots dating back to 2013 and the earliest published documentation, white paper or research found on the topic is dated 2015. The researcher commenced research on the topic of RPA in 2016 and has been actively involved in webinars and seminars, in addition to field work since the hype began around RPA. It is continually evolving, and this research is based on first generation RPA bots, which do not incorporate cognitive or intelligent bots. As this paper determines if RPA is the right tool for automating CSG tasks and processes in IM; and if RPA is the right technology, a question is: what is best

practice for its implementation? The evolution of bots has not yet matured. As RPA becomes a different technology, it has not yet been determined with any potential or budding RPA technology whether IA is out of scope.

In an era in which we currently observe leaps in technology, artificial intelligence has taken the spotlight. While actual physical robots, as they are described in science fiction books or depicted in movies are not *yet* common, variations in the AI spectrum have penetrated our daily lives with velocity and are being actively used across businesses both in their digital transformation journeys and in our daily lives with technologies such as Alexa and Siri (PWC, 2017; Accenture Consulting, 2017; IFP, 2019). RPA is one tool that falls within this spectrum:
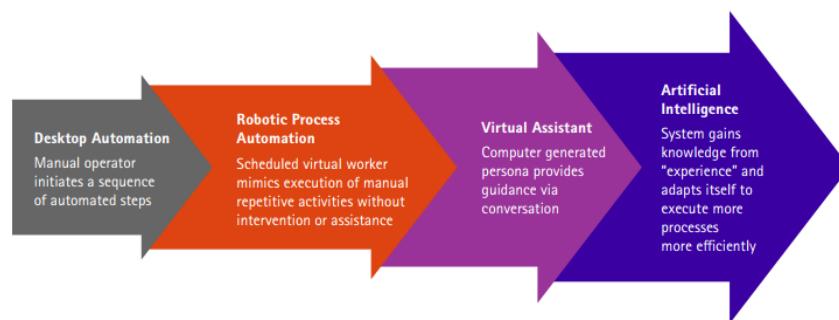
Figure 2-1213: Digital Transformation. AI Spectrum- image source: Accenture Consulting, 2017

RPA is not far along the AI spectrum as it is not complex in implementation and in usage. It is a system agnostic software that enables integration of data that exists across the organization's various existing platforms "to enable organizations to automate tasks as if real people were doing them across applications and systems" (Accenture Consulting, 2017). In its implementation, it is less disruptive and less risky than traditional IT enhancements which require programmers to program application programming interfaces (API) to layer or connect various platforms and software to each other. The traditional IT projects are lengthy, invasive and complex.

RPA is used to automate tasks that are routine and generally classified as "swivel chair" tasks, which refers to those that need to move from one system to another (Zarkadakis, 2016). Some automation of such activities was done through usage of macros, while these only run on excel, RPA is a system, "Infrastructure, Application and Process" agnostic (Gov.UK Digital Marketplace, 2019; BTerrell, 2019). Being a

system and technology agnostic, RPA is a digital transformation tool that is not invasive to existing systems architecture.

The RPA market is projected to continue to grow in 2020 and increased adoption rates are expected as more and more firms realize the benefits of automation and RPA as an effective solution to the cumbersome existing processes. There will also be a better understanding of how RPA will be integrated, to provide further solutions that current RPA technology does not resolve, so IA will take the spotlight. Technology will transform the workforce: "As efficient collaboration between digital workers and human talent becomes more vital, digital workforce management and governance will become increasingly prevalent…We will see new crossover between the chief human resources officer and chief information officer roles" (Casey, 2019).

2.2.2.2. RPA Limitations and Benefits

As in early adoption of any new technology or systematic to improve processes, consultants have been instrumental in paving the path for the speedy expansion of RPA adoption in companies. Researchers selected the top seven management consultant companies based on a Financial Times report (Hill, 2019) in UK's leading management consultancy companies to analyse the worldview on RPA Limitations and Benefits, these consultancy companies are in alphabetical order: Accenture, BCG, Deloitte, Ernst & Young, KPMG, McKinsey and PWC which all have countless articles on RPA limitations and benefits. The section below is an analysis on how the worldview of RPA developed through the lenses of the consultants, ending with a synthesis of the overall worldview of the limitations and benefits of RPA.

RPA from Consultants worldview, as of January 2020, is reviewed and synthesized below in highlighting limitations and benefits of RPA:

Accenture – On the Accenture website, the term RPA returns twenty-nine search results, with the earliest research dating back to 2015, when Accenture published that RPA is an essential tool to connect the front, back and support functions of companies (Accenture.com, 2015). In 2017, their research identified functions that are prime and best for RPA implementation. These areas are revealed as ones related to customer and client screening, due diligence during onboarding, monitoring during the lifecycle of the client and then on offboarding. There is a clear

focus on providing a seamless end to end client experience. The benefit is not only an enhanced client experience but also minimized risk at onboarding, during client servicing throughout the mandate lifecycle and at offboarding. Automating these tasks that collectively form the client servicing needs also enables employees to focus on decision making to complement automated services (Accenture.com, 2017) therefore generating a better employee experience. By 2018, Accenture stated that "Change is no longer optional" in the digital age and advised industry incumbents to incorporate the digital transformation into their overarching company mission, vision and strategy (Financial Firms Struggling to Assess Risks of Disruptive Technologies, Accenture Report Finds, 2019). In the same year, their published survey concluded that eighty percent of executives plan on using advanced analytics in their automated processes. By 2018, as established by the same survey, the majority of companies with more than US$1 billion in revenues have already started their journey in digital transformation. Accenture advises that successful transformation requires identifying "low hanging fruit" opportunities; these are processes that are already streamlined and voluminous. The reason for targeting these processes initially is that they will provide the opportunity for scaling. Accenture set forth a four-step process that involves (i) identification of the right processes, (ii) prioritizing pilot automation that will serve as the success story for further automation efforts, (iii) creating a 'lessons learned' document that can be transferred to other lines of businesses and (iv) to expand the effort across the business (Accenture.com, 2018). The proposed steps are not prescriptive and detailed enough to enable companies to initiate automation projects and Accenture further provides more clear guidance on implementing RPA.

In an RPA and automation related insight, Accenture highlights that the upcoming generation are tech savvy and claim that they will want to be employed in companies where technology is used efficiently and will not be attracted to boring, mundane tasks that have hindered many employees up until today. In the same research, Accenture refers to a "new center of excellence" which would enable institutions to embed innovation, technology and automation to their core, removing reliance on outsourcing. Their research is based on a successful case study in which through automating twelve processes through RPA, more than forty-five fulltime equivalent (FTE) had been freed up. Up to this point however, while non-financial benefits are

evidenced, there is insufficient information or research on ROI achieved through RPA. By August 2018, Accenture highlighted that RPA alone is not a breakthrough innovation but when it is coupled with machine learning and AI, the combination of these two technologies will transform the way tasks are processed: "Transformative value comes from more sophisticated forms of AI" (Powell, 2018).

In a published case study on invoice processing, Accenture stated a seventy percent efficiency gained in process time, which yielded a thirty percent productivity increase with zero percent errors. By 2019, Accenture had sufficient research into actual cost savings figures: "The client gained more than $5 million in profit and loss (P&L) savings, decreased invoice processing time from 15 days to just one, and dropped process cycle time between 50 percent to 75 percent across processes. $100 million in working capital improvements were achieved, equivalent to an annualized P&L impact of $18 million" (Accenture.com, 2019). In their research dated October 2019 on asset managers, Accenture found that while the majority of institutions are observing desired outcomes with eighty-two percent reporting positive results, seventy-two percent of respondents raised concerns that the rate of developing technology surpasses the rate of skills development, to manage and effectively use these technologies. The researcher holds the view that this concern is mitigated by effective CoE.

BCG – On the Boston Consulting Group website, the term RPA returns twenty-five search results, with the earliest research dating back to 2017. In 2017, BCG highlights how RPA is a complement as well as competitor to shared services – which is a form of business resource/process outsourcing but that overall, they place RPA as an enhanced concept of process optimization. Foremost, BCG advises companies embarking on RPA implementation to clearly define objectives and to establish a clear change management plan (Gerbert et al., 2017). BCG predict that with RPA, banks and financial institutions can achieve cost reductions of thirty to forty percent and advise that middle, back-office processes are ideal candidates for automation. In the same report, BCG argues that one reason why scaling is a challenge is that institutions approach RPA as a tactical (short term) solution as opposed to a strategic solution (long-term). As tactical solutions are short term focused, BCG criticizes institutions for trying to expand their automation efforts too quickly. In terms of how to get RPA right, BCG advises institutions (i) to get IT

involved from "day one", (ii) to understand processes, identify the "low hanging fruit", (iii) to re-evaluate staffing and training policies, so as to determine how to attract the right talent pool, (iv) to implement a center of excellence: "Staffed by experts from multiple disciplines—operations, IT, and the business—a center of excellence (CoE) plays a critical role in banks' smart-processing initiatives" (Booth et al., 2017), (v) to establish a clear change management plan.

By the end of 2017, BCG highlights the topic of ROI in that it warns CFOs that investing in digital transformation is not a guarantee of digital transformation to succeed nor of achieving positive ROI. The research suggests shifting the focus back from numbers to streamlining processes: "Before they invest, companies, particularly those that are large and decentralized, should evaluate—and fix— organizational and process roadblocks that might limit the impact of digital transformation" (Tucker et al., 2017). BCG, in 2018, put forward that non-customer facing support functions should be targeted for initial RPA implementation and then provide an example for customer facing units. BCG argues that the focus needs to be on process efficiency creation and not cost cutting (Roghé et al., 2018). By 2019, BCG refers to the center of excellence concept by a more concrete name: the Intelligent Operations Center with the aim of aligning the digital strategic roadmap to existing processes which will provide an umbrella, encompassing, developing and upskilling the talent pool in digital transformation efforts and to develop and expand these efforts all within a defined change management plan (Hayes et al., 2019).

Deloitte - On Deloitte's website, the term RPA returns eighteen search results, with the earliest research dating back to late 2015. Similar to other consultant research, Deloitte tackles the RPA technology from a cost savings perspective comparing an onshore FTE to offshore FTE to RPA. Deloitte research states that while offshore FTE delivers sixty-five percent cost savings, RPA implementation can achieve ninety percent cost savings. The research further explains the flexibility and multi-tasking ability of RPA, added to the accuracy of efficient work and combined yielding operational efficiency. The research suggests focusing on rules based repetitive tasks that are voluminous and that may not be a priority for the IT department (Horton, 2015). When RPA was initially launched, one of the selling points was that RPA would not require the IT department to be involved. This is an outdated view as

since 2015 to date, it has been discovered that not involving IT from day one is one of the largest mistakes as RPA is not 'smart' and any IT infrastructure deployment may interfere with it. As a follow up to their 2015 report, in 2016 Deloitte set forth its 'lessons learned' guide echoing the generally accepted findings of other consultants that (i) engaging the right stakeholders (senior management, IT department, employees) is critical, (ii) investing time in identifying the right processes and not automating "bad" processes is required, (iii) defining how to measure success of RPA implementation needs to be determined (Lawson, 2016).

In their RPA deployment report the following year, Deloitte re-states the importance of a change management plan, assigning change champions and plans to upskill employees.

In summary, the most recent Deloitte RPA deployment report is much more focused on soft requirements. In the same year, Deloitte published a report specific to asset servicing in which it argued that RPA promised to remedy two pain points in the sector: (i) the quality of work through automation and (ii) the decrease in attrition rates through increasing employee morale and engagement resulting from elimination of boring mundane tasks (Deloitte United Kingdom, 2017). In their most recent RPA related survey, Global Robotics Survey, Deloitte claim that while ninety-five percent of companies say that RPA increased their productivity, the respondents affirmed their struggles to scale RPA (Deloitte United Kingdom, 2019).

Ernst & Young (EY) - On Ernst and Young's website, the term RPA returns one hundred and sixty-nine search results, with the earliest research dating back to 2016. EY argue that RPA could generate ROI in less than one year by automating processes, thereby reducing costs up to forty percent, yet reported that almost half of initial RPA projects failed. The research states the number one reason why RPA projects failed is these initiatives were not being led consistently as part of an overall companywide strategy and suggest that a more wholistic approach to RPA should be undertaken. EY criticizes firms for being too quick to "try it out" first before establishing a viable long-term plan, underestimating what happens and who maintains the RPA processes, going forward. This ties into another reason that RPA projects fail, which is not having an effective change management plan in place. In terms of selecting processes to automate, firms who target the wrong processes or

who apply traditional methodologies in implementation have been observed to fail. Finally, expecting that ROI is only achieved through RPA is a misconception, the change management plan should take into consideration how to augment the workforce (Ey.com, 2018). By 2018, EY's research re-establishes the importance of a control room which is a modified version of the CoE with the aim of monitoring impact and orchestrating deployment of the digital transformation. In this report, EY again mentions the importance of preparing employees and attracting, acquiring and maintaining the right talent pool (Ey.com, 2018). In 2019, EY suggests that for effective RPA implementation, the customer AND the process need to come first in selecting the right RPA tools and the right processes to automate. The emphasis is on the focus of customer and processes to be considered simultaneously not in silos. The important goal, EY suggests, is to plan for the human element in the digital transformation journey through a redefined the vision and purpose of the firms in their RPA implementation efforts with the new strategies incorporating a new organizational and governance structures (Ey.com, 2019).

KPMG, On KPMG's website, the term RPA returns ten search results, with the earliest research dating back to 2017. Most KPMG reports focused on automating specifically tax related and audit functions. Only the research which provides insight into the general outlook of financial services sector in their 2019 report is in scope. KPMG have observed that about seventy to eighty percent of companies still use excel, word or pdf in their client reporting, which is hinders the digital transformation journey. KPMG echoed the importance of selecting both the right processes and timing for automation as a priority, while not overlooking the need to create a new skill set for its existing and future workforce (Stinson, 2019).

McKinsey On the McKinsey website, the term RPA returns twenty-nine search results, with the earliest research dating back to 2017. As the term RPA was emerging, McKinsey published an interview with Professor Leslie Willcocks of the LSE who defined RPA as "taking the robot out of the human" referring to the boring, mundane, repetitive and robotic tasks that occupy the workforce (McKinsey & Company, 2017). The following year, McKinsey published a report on how digital transformation was a disruptive threat to the then current business environment. In their analysis, from their global surveys of previous two years, the report establishes that ninety two percent of businesses believe that their business models need to

change and adopt to digitalization. Those companies who are not successful in their digital transformation journeys are predicted to relinquish their market shares as a result of not adapting to new technology as depicted in the graph below (McKinsey & Company, 2018):
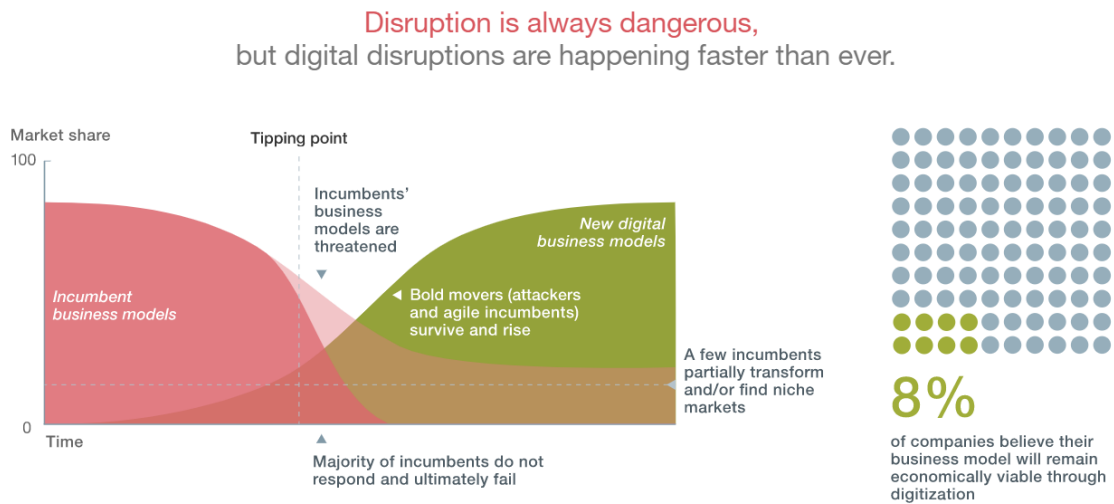
Figure 2-7: Digital Disruption - image source McKinsey & Company, 2018.

The consultancy group also recommended adopting an agile approach to implementing and scaling RPA (McKinsey & Company, 2018) and highlight that RPA implementation will fail without an effective change management plan. In their research published in 2019, McKinsey analysts further elaborate on strategizing to achieve expected returns. The report explains that organizations fail in effective RPA implementation due to (i) not mapping out the client journey end to end and discovering non-automatable tasks within the process too far along the digital transformation journey and (ii) not focusing on the digital transformation journey but rather on eliminating tasks alone.

PWC On the PWC website, the term RPA returns seventy-eight search results, with the earliest research dating back to 2015. As early as their published data, PWC confirmed that RPA could be the enabler in achieving UK prosperity and compare the technological development to the industrial revolution (PwC, 2017). In 2018, PWC projected that thirty percent of the workforce risk losing their jobs due to automation and highlight the importance of selecting the right tasks to automate in the right environment, while accurately assessing suitability. The report does not infer reskilling the workforce (PwC, 2018) which is later addressed in their 2019

Global Fintech Report, emphasizing that upskilling employees to fill the skills gap is important (PwC, 2019).

In summary, the themes that emerge from all of the consultants is that RPA presents abundant potential benefits for the future, especially when combined with AI. In preparing for the tipping point, it is paramount to articulate and communicate a digital transformation strategy, formulated through a center of excellence as part of an overarching change management plan involving agile implementation of the technology; in addition to a reformulated strategy to account for the augmented human workforce in tandem to the virtual / digital workforce. A summary of combined findings is grouped in the subsequent sections.

2.2.2.2.1. Limitations of RPA

The research on consultant worldview indicated the limitations to RPA implementation are:

Bad or non-streamlined processes: RPA does not improve existing processes, it just automates them, therefore if the processes do not flow in an optimized manner, RPA will not add any benefit to the existing process. Often organizations select the wrong processes to automate which result in failed RPA implementation projects. The objective should not be to automate a painful process but to render it painless prior to automating it.

Processes that are low in volume automating processes that are low in volume are not most effective in initial RPA implementation because those that are low in volume do not lead to achievement of ROI from RPA implementation and therefore hinder the RPA implementation project.

Processes that are low in importance are also not ideal candidates for automation because achieving ROI is more difficult and if a process is not important in relation to minimizing operational, regulatory, financial or reputational risk, it is not visible to stakeholders and the benefits of implementing RPA are not evident.

Processes that use unstructured data are not automatable as RPA at the time of the research. RPA is not "smart" enough to identify unstructured data such as pictures, videos, free text or any data that would require intelligent interpretation.

Processes that are better automated via traditional API: There are some limitations to RPA as while being ideal for rules-based, structured data, it is not the ideal solution for RPA. Organizations, confused in their digital transformation journey sometimes are over enthused about RPA and instead of identifying the best solution, they incorrectly target implementing RPA across all processes. The same limitations apply to organizations that focus on short term gains achievable through RPA, rather than addressing the RPA potential as a long-term project.

Limitations are further detailed alongside emergent themes on challenges. Best practice based on consultant research is detailed in section three of this chapter as the researcher transposes the consultant themes to those emergent from RPA solution providers, the vendors.

2.2.2.2.2. Benefits of RPA

The research on consultant worldviews indicated benefits of RPA implementation are grouped as non-financial and financial benefits:

Non-financial benefits:

- Taking the robot out of the human
- Better client experience
- Better employee experience, decrease in attrition
- Process optimization of tasks that are suitable for automation
- Reduced risk
- Reduced processing times
- Increased productivity and operational efficiency
- Opportunity for scale
- Flexibility
- Multi-tasking ability
- Accuracy

Financial benefits:

- Cost reductions
- ROI

The benefits of RPA in this section are grouped by the benefits it promises (i) companywide, (ii) benefits to customer experience, (iii) benefits on gathering, sorting and accessing data, (iv) benefits to employee experience, (v) benefits to the IT department, (vi) benefits to compliance with regulation (appliedAI, 2019; (Ey.com, 2019).

<u>Increased and Enhanced Operational Efficiency</u>

Improved business metrics and a lean business operating model– It has been established that almost every job has an element of boring, mundane, repetitive tasks that take up valuable employee time. By automating these "swivel-chair" activities, employee time can be better spent on value-added activities where decision making, and human interaction are important compared to for example compiling and sending a rule-based report. Through streamlining processes in preparation for automation roll out, processes will be lean, and the saved FTE will focus on value-added activities, enabling lean departments.

Through RPA implementation, the benefits above of reduced errors provides cleaner and better-quality data analysis. Though RPA, data is collected without an intense effort from various platforms and legacy systems housed within an organization. Therefore, more data is readily available without an increased workload.

RPA is non-invasive and low risk; therefore, a companywide advantage of RPA implementation is a reduced risk of overrunning budgets through complex and invasive IT upgrades.

<u>Better Client Experience</u>

Existing research into RPA implementation benefits predict that through this technological tool, errors will be reduced by sixty two percent (Le Clair, 2019; Watson and Wright, 2018). The human workforce can focus on strategic work and make better decisions with time and workload pressures removed. Typically, client service personnel are busy compiling complex reports that do not require decision making; these requirements take time and are prone to human error. RPA diminishes delivery time and reduces the risk of human error, which in turn leads to a better client experience. Not only are their requirements met on time and without

error but with distractions removed, the human workforce can focus on the client's other demands.

Better Employee Experience

The "swivel chair" experience of copying and pasting data from one report to another daily or sometimes multiple times a day is not a pleasant experience for the workforce. RPA eliminates this boring component of the job, therefore boosting employee creativity, engagement and morale (Gerbert et al., 2017). This will also impact attrition rates as employees will not leave their jobs due to not being actively engaged. Reduced attrition rates mean that there will be less requirement to invest in hiring and re-training costs – both monetary and non-monetary.

Risk Reduction, Adherence to Regulation and Auditability

Benefits to IT Department: RPA being code free allows for an IT independent user experience, which reduces the workload for IT departments. The IT workforce can focus on larger projects that require IT focus and attention: "Greater operational agility and flexibility – by accelerating processing times and throughput – while increasing capacity to manage spikes of high transaction volumes" (Information Age, 2019).

Benefits to Compliance: RPA is one hundred percent auditable, therefore there is reduced risk vis-à-vis compliance requirements. RPA is compliant with data protection regulation. It also minimizes the exposure to the risk of fraud.

Another RPA vendor, NICE, cite benefits in customer satisfaction, productivity, accuracy, better resource utilization, return on investment (ROI) and reduced staffing issues (NICE Systems, 2019). Further non-financial benefits of RPA are exemplified by research published by Ernst and Young: (i) An error reduction rate of thirty percent was achieved in a process that required high volumes of data for a large bank (ii) Overnight reports that were run with RPA enabled improved report delivery times for a professional services firm (iii) A financial services company benefited from RPA implementation by being able to run reports daily as opposed to weekly, this process was laborious for a human workforce (Lawson, 2016).

This section focused mainly on the non-financial benefits of RPA. There are also published reports on the direct financial benefits of RPA: ROI

Financial Benefits and ROI

It has been documented throughout this dissertation that business decision makers, more specifically, budget decision makers need to embark on the RPA journey alongside IT. How to calculate ROI is an important factor to get right from the beginning in making the RPA business case. Organizations have found it challenging to calculate the ROI, partially because many of the non-financial benefits are more difficult to measure. However, there is sufficient research on the factors that need to be incorporated in calculating the ROI of RPA implementation. Vargha Moayed, Chief Strategy Officer of UiPath, recommends that the RPA business case should be over a period of two to three years (Moayed, 2018). This suggestion immediately raises a concern as it appears this time frame is contradictory to the typical implementation time of an RPA for a process, which is several weeks. This time frame is longer because Moayed emphasizes that for successful RPA implementation, companies often focus on individual and easily automatable processes rather than analysing an entire program, arguing that the "low hanging fruit", easy processes will run out soon enough and companies will soon or later realize that for impactful ROI, programs need to be analysed (Moayed, 2018).

This viewpoint is in line with expectations and concerns around the scalability of RPA. Depending on the location, typically it is expected that the cost of RPA (bot license) is lower than FTE. It is also argued that on average a bot can save five FTEs which is about thirty to seventy percent. This is a straightforward calculation of ROI; however, ROI calculation is more complex and should consider benefits, training costs, salary increases, equipment requirement etc. of the employee in identifying the average hourly rate of the resource. Costs should include the cost of RPA as well as additional resource requirements such as infrastructure cost, implementation costs development, monitoring and maintenance costs (Moayed, 2018).

2.2.2.3. Conclusion of Pillar 2

The core research question of this dissertation and supporting questions are in the table below, as they apply to the worldview on limitations and benefits of RPA and how RPA is a digital transformation tool to aid organizations in their digital journeys.

	Research Questions	Literature Review Coverage
	Core Research Question:	
	Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?	To be researched
	Secondary Research Questions:	
2	What are the solutions available to enable enhanced client servicing?	Digital Transformation
4	What would be the benefits of implementing RPA?	Benefit 1: Increased and Enhanced Operational Efficiency Benefit 2: Better Client Experience Benefit 3: Better Employee Experience Benefit 4: Risk Reduction, Adherence to Regulation and Auditability Benefit 5: ROI
5	What are limitations of RPA?	Limitation 1: Bad or non-streamlined Processes Limitation 2: Low in Volume Limitation 3: Low in Importance Limitation 4: Structured data Limitation 5: Better Alternative Availability to RPA
7	How is success of RPA measured?	ROI

Figure 2-8 Research Questions Table Q2, Q4, Q5, Q7

2.2.3. Pillar 3: RPA Implementation Challenges and Best Practice

In this section, RPA implementation challenges and best practice are detailed. The section begins drawing conclusion on these two themes from those that emerged from the reviews of consultants' worldviews.

The research of the above section on the consultant findings indicated best practice themes to RPA implementation include:

- Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative.

- Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation.
- Streamlining the processes through an agile approach and prioritizing flow of implementation.
- Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing
- Creating a CoE to drive the overarching change management plan
- Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling the workforce.
- Focusing on process efficiency creation rather than cost cutting
- Embracing a holistic approach to RPA implementation, ensuring that it is a companywide initiative with a long-term vision and action plan

The research of the above section on consultant findings indicated challenges to RPA implementation themes include:

- Misaligned companywide strategy that targets RPA implementation and expansion as a short-term and quick solution
- Existing infrastructure interference to RPA implementation to minimize RPA malfunction with each firmwide IT deployment.
- Speed of technology development creating skills gaps and risk and fear of job loss
- Achieving scale
- Not documenting contingency planning to mitigate risk of RPA project failing

The next section analyses best practice and the challenges in RPA implementation based on RPA solution provider and vendor perspectives, in order to overlap with consultant review findings listed above.

The previous section addressed existing research among well-established consultants who help pave the way for new technologies to be adopted in workplaces. This section is dedicated to the main RPA vendors, Automation

Anywhere, Blue Prism and UiPath in defining the challenges and best practices worldview.

Gartner published a report on RPA software ranking RPA software providers in which Automation Anywhere, Blue Prism and UiPath are ranked as leaders in providing RPA software:

Figure 2.9: Gartner Magic Quadrant Magic Quadrant for Robotic Process Automation (Miers, Kerremans, Ray and Tornbohm, 2019

Blue Prism is the company known to have "helped coin the term robotic process automation" (Techcrunch.com, 2019). Therefore, it is a natural starting point in identifying the vendors as part of this research to be competitors of Blue Prism. On their website, Blue Prism compare themselves to and differentiate themselves from Automation Anywhere and UiPath (Blue Prism, n.d.). Similarly, Automation Anywhere (Automationanywhere.com, 2019) and UiPath (UiPath Community Forum, 2019) quote Blue Prism as their competitor. According to research, these three firms are the leaders in the RPA market (Gartner, 2018; Le Clair, 2019).

Each of the vendors are analysed below, in relation to the themes that emerged from the consultant research: implementing RPA as part of an overall strategy with a view on change management, how to merge the digital and human workforces and the view on upskilling the human workforce.

Automation Anywhere (AA)– Automation Anywhere suggests the below eight steps in initiation of the RPA journey:

Figure 2.10: AA Steps in RPA Journey Image source Automationanywhere.com, 2019

1. Awareness – this initial stage involves in-depth research into the various vendors' offerings in order to determine the right alignment in RPA solution requisitioning. It is the discovery of RPA trends and tools that will help shape the vision of the digital transformation journey, while keeping the workforce at the centre of all conversations to identify concerns and prepare a consistent message aligned with the vision. The first step therefore is vendor selection according to AA.

2. Readiness – the next step is to appoint senior stakeholders with the decision-making ability on budgeting - and the "evangelist" who can identify leaders in various departments that own RPA suitable tasks. The stakeholders then should identify the best suitable tasks that can evidence benefits of the RPA case on the overall organization setting up clear goals and success measurement criteria.

3. Vendor Engagement – As RPA is a new technology, it is important to select the suitable RPA vendor partner with relevant experience and commitment suitable for the organization that will be implementing RPA. The right RPA tool should be user friendly and the vendor should be available to provide any required support. A major consideration in selecting the vendor is the security that they can provide, as the right RPA vendor should provide a secure platform. Finally, it is important that the vendor will be available to train and upskill RPA users and implementors.

4. Proof of Concept (PoC) – It is argued that RPA is currently beyond PoC and is a proven tool. However, a PoC will enable the organization to test and validate the RPA solution.

5. Pilot – The pilot is important to make the case for RPA implementation in the organization overall. The performance of the pilot case should be examined before the company wide implantation of RPA.
6. Establishment of Center of Excellence – professional subject matter experts as well as technological experts should form the CoE – this is pivotal in scaling RPA technology.
7. Expansion – The CoE is responsible for the expansion of RPA implementation companywide and to augment the digital workfoce.
8. Digital transformation – Once RPA is part of the culture of the firm, digital transformation is achieved. At this stage, the workplace is prepared for further more complex augmented implementations.

AA steps are in line with consultant findings. AA also provides a short list of potential road blocks in RPA implementation, which are also in line with consultant findings: (i) training is paramount in successful RPA implementation and continuation (ii) communication and change management need to be coherent, consistent and in line with the overall strategy of the firm (iii) success criteria or how to measure the success of the RPA implementation need to be clearly set out (iv) IT partnership with business units is require (v) corporate accountability needs to be part of the success criteria.

Blue Prism – Similar to AA, Blue Prism have set forth 7 foundations for the operating model:

Figure 2.11 Blue Prism Operating Model. Image source Blue Prism, n.d.

1. Vision – Aligning the expected benefits from RPA implementation to corporate strategy
2. Organization – Aligning the RPA capabilities to corporate strategy and culture
3. Governance and Pipeline – Prioritizing processes for the pipeline, aligning the demand with the expected business benefit achievement.

4. Delivery Strategy – Formulating the delivery strategy in order to implement RPA in a controlled and repeatable structure.

5. Service Model – Engaging the right stakeholder groups to provide support in the delivery, management, maintenance and measurement of RPA implemented processes without any disruption to business as usual (BAU).

6. People – Vendor and workforce engagement to facilitate implementation, training and support for the workforce.

7. Technology – Building the required architecture in alignment with the strategy to achieve maximum benefits.

The Blue Prism operating model, even at a high level, is aligned with AA as well as consultant findings. Furthermore, on their website, Blue Prism brings to the surface similar immediate challenges: (i) discovery is key in avoiding delays and reducing challenges while enabling sustainability of the pipeline (ii) the most important challenge, according to Blue Prism is following the PoC and initial implementation of easier tasks. Blue Prism advises establishment of RPA CoE to "deliver financial and/or non-financial value back to your organization" (Blue Prism, 2019). These two points form 50 percent of the challenges with (ii) measuring ROI and (iv) how to prioritize automation from the other 50 percent of the overall challenges.
It is the researcher's view that Blue Prism challenges are consistent with consultant and AA findings.

UiPath – UiPath have summarized their suggested most critical features in their RPA journey in five steps as follows:

Business & IT partner-up   Strategic positioning   Select for success   Cultural acceptance   Enterprise competency
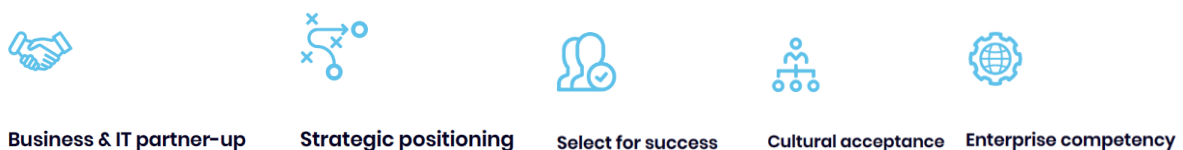
Figure 2.12 UiPath RPA Journey Image source Uipatch.com, 2019

1. Business and IT partnership – Initially RPA implementation was geared toward attracting the business side of an organization rather than traditional IT lead projects. It was rapidly apparent that while business needs to set the goals in creating value and lowering costs, thereby increasing profitability and seeking competitive advantage, IT on the same spectrum needs to be involved in paving

the way to accomplish the goals set forth by business, enabling rapid expansion of the project, in accordance with the existing architecture all the while ensuring security and compliance.

2. Strategic positioning – successful RPA implementation is a companywide exercise and requires it to be part of the overall strategy supported by C-level stakeholders.

3. Success selection criteria – Selecting the wrong processes for RPA is detrimental. The leadership RPA team needs to have a clearly defined framework for RPA suitable tasks, these are those that are reasonably high in volume, repetitive and are rules-based tasks.

4. Cultural acceptance – The company culture needs to embrace the strategic digital transformation, with RPA being part of it. This is not only crucial for RPA implementation, but it also allows for fostering the right environment for the future of digital transformation. RPA is just the beginning.

5. Enterprise competency – The establishment of CoE that will enable the continuous commitment of upskilling digital, as well as human workers on the digital journey. This requires C-level involvement and commitment.

UiPath also list the immediate pit falls that can hinder the RPA journey;

- Immature vendor selection – the RPA vendor ladscape rapidly evolved and its speed did not allow for some vendors to keep up with the pace to meet business requirements or IT architecture aligmenment requirements, while keeping the tool secure and compliant.

- PoC confusion – many RPA initiatives focus solely on the RPA technology, overlooking testing and validation in a framework incorporating the business as a whole. This PoC confusion hinders momentum - and advantages that can be achieved through RPA suffer as a consequence.

- Immature process selection – often in order to obtain user buy-in, overly complex and nonstreamlined business processes are selected for the initial RPA implementation and this is a mistake that negatively impacts the digitial transformation journey: "For at least the first full year of a RPA journey, selected processes should be restricted to low or medium complexity that demonstrate an aggregated potential to save at least one FTE" (uipath.com, 2019).

- Misguided automation target – some organizations in their RPA implementation journey focus on the number of bots or set goals towards fully automating every single process, overlooking the law of diminishing marginal returns. Beyond the point of optimal output, adding bots or processes is a misguided automation target: "Attempting to extend automation too far into a process can lower ROI by significantly increasing implementation costs. Likewise, process optimization is often a smarter route to savings than configuring a robot for complicated rules" (uipath.com, 2019).

2.2.3.

3. RPA Implementation Challenges

This section encompasses the overall existing research on the challenges of RPA implementation. The researcher approaches the challenges following the themes which emerged from implementation steps gathered from the vendor section of this report.
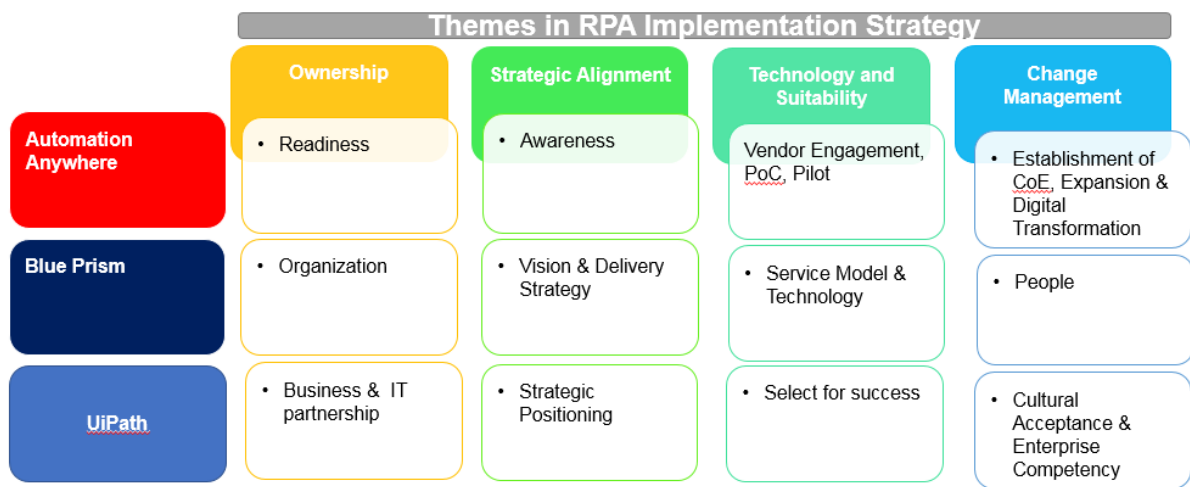
Figure 2.13 Themes in RPA Implementation Strategy. Image adopted from Automation Anywhere, Blue Prism, UiPath

2.2.3.1.1. Lack of Strong Ownership

Ownership refers to the organizational readiness to incorporate a strategy around digital transformation, enforcing a strong partnership between business and IT units. It also incorporates ownership from the vendor perspective as the latter can be classified as both a business and IT partner. There needs to be ownership and commitment to the RPA implementation with a focus on requirements, design, deployment and on-going maintenance and monitoring. It is a common challenge

that ownership exists at the onset of a project but quickly becomes de-prioritized. Another challenge at ownership level is to set realistic goals and expectations. For this reason, rather than viewing RPA as a tactical solution, a strategic outlook and commitment are required from the stakeholders (ownership). RPA is non-invasive; however, it should not be underestimated that it is a new technology being introduced. RPA deployment in itself is not complex but there needs to be clearly defined owners of each of the processes being automated. It is therefore highlighted several times in this dissertation that trying to automate bad processes will result in failed RPA efforts. If a process incorporates different owners, this should be defined to avoid any mismanagement of ownership and responsibilities. The owners of processes and programs need to have the required experience, skill and knowledge in order to be the rightful owners.

2.2.3.1.2. Lack of Strategic Alignment

Research has indicated that successful RPA implementation requires it be part of an overarching digital transformation strategy, embedded solidly within the wider companywide strategy. It is easy to classify RPA as a tactical solution as opposed to a strategic solution, which is a cause for failure. Its benefits and advantages are immediate and easily optimizable, yet RPA should not be viewed as a short-term solution. Its successful implementation as a program requires important aspects such as infrastructure readiness, the right skills, ownership, maintenance and continuous improvement which should be part of the overall strategic initiative.

2.2.3.1.3. Suitability Challenges

Suitability challenges are (i) vendor suitability, (ii) infrastructure suitability, (iii) budget suitability, (iv) process suitability, (v) team suitability.

Vendor Suitability: A high-level view of the vendor landscape is depicted in figure 1.8. A plethora of RPA vendors and RPA solution providing consultancy firms are available. It is a challenge to understand the intricacies of selecting the right vendor. In assessing vendor suitability, organizations should consider:

- RPA vendor comparison matrix-> RPA vendors' strengths and weakness, company background, pricing policies, systems

requirements, training and support as well as geographic coverage need to be assessed.

- RPA vendor data and cybersecurity -> one of the major constraints prohibiting financial services from unleashing cloud-based automation solutions is the burden of data security vis-à-vis regulators and their clients. A robust due diligence in each potential vendors' cybersecurity policies and procedures is of outmost consideration.

Infrastructure Suitability: The system requirements to run, maintain and evolve the selected RPA need to align with firms' existing systems architecture and infrastructure. Without the right infrastructure, accurate development is not achievable.

Budget Suitability: RPA vendors have made their software available for free on their platforms, therefore small enterprises as well as individuals can use RPA and RPA vendors, in turn, can use this input in developing and further enhancing their RPA offerings to larger corporations, which is how RPA vendors generate their profits.   The RPA ecosystem is therefore a closed circuit that keeps feeding itself. The research and development of RPA is generated out of actual users and out of real need, as opposed to perceived need. This enables RPA vendors to reach their clients more directly and with reduced investment in their research and development. There are cases in which firms use various RPA vendors for various processes, however the cost component needs to be sensible if a multiple vendor route is selected. A thorough analysis of the proposed ROI and cost of ownership will guide budget suitability.

Process Suitability: Business cases for RPA implementation need to be solidly mapped and the right departments need to be identified in order to acquire approval from various departments. Often, a process which is composed of various tasks may impact different departments, therefore the interrelationship of the processes needs to be clearly defined. The processes suitable for automation need to be right, they need to be repetitive, high volume and rules based: "The best result for these tasks is data entry and migration tasks (Whizlabs, 2019).   Suitable data for RPA is structured data that does not require any supervision – data that requires unattended automation is RPA suitable. Documents that contain images, audio or video

information are not RPA suitable yet, they require AI. As challenging and important as it is to identify RPA suitable processes, the same is true for obtaining clarity about an implementation concept. Without these two foundations, the desired results and growth is unachievable. In addition to process suitability and implementation strategy clarity, a realistic analysis of the current and desired technological infrastructure needs to be assessed. RPA implementation is not a one point in time application, it requires maintenance, and the appropriate maintenance program needs to be established.

Team Suitability: One of the failed reasons in implementing RPA is due to firms select the wrong vendor, solution or process because of the lack of guidance and skills in being able to judge what vendor, solution and process is right for them. It is therefore paramount to select the right teams internally as well as externally as primary stakeholders in combatting suitability challenges.

Choosing the wrong vendor can be costly to the organizations and damage their digital transformation journeys. This damaged view in stakeholders can in turn cause increased resistance to change.

2.2.3.1.4.   Resistance to Change

Just as it is the case with any new development, or change, be it technology driven or not, in RPA implementation projects, change resistance is a key obstacle to implementation. There will be fear of job losses as well as the perceived burden of a "new way of doing things" adding more work or more training to the day to day lives of team members which need to be addressed and communicated openly and truthfully. Several factors impact resistance to change in RPA implementation: (i) fear of unemployment, (ii) fear of unemployability, (iii) lack of understanding of RPA and its impact, and (iv) lack of automation first mindset.

Fear of Unemployment

In researching RPA and AI, a common theme that appears is the threat of unemployment and unemployability with the emergence of such technologies. RPA is viewed by some as a threat to white-collar workers (Andriole, 2018; Markets

Insider, 2018). In his book, *The Rise of the Robots*, the author, Martin Ford presents what critics have described as a lucid and bleak argument that current technological developments will lead to mass unemployment. Ford argues that in contrast to previous technological revolutions, where mainly uneducated workers were displaced, the current technological setting does not harbour an environment for new job creation. Therefore, Ford predicts mass unemployment while referencing companies such as YouTube and Instagram which have "tiny workforces and huge valuations and revenues" (Ford, 2015). Economists and IT specialists, however, mostly disagree with this proposition, they hold a more positive outlook by having the belief that more jobs, in number and in type, will be created as some become obsolete due to technology and automation (Hanson, 2015). A study conducted by McKinsey in 2017, found that by 2030, somewhere between 3 to 14 percent of employees will need to change their occupations (McKinsey Global Institute, 2017). In the same year Bloomberg launched a website where users can check if their jobs are at risk of being automated as robots are gain ability in performing human tasks:
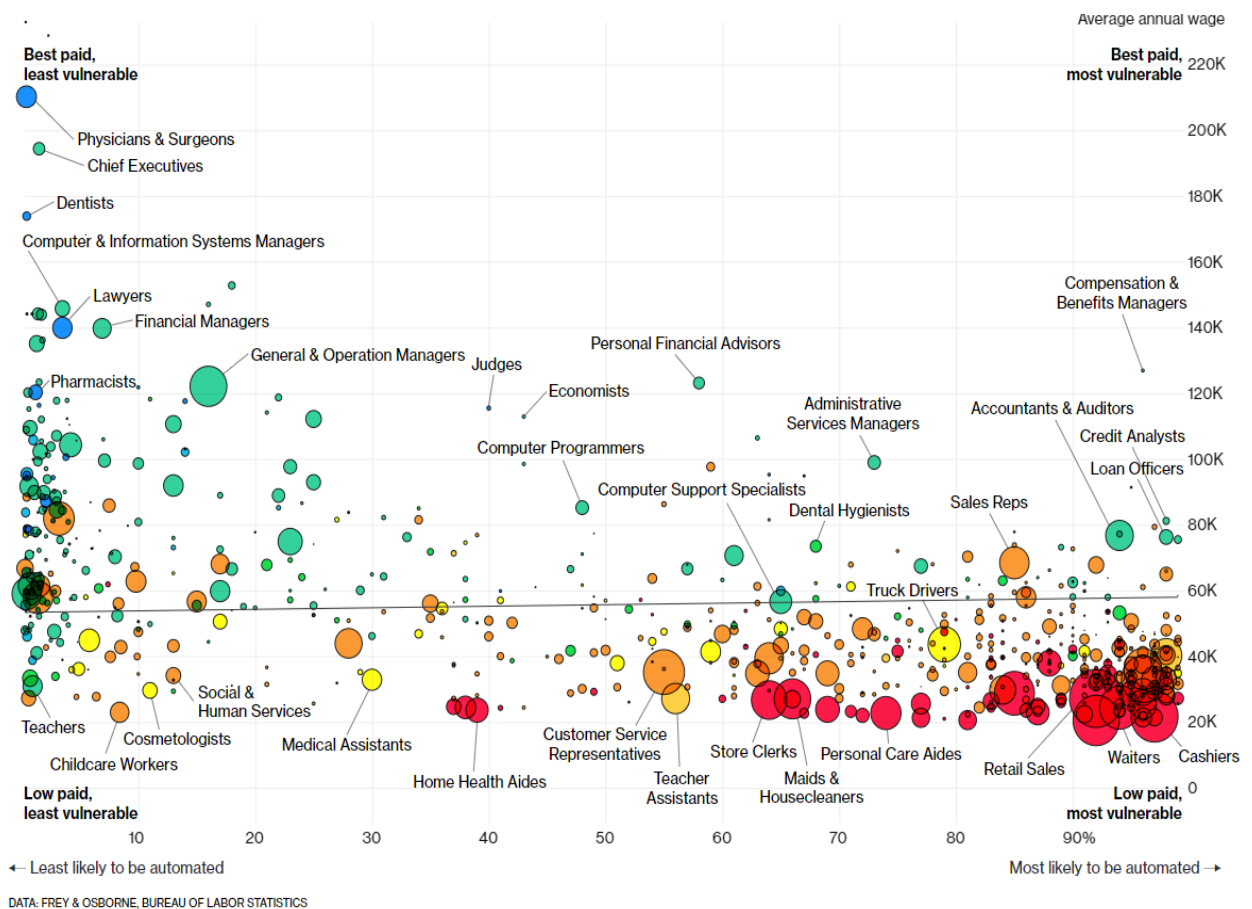
Figure 2-14 Job Automation Risk. Image source Bloomberg.com, 2017

The above figure depicts that both low and high paid workers, depending on their job function are vulnerable to automation, images such as this one fuel the perceived fear in the population creating a resistance – bet it conscious or unconscious. While the literature around the risk of unemployment due to automation always refers to the Industrial Revolution of the eighteenth century, at which point factory jobs were industrialized, the arguments follow to demonstrate that the long-term benefits outweighed the devastation of those times. Other events pose a more serious risk in unemployment such as change in demographics, tightened regulation, change in practices and other technologies, globally. A more specific and additional risk to the UK is Brexit when the UK separates from the EU. There are predictions that the UK will experience an unprecedented shortage in skilled workers (Jesson-Ward, 2018; BlackLine, 2019; Rouvrais, 2019). Unemployment due to the spreading of robots, while it may be truly relevant as we approach a tipping point in the next five years, is not as relevant in relation to RPA today. In 2019, RPA has not been a source of unemployment as it cannot function nor be configured without human intelligence which is still in control of the overall work.

Fear of Unemployability

RPA, also referred to as a digital or virtual workforce, augments work by creating bridges between systems in a stabilized environment. It is not smart; therefore, it does not recognize any changes in the existing working environment and requires re-configuration. Any change in the existing set-up would cause the RPA to cease its function. At this point, human intervention and intelligence is required to implement the fix so that RPA can continue to function in the new and changed environment, hence there is strong argument that RPA, as it currently stands, is a tool to enhance the work being carried but not a tool that can replace a human workforce (Qbotica.com, 2019). Upskilling, reskilling and incentives are ways in which firms can overcome this perceived threat. Partnering with the selected RPA vendor(s) or the RPA solution providers, engaging HR Learning and Development teams in an orchestrated manner within a tight change management program to provide the necessary training need to be used to infuse confidence and new skill set to the human workforce to complete tasks in the new augmented workforce: human workforce paired with digital workforce.

Lack of understanding RPA and its impact

RPA does not enhance any work processes or tasks, it just performs the task with higher speed, thereby completing processes faster and more efficiently. If a process is flawed or not streamlined, RPA will not make the process any better. What RPA does is it completes processes that can be automated faster, therefore allowing human workers "to concentrate on improving your business. Making your processes more efficient, engaging with your clients and citizens, making decisions and providing an excellent service" (Moir, 2019). The researcher holds the view that RPA is an opportunity and not a threat and has found value in pursuing the research to exploit the RPA opportunity in CSG. The objectives of the automation project, in this instance, implementation of RPA, need to be clearly defined and communicated. In the interviews conducted for this study (detailed further in chapter 5), the researcher found that rather than fear of losing jobs, employees were more "afraid" of having to do more work, when they feel already stretched. The necessary support and resources need to be allocated in the short term for a successfully implemented RPA project, paving the path for an automation-first mindset.

Lack of Automation-First Mindset

RPA is an aid to enhance the workload and should not be viewed as a replacement. The future of merging AI with RPA, if it is part of the digital transformation (and it should be) needs to be communicated too. A change management plan should incorporate upskilling the workforce and needs to have strong leadership and it is recommended that CoE be part of the plan. The company cultures will be shifting towards an automation-first mindset. It is a culture change that needs to be embedded in every level of the organization starting from the most senior executives, examples include Daniel Pinto, Co-President and Chief Operating Officer of JPMorgan Chase and Peter Ma Mingzhe, founder and previously CEO of Ping An. Both executives are pioneers in leading their organizations in their respective digital journeys in leading by example. The issue to address in digital transformation is when leaders view this transformation as a project to be delegated to relevant teams in the organization as opposed to embedding it into the company culture.

The above factors which contribute to resistance to change represent key obstacles for RPA implementation projects. There are best practice solutions in addressing the resistance to change, specifically through initially establishing an effective center of excellence to guide through successful change management within the organization which is detailed in the section below.

2.2.3.2. RPA Implementation Best Practice

Following on from existing research on the benefits and challenges of RPA described in the above sections, the following section summarizes best practice in adhering to RPA implementation, keeping the results focused on achieving successful implementation of RPA for CSG in IM.

2.2.3.2.1. Ownership and Sponsorship

The next step in suggested best practice for RPA implementation is to ensure that the right senior stakeholders are pulled into the project. Not only senior management with the ability to make decisions on budgeting should be involved but also IT senior managers. In some examples of successful RPA implementation projects, a new senior role has been created to satisfy this best practice. In one case study, a financial institution implementing RPA elected the managing director of "transformation - process automation" (Blueprism.com, 2018) to lead the RPA project which benefited from turnaround time improvement on average client response rate from four days to three minutes, freeing up seventy FTE in a matter of a year and a half (Blueprism.com, 2018). In some instances, this member is referred to as the "sponsor". It is preferable to engage RPA champions that evangelize RPA across the organization as well as a strong technical team alongside a team of educators and trainers.

2.2.3.2.2. Strategic Alignment of Digital Transformation

Firms publish their short- and long-term strategies annually and successful companies revisit their objectives periodically. This is to ensure that long-term overarching aims are achieved. It has been established that firms need to incorporate RPA into their digital transformation strategy and this needs to be

incorporated into the overall strategy of the firm. The best practice in RPA implementation is to ensure its rightful place within the overall strategy.

2.2.3.2.3. Vendor and Process Selection

Selecting the right RPA partner is crucial to the success of a strategy. There are vendors that provide RPA technology and also consultants who provide more than the tool. Either way, it is vital for selection to aim for a long-term partnership with readily available support. It should have the ability to scale for upskilling both the virtual workforce and a robust training program for upskilling the human one. The right partner should have a good reputation, with adequate security protocols.

The topic of process selection is a re-occurring theme in RPA implementation as it is important to optimize processes before automating them. For the overall success of the RPA project, the best process to be automated needs to be identified and selected to pilot the initiative. It is important to achieve clear processes that are repetitive and high in volume, potentially cyclical (such as month end or quarter end reporting/invoicing) to make a strong business case. One point is that potential selection for processes are ones that are not initially client facing at first, as it appears that reporting would be a prime pilot process for CSG teams. The process selection is not complete without appropriate PoC, pilot and testing. The right process serves as an RPA story to be told to raise awareness and demand.

2.2.3.2.4. Success Measurement

It is well accepted that what gets measured gets done. It is important to establish clear guidelines on how the success of RPA implementation will be measured. Once problem processes or those that cause bottle necks are identified and further broken down to tasks and streamlined, RPA can be implemented, and success should be confirmed and documented. Success criteria should include numerical measurements such as profitable ROI, reduced errors, and non-numerical in nature such as increased employee morale, engagement and productivity.

2.2.3.2.5. Center of Excellence, Change Management and Technology Acceptance Model

Center of Excellence:

Building the CoE is seen as being part of innovative workplaces. In his book, *The lean six sigma guide to doing more with less*, the author describes the CoE as "A Center of Excellence (COE) is a team, a shared facility or an entity that provides leadership, best practice, research, support and / or training for a focus area" (George, 2013). As RPA is a technology that is innovative, it is only natural that workplaces need to adapt to this innovation and a CoE seems to be the unit that can spearhead this initiative by incorporating leadership creating best practice, research, support and training. It has been established that a challenge and hindrance to RPA implementation and/or expansion is when RPA is viewed as a short-term solution. This view leads companies to create RPA processes that operate in silos and prevent the full realization of RPA capabilities. In order to avoid this hurdle, organizations need to establish an ecosystem that focuses on realizing the overall vision of successful and sustainable RPA implementation that prepares and complements firms in their digital automation journeys. This can be done by establishing a CoE focused on the vision to develop the blueprint for RPA strategy that allows "scalable RPA expertise to build, run and maintain the robots" (Automation - Smartbridge, 2019; Patel, 2018).

The purpose of a CoE is to homogenize the deployment process of RPA implementation across processes and programs so that there is no duplication of effort or "re-inventing the wheel" scenarios with each deployment. As processes are standardized, any new team or unit can collaborate with the CoE for any new or upcoming RPA initiatives. It is a way of centralizing the overall RPA implementation efforts (Forbes.com, 2019). The Strategic Account Management Association ("SAMA") observed and noted that a common occurrence on each winner of "Program of the Year" award is that each of them have a CoE. At the same time SAMA noted that only ten percent of its members had an existing CoE (Borderless, 2019). According to another study, "only 18% of enterprises have set up a dedicated CoE model for RPA implementation. Almost 88% of these enterprises mentioned that having an automation CoE in place is effective in delivering business value"

(Maruti Techlabs, 2019). According to research, building a successful and sustainable CoE requires focus on (i) governance, (ii) technology, (iii) processes, (iv) people and (v) organization. Each of these elements are detailed below:

- Element of Governance: Governance is required in establishing the standard operating procedures, policies and flows in RPA implementation. Governance would provide a framework or a map of how the RPA is implemented. It should contain who to go to and how to escalate issues and clearly define the segregation of duties. It should be aligned with internal and external compliance policies, while ensuring security. It is the role of governance to set procedures in prioritizing tasks, managing the pipeline, provisioning access levels for the RPA implementation process (Maruti Techlabs, 2019), "Within the governance process, change management issues & risks are laid out and frameworks & templates for change management are established" (Uipath.com, 2019). The champions of governance should be a mixture of subject matter experts and IT specialists but overall, they all should be abreast of all RPA related activities internally and externally (Automation - Smartbridge, 2019) and be placed between business and IT. The governance function champions should not be pre-occupied with the deployment itself so that they can give their attention to the overall organization's RPA initiative, performance metrics and analysis of RPA impact highlighting any improvement areas.

- Element of Technology: It is important to involve IT early on. It is possible that external technology consultancy may be sought in establishing a technologically robust CoE. The right technology, vendor and workflow need to be set for the governance of RPA. The technology element houses responsibility for supporting infrastructure, architecture, licenses (Capgemini Worldwide, 2018). The implementation and solution expert, RPA developer, RPA engineer and service support are all part of the technology aspects of the CoE to "drive the integration of RPA into the fabric of IT Service Management (ITSM), including change management and the configuration management database (CMDB)" (Ross, 2019). They are also responsible for establishing business continuity planning.

- Element of Processes: The processes that operate alone, those which are interdependent and those part of a wider program are defined in this section of

the CoE. Assessment of processes and their suitability for automation, development, testing and deployment form the processes element of CoE. These detailed processes are used to develop standards and more importantly will provide an easy measure for ROI post deployment. Typically, this element of CoE should be coordinated with subject matter experts of the processes and 'the up as well as downstream impacts need to be clearly identified, thus the need for the SME "(Uipath.com, 2019).

- Element of People: It is true that any effective team needs to have the right people engaged to perform specific functions, a CoE is no different and requires the right human workforce to perform the following critical functions:
  - The sponsor/CoE Lead: the RPA sponsor typically is a senior executive from the business with influence on the companywide strategy, and in charge of the RPA strategy. The sponsor can act as the project manager ensuring that all RPA implementation is aligned to the CoE strategy.
  - RPA Project Managers – The project manager is responsible for ensuring that the project in all its stages is well communicated to the stakeholders at the right time. Project managers are also responsible for the change management plan that is attached to RPA implementation.
  - RPA Champions – The champions are responsible for the performance of the virtual workforce; they will drive adoption and expansion of RPA across the organization.
  - RPA and CoE Business Analysts – The SMEs that are responsible for identifying and breaking down all the processes into tasks to establish and ensure RPA suitability. These SMEs also act as catalysts in identifying other RPA opportunities, therefore enabling expansion of RPA across the organization.
  - RPA Architect – Responsible for orchestrating RPA development and implantation end to end. The RPA architects bear responsibility for selecting the right tools ensuring alignment to enterprise-wide efforts. They are also responsible for licensing.
  - CoE Developers – CoE developers work alongside business analysts to prepare, document, test and further develop the workflows.

- RPA Infrastructure Engineers – They are part of the support team responsible for ensuring connectivity amongst the whole of the enterprise infrastructure.
- RPA Supervisor and support team– The tech side team responsible for the performance of the virtual workforce.

The CoE is considered one of the pillars of successful RPA implementation: "A well-established CoE that is focused on how to consistently innovate and scale enhances the customer experience throughout the engagement lifecycle" (BMC, 2019). The establishment of an effective CoE is not only crucial for the implementation of RPA but also to guide companies on their journey of digital transformation to place them in the best possible position for the tipping point and the adoption of future technological advancements.

<u>Change Management and Technology Acceptance Model:</u>

In order to implement RPA into an existing strategy, as in any changes, research into best practice calls for creating awareness, communicating information, creating awareness in stakeholders of the upcoming change, and continuous improvement. These elements of best practice are similar to the ADKAR model of change. Technology Acceptance Model (TAM; Davis, 1989) can be leveraged in determining the level of current awareness in order to establish the level of desire, knowledge, skills, that need to be addressed in the change management process.

TAM is a theory widely utilized from a governance perspective to demonstrate how well users will adopt and accept the new technology, RPA, in this case and to determine the actual use – which is what is desired. The model evaluates the factors that impact the actual use of the technology, by breaking it down to what the users think, feel of the technology – collectively referred to as their attitude which in turn impacts their intention to use the technology – referred to as the behavioural intention to use the new technology. In order to determine the attitude of the users which in turn will translate into the intent to actually use the technology, TAM requires investigation of the perceived usefulness (will RPA perform the task?), the ease of use (is RPA user friendly and intuitive?) and the social influence (is everyone else also implementing RPA? Is there support and buy in?) of the technology. RPA certainly is useful and easy to use, and it is widely used, however users may face a

barrier between their intent to use RPA and actually using RPA which will require facilitation – such as learning and development support - that can be accomplished by the CoE using elements of the ADKAR model.

In order to implement RPA into an existing strategy, as in any changes, research into best practice calls for creating awareness, communicating information, creating awareness in stakeholders of the upcoming change, and continuous improvement. These elements of best practice are similar to the ADKAR model of change. The ADKAR® model of change is a practical tool to map out effective change management for organisations with five consecutive actions (Prosci.com, n.d.):

Awareness -> Organizations looking to implement RPA need to effectively communicate the need and urgency for implementing a digital transformation strategy. In the case of CSG in IM, it is important to be aware of the slowing of the growth rate and diminishing margins. Urgency should not inspire fear therefore rather than the pressures causing diminishing returns, the focus needs to be on emerging technologies. RPA provides the transition to create awareness that change is required for investment management firms.

Technology Acceptance Model (TAM; Davis, 1989) can be leveraged in determining the level of current awareness in order to establish the level of desire, knowledge, skills, that need to be addressed in the change management process.

Desire-> Through incentives and opportunities, a desire to take part in this change need to be fuelled. This can be done through the establishment of new business areas such as establishment of a CoE, which will encourage movement – i.e., promotions – in the existing workplace. Other incentives can include but are not limited to team building experience trips and monetary rewards. It is advisable that firms looking to implement a new strategy work alongside their marketing and communications departments to continue to build awareness and an appetite for upcoming change. Buy-in need to be embraced at all levels of the company.

Knowledge-> Knowledge of how the strategy will change the company needs to be clearly defined and communicated. How change will happen and how this change will impact stakeholders should be viewed as positive. The unknown generates fear: by detailing the changes as much as possible confidence and security in the workplace will be instilled. This is the stage where transfer of existing knowledge can be utilized to close, or plan for closing, any existing skills or knowledge gaps, allowing for upskilling and job transfers.

Ability-> Creating awareness and providing knowledge on upcoming change should lead to its effective implementation, which is the ability to achieve the desired state.

Reinforcement-> Once the transformation is complete from the current state to the desired state, the most essential component in change management is reinforcement. The CoE should ensure that the message echoes through the overall strategy until the new state has become the current state and the digital transformation is complete. Change is a cycle and not a linear line with a start and end.

2.2.3.3.   Conclusion of Pillar 3

The core research question that is the research topic of this dissertation and the supporting questions are in the table below as they apply to the worldview on challenges and best practice RPA implementation.

	Research Questions	Literature Review Coverage
	Core Research Question:	
	Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?	To be researched
	Secondary Research Questions:	
6	What are the core challenges in RPA implementation?	Challenge 1 Ownership Challenge 2 Alignment Challenge 3 Suitability Challenge 4 Resistance
7	How is success of RPA measured?	ROI
8	Is established best practice in RPA implementation, which emerged from previous RPA implementation attempts in other areas, applicable to CSG RPA implementation?	Best Practice 1: Ownership and Sponsorship Best Practice 2: Strategic alignment of Digital Transformation Best Practice 3: Selection of Vendor and Processes Best Practice 4: Success Measurement Best Practice 5: CoE and Change Management

Figure 2.15 Research Questions Table Q6, Q7, Q8

Summary of Literature Review

In aligning the literature review to overlap with the research objectives, this chapter has been divided into three pillars:

Objective 1: To assess the current state of Institutional Investment Management Client Services Group (CSG) processes to identify tasks that are suitable for RPA implementation.

Objective 2: To critically evaluate RPA and whether it is the suitable automation solution for CSG.

Objective 3: To explore RPA implementation challenges' best practice to avoid pitfalls and to generate value added to stakeholders that can be transferrable to CSG IM.

The literature review evidences that there is a consensus in the worldview that there is a need to implement digital transformation as a strategy; it is an imperative rather than a tool in gaining process efficiencies. The current state of the investment management industry reviews, combined with PESTEL analysis, highlights that there is a need for change from the current state to a desired state and one way to achieve

this is through implementing technology in certain tasks and processes in CSG. CSG tasks have been listed in order to identify which of them are RPA suitable. The benefits and limitations that have been uncovered in the literature review are used in identifying and analysing CSG tasks that are RPA suitable as part of the case study in Chapter 5. The challenges and best practice in existing research and use cases are leveraged in documenting best practice for implementing RPA in CSG MIM following a BLCP framework, generating value added for all stakeholders.

Identified Gap in Knowledge

The researcher, keen on improving the day-to-day business flow of her own duties, was keen in being able to implement RPA in her own work: "RPA tools are relatively cheap, and they work fast. There is no requirements document" (Le Clair, 2017). Yet, the researcher was not able to identify any use cases specific to her area to demonstrate to relevant senior stakeholders and IT teams any relevant research because client service roles have the client facing component which cannot easily be automated and depends heavily on the specifics of each organization: "the right way to automate will support, not replace, your hands-on handling of client issues that develop" (Client-Facing RPA | Robotic Process Automation | Documate, 2020). The client service roles and responsibilities vary from organization to organization therefore there are no existing use cases nor research that would fit the researcher's research parameters. As such, the researcher addresses this identified research gap in this research paper.

3. Chapter 3: Conceptual Framework

The Conceptual Framework provides the blueprint of the overall dissertation, bringing into focus the research objectives and connects both the purpose and aim of this dissertation: "A conceptual framework illustrates what you expect to find through your research. It defines the relevant variables for your study and maps out how they might relate to each other" (Swaen, 2015). It considers both the existing field of knowledge and gaps in existing research in a framework.

3.1. Introduction

Chapter 1 served to set the background for the suitability and potential benefits that can be derived in conducting a study on implementing Robotic Process Automation (RPA) within the Client Service Group (CSG) of a large institutional investment management company (IM). Chapter 2, the baseline of this chapter, provided an in-depth analysis of the current state of CSG and IM to identify if there was a need for differentiation in face of several macro-environmental pressures to remain or gain market competitiveness. It then critically evaluates if RPA is a technological tool to aid in minimizing external pressures, therefore generating value creation internally. RPA then was broken down into its limitations, benefits, challenges and best practice to overcome these challenges. During the critical evaluation of RPA, several use cases provided a basis for validating the limitations, benefits, challenges and best practice of RPA across several industries and functions that onboarded RPA for efficient processing. However, a research gap was identified that there were no studies addressing implementation of RPA in CSG of a large IM.

3.2. Conceptual Framework of the Study

The conceptual framework following the literature review then recognises that there is sufficient evidence that RPA can add value through both implementing it and the identification of suitable RPA tasks; provided that limitations and challenges can be overcome through aligning the RPA implementation strategy with the overall strategy of IM and address best practice to yield the expected benefits.

The contribution to the existing field of knowledge will provide a framework specific to RPA implementation in CSG of a large IM. The following diagram "maps out the actions required in the course of the study, given previous knowledge of other

researchers' points of view and observations on the subject of research" (Regoniel, 2015).
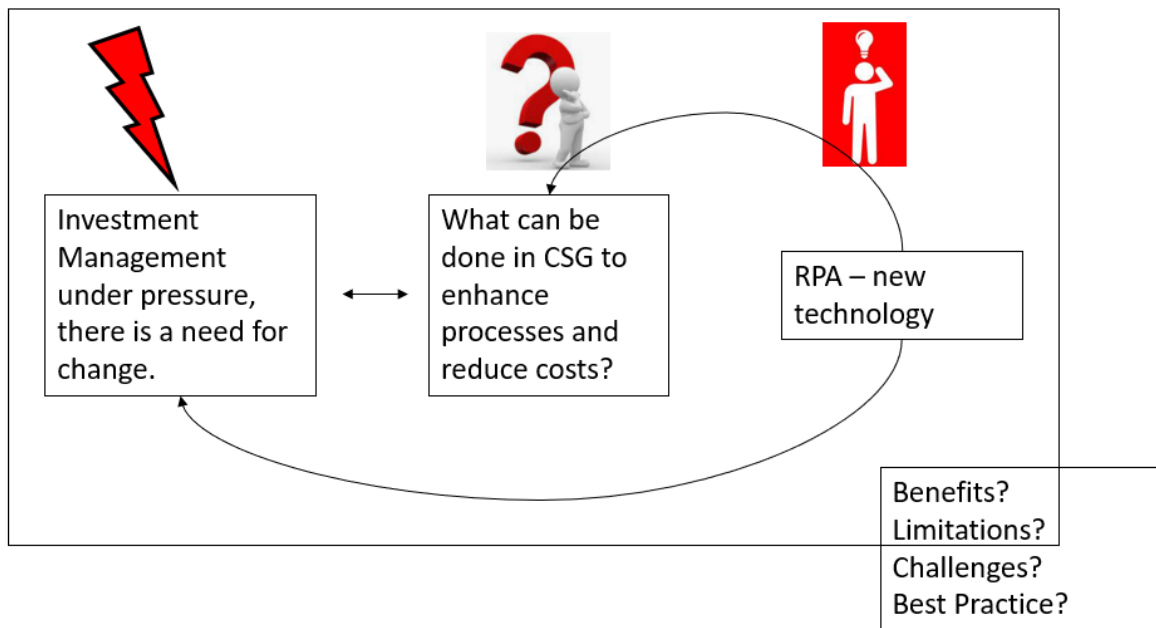
Figure 3.1 Conceptual Framework, image self-created.

The first research objective was to establish the current state of the IM sector. Research evidences that the current state of the sector is facing several internal and external environmental challenges. Referring to the PESTEL analysis, politically there are pressures from global political instability to Brexit, which is a UK specific added challenge. The shrinking margins and softening pace of the growth rate cause economic challenges. Changes in social demographics create a gap between the existing client base and the upcoming generation, resulting in social challenges to bridge the gap while servicing the change in client demographics. Additionally, the shrinking working population in proportion to the world population is a concern, from resourcing teams to satisfy increasing client demands. Therefore, automating as many processes in order to meet client demands is seen as beneficial. The workforce needs work to be stimulating and non-manual so that the teams can focus on interesting value-add tasks and processes. Social pressures are fuelled by changes in technology. The huge advancements in technology are not only stimulating the change in client demands, as well as how clients interact with organizations but are also disruptive to the current IM sector, in that firms are pressured to adopt new technologies or risk perishing. This is particularly important for large and old firms who need to compete with start-ups. It is evident that existing

business and 'business as usual' need to change to adapt to technological advancements and go through what is termed as a digital transformation. Digital transformation occurs with digitalization, in other words automation.

Environmentally, there are pressures too, as a new-found urgency in addressing climate crisis has stimulated a shift in investment priorities and ESG investing has entered the scene. Correlated to social demographic changes, workers and clients are demanding environmental and social governance. Companies that do not meet ESG criteria are at risk. One way to meet ESG is adopting a new governance system. Firms need to demonstrate social responsibility by upskilling employees and to remain attractive workplaces and companies need to eliminate boring, mundane, repetitive tasks. Automation is an option to achieve this objective. As for legal pressures, IM is a heavily regulated sector.

The increase in meeting regulatory requirements has forced companies to invest large amounts of capital in the legal and compliance areas. It is evidenced that automation – RPA being one automation tool – is a viable solution to keep up with complying with the regulatory environment. Traditionally, IM firms sought competitiveness through better performance and or lowering fees and the current environment does not provide any opportunities for differentiation in performance and fees are at an all-time low. The emergence of technology and increase in client demands created an opportunity that has not been fully exploited: this opportunity is to enhance client servicing and therefore provide better a client experience through digital transformation. Existing research evidences that through implementing RPA as the initial step in digital transformation will address this new opportunity.
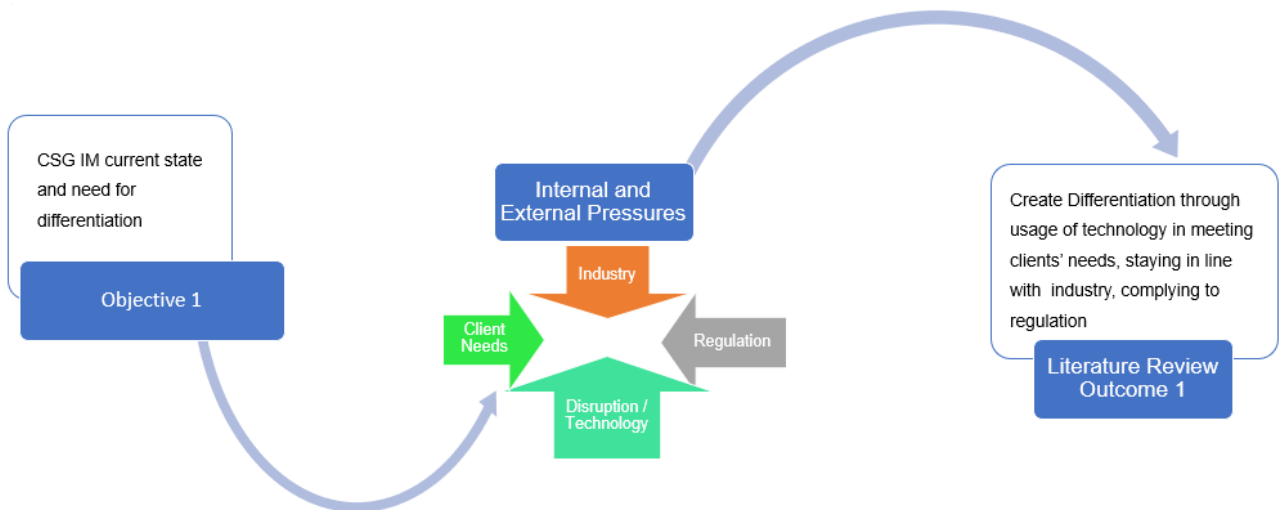
Figure 3.2 Objective 1 and Literature Review Outcome – image self-created.

The second and third research objectives are to critically evaluate RPA technology to create competitive advantage in the existing challenging environment by enhancing services offered in CSG within IM by implementing RPA.

Chapter 2 provided insight into CSG processes that are manual, repetitive and high in volume that can be automated via RPA to enable the workforce to focus on tasks and processes that are value-added, require decision-making and require human interaction. RPA is a non-invasive software that has penetrated across industries in the past five years. Its roots are based on screen-scraping and other efforts to automate processes such as macros. Such traditional methods did not function across software platforms or systems. RPA on the other hand is software, system and platform agnostic and can mimic functions that are currently being performed by a human. It can obviously complete processes much faster removing the manual/ human error risk through automation. In addition, it does not require breaks, can perform 24/7 and is completely auditable. The benefits of RPA are easily identifiable. Through automation, costs associated with daily, non-value-added operations are reduced and an increase in productivity is achieved. Increased productivity benefits are two-fold; firstly, output increases and secondly, employees are no longer required to perform tasks, are not overworked due to repetitive mundane work, and can focus on empowering value-added activities that keep them engaged in the workplace. An enhanced client experience is achieved; client demands are met accurately and adhere to desired delivery timing which contribute to addressing the problem in research objective one, related to the change in client

demands, putting the client back at the centre of operations. Additionally, through automation, the quality of work produced is improved as errors are reduced or eliminated and processes are completely auditable. Configured rules enable RPA to be compliant with rules and regulations. Bots can be configured to complete many tasks back-to-back therefore more can be achieved by using one bot. Hence the focus on RPA is not the number of bots deployed but the number of processes that are automated. The benefits address the problems raised in the current environment that CSG IM face. It is, however, important not to overlook the limitations. RPA is suitable for high volume, high in importance processes to derive ROI, if a process does not hold significant business impact, other solutions may be better suited to evaluate the manual tasks that form the process. As RPA is not a smart technology, processes that change frequently or are too complex are not suitable for RPA implementation because the bots would need to constantly be re-configured or intensive configuration and re-configuration may be required. Similarly, processes that are not streamlined are unsuitable for RPA for the same reason that it is not smart, it mimics the work of the human workforce and does not enhance a process, just automates it. RPA is an investment and while benefits outweigh limitations, costs need to be factored in. Achieving ROI is one of the challenges facing RPA and one that can be remedied through established best practice.

Challenges and best practice to overcome them are addressed in the third section of Chapter 2. Combining the challenges and best practice from existing research, the researcher identified four main groups in addressing best practice.
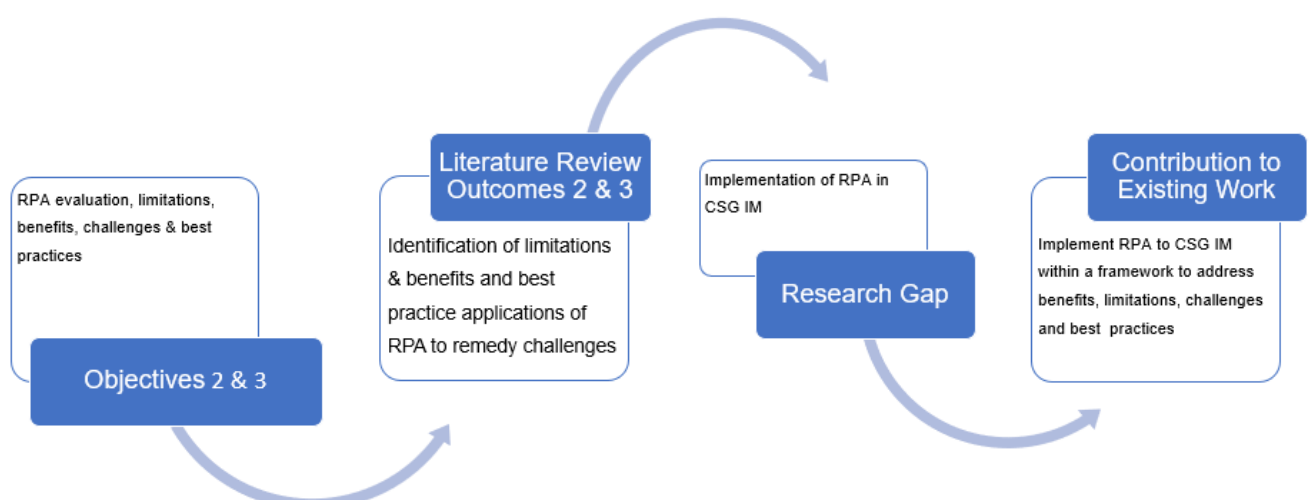
Figure 3.3 Objectives 2&3 and Literature Review Outcome – image self-created.

Case studies evidence that failed RPA implementation projects lack strategic placement within the overall company strategy. All firms operating today, and which wish to remain competitive, need to have a clear, defined digital transformation strategy. RPA is to be incorporated within this strategy. Case studies on failed RPA projects evidence that lack of ownership and allocation of responsibilities to the right stakeholders as a major factor in the failure of RPA. A sponsor from senior management with influence over budgeting companywide is required. The sponsor not only influences budgeting but leads the RPA project champions and evangelists.

Another challenge facing RPA implementation is resistance to change. The sponsor, champions and evangelists form a team that can be referred to as the Center of Excellence (CoE) and are responsible for establishing a change management plan that sits within the digital transformation strategy, embedded within the overall firm strategy. The CoE is additionally responsible for overcoming suitability challenges in vendor and process selection, aligning the RPA solutions with the existing infrastructure and processes. In identifying and prioritizing RPA processes, the CoE needs to establish clear success measurement criteria in order to overcome the ROI and scalability challenge.
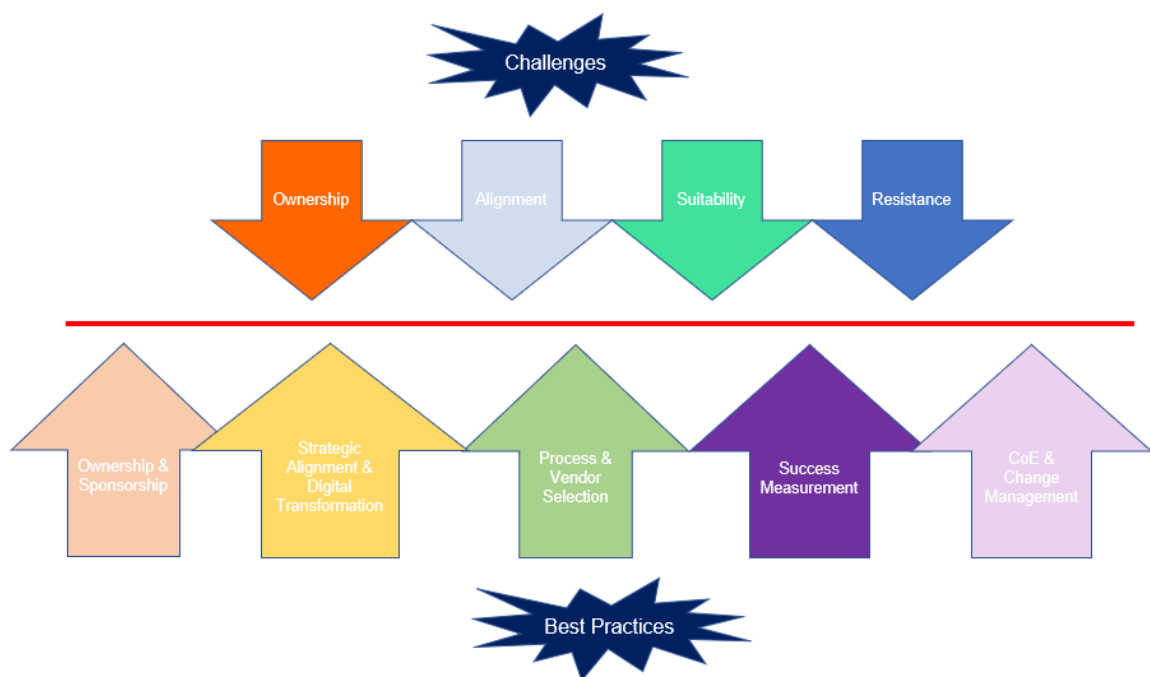
Figure 3.4 Challenges and Best Practice – image self-created.

There is ample evidence to support that a competitive differentiator in IM is through enhancing CSG functions and processes and one possible technological tool is RPA. RPA benefits are aligned with achieving enhanced CSG. RPA implementation challenges and best practice have been compiled through extensive critical analyses of case studies carried out by consultants, RPA solution providers and vendors as well as analysts. The case studies are numerous and span across industries including IM and over some of the functions that are performed by CSG. However, the implications of RPA implementation in CSG of a large IM does not exist. In Chapter 5, the researcher critically evaluates RPA implementation in CSG of a large IM.

3.3. Summary of Conceptual Framework

The conceptual framework of this study is built around the established findings that there is an opportunity to enhance the client service departments of investment management companies to support overall competitiveness. One way to do so is through streamlining then automating automatable processes. A tool in automation is RPA. The concept of RPA is central to the critical analysis of this study, providing the framework for how the researcher intends to fill the research gap that exists in linking RPA to CSG in IM. In order to critically evaluate this concept, the researcher investigates the CSG tasks that are suitable for RPA and conducts in-depth analysis in implementing RPA effectively by exploring the existing research in this area, combined with field research as well as a series of interviews that lead to a test case implementation of RPA. The research methodology selection process is described in the following chapter.

4. Chapter 4: Research Methodology

Research methodology has a direct impact on the findings of the research. This section provides insight into the research paradigm and the elements that impact the research process in determining the selected research methodology. The research question is very specific and is exploring validation of a value – is RPA good for CSG IM? The starting point for exploring this question is to firstly identify the value RPA pledges to add in a general setting and then within the overall investment management departments. This investigation is conducted during the literature review section of this thesis which is part of the secondary research data. The literature review evidences that RPA does add value. The following stage is to identify if RPA adds the same value to the specific tasks performed within CSG IM. The elements in the research framework lead to the justification of the appropriate methodology conducted in this research. The methodology selected targets application of the general findings to application in a specific department – CSG – within a specific setting – IM.

This chapter details how the research will be performed for this dissertation providing justification for the methods selected. It starts with an overview of the elements of the research framework that lead to the methodology, followed by details of the research and is further broken down into phases.

4.1. Introduction

In the first chapters of this dissertation, the "what" and "why" questions have been described in terms of the research objectives; what the aim is, what the topic is, what value there is in conducting the research, why it is important, why the researcher chose this study. In summary, the research objectives set in Chapter 1 serve to justify the question whether robotic process automation (RPA) technology is the appropriate automation tool to enhance the client service group (CSG) functions of a large institutional investment management (IM) company in the overarching strategy of remaining competitive by enabling digital transformation. Chapter 2 sets out a critical evaluation of the current state of CSG IM followed by analysis of RPA, its limitations, benefits, challenges and best practices to overcome the stated challenges (BLCP framework). It is followed by evidencing the lack of research in

determining if RPA is the right digital transformation tool to achieve competitiveness for CSG IM and the research gap. Through the conceptual framework detailed in Chapter 3, the researcher provided the framework of the critical analysis of the empirical study section of this dissertation which is situated in Chapter 5. This chapter, Chapter 4, details "how" the research is to be conducted to support the findings that are presented in Chapter 6, the final chapter. It details the motivation and provides justification for the research conducted in this dissertation.

4.2. Research Process

The researcher follows certain methodical steps in conducting this research, which can be referred to as the research process and guides the research in the desired direction. The following are steps that will be followed in this research:
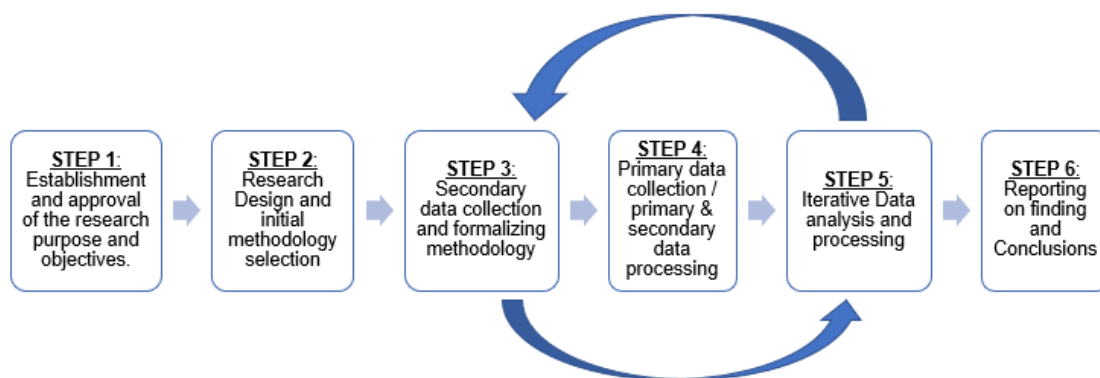
Figure 4.14 Research Steps – image self-created.

4.2.1. Step 1: Establishment and Approval of the Research

The establishment of the research itself, its alignment with the researcher, considerations and approval to proceed are listed as the background to Step 1 of the research process.

4.2.1.1. The researcher's role and background

The researcher has been in client services at investment management firms since 2010. The nature of the work performed in her roles rely heavily on repetitive and manual tasks that are only indirectly related to the client service experience, for example, the creation and distribution of reports at various frequencies. The direct client service interaction therefore is a competing factor with indirect servicing requirements in allocating resources – valuable employee time.

At the time of the research, the researcher held the role of Associate Director, Senior Financial Consultant in the Client Services Group at MetLife Investment Management (MIM). MIM has sponsored the researcher in pursuit of the DBA and the findings will be shared with relevant senior managers within MIM.   In the capacity of employee, the research is valid and directly relevant in context. MIM has supported the researcher in contacting and requesting various relevant department managers to partake in the study, therefore the researcher held the advantage of accessing the target audience. Through employment within a sector that has potential RPA implementation, the researcher was able to attract industry subject matter experts.

The researcher submitted her research proposal which was approved in 2017. The proposal provided guidelines for the initial research methodology and established that case-study research would yield the most appropriate conclusions through participant observed in a field study and in interviews. Following the proposal, the necessary administrative approvals were obtained and initial communication with potential research participants as well as subject matter experts (SME) and third-party vendors was established.

4.2.1.2.   Considerations
4.2.1.2.1.   Anticipated/Access issues

In-depth interviews and observations of the relevant parties in IM, CSG and RPA form the basis for the empirical case study. The researcher's employer granted access to interview and research the IM, CSG and technology departments of the organization. Through her research student status, RPA experts and industry consultants welcome the opportunity to take part in this study, therefore accessing resources is not foreseen as a problem.

From a skills perspective, the researcher is sufficiently equipped to conduct this research, leveraging skills that she has acquired though her work experience and through project management professional certification (PMP©) to conduct systematic research into identifying the issues that are holding back firms in implementing RPA.

Therefore, there are not any foreseeable issues in accessing resources nor data collection and processing.

4.2.1.2.2. Ethical Considerations

<u>External Ethical Guidance Materials</u>

The researcher has adhered to the following core ethical guidance documents in accordance with approval received after submitting the Ethics Form to UWTSD:

1. UWTSD Research Integrity and Ethics Code of Practice[4]
2. UWTSD Research Data Management Policy[5]
3. LSE Research Ethics Policy and procedures[6]
4. MetLife Code of Business Ethics[7]
5. MetLife Investment Management Policies and Procedures[8]
6. General Data Protection Regulation (GDPR)[9]

4.2.1.2.3. Non-maleficence and Beneficence

During the research and data collection, there is ongoing consideration to the potential risk of causing any harm to any participants; harm in this context most appropriately applies to not causing any harm to future career potential or future employment or future vendor selection of RPA providers or management consultants. The research will not cause any physical, emotional or potential harm to any participants.

4.2.1.2.4. Autonomy

The participants of this research have the right to withdraw their participation at any point. The participants are provided with sufficient, accurate and relevant details as to the scope of this research. Their results are accurately represented and are not taken out of context (Owl.english.purdue.edu, 2017).

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[4] https://www.uwtsd.ac.uk/media/uwtsd-website/content-assets/documents/research/research-ethics-integrity-code-practice.pdf
[5] https://www.uwtsd.ac.uk/media/uwtsd-website/content-assets/documents/strategies-policies/Research-Data-Management-Policy-27.01.16.pdf
[6] https://info.lse.ac.uk/staff/services/Policies-and-procedures/Assets/Documents/resEthPolPro.pdf
[7] https://www.metlife.com/content/dam/metlifecom/us/homepage/about-us/corporate-governance/codes-of-conduct/business-ethics/2019/MLCode_BusinessEthics_Final.pdf
[8] https://investments.metlife.com/regulatory-disclosures/metlife-investment-management-limited/
[9] https://gdpr-info.eu/

4.2.1.2.5. Justice and Inclusiveness

The participants are chosen within the context of this research. While it may be easier to interview only selected peers within CSG, the researcher has not taken advantage of the ease of access but used judgement in selecting appropriate participants, events and research that most benefit this study.

The researcher's own personal thoughts, opinions have not interfered with the research. The research is objective and void of personal bias. Personal bias in this context does not apply to accumulated work experience, it refers to any personal potential bias on future implementation of an automation tool.

4.2.1.2.6. Confidentiality and Anonymity

In the context of this research anonymity is not necessary as there are no foreseeable risks to participants. The participants have been informed of the research and have provided their consent via e-mail. The results however are kept confidential and anonymous to mitigate any unforeseen potential future risk, as RPA is a new technology. Should any participant wish to withdraw authorization, they can freely do so and are informed of this right.

Having obtained the necessary approvals and authorizations from all relevant parties, the next section details the research design, methodology and strategy.

4.2.2. Step 2: Research Design and Initial Methodology Selection

The research methodology can be defined as the founding blocks of conducting the research. Once the research topic has been identified, it is relatively easy to determine the methods of how to conduct the research. Professor David James, in a recorded workshop video[10], explains that data gathering for a research project is straightforward and can include interviews, questionnaires, observations and many other methods. He continues to explain that the methodology together with the method and design of research provide the approach of the research and the justification of the selected methods. The prefix 'ology' means "the study of" and in the case of research, it refers to the study of methods used (Oxford Dictionaries |

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[10] http://walesdtp.ac.uk/onlinematerials/how-to-get-clear-about-method-methodology-epistemology-and-ontology-once-and-for-all/ (Wood, 2019)

English, 2019). The research methodology therefore is a resource document, a map, of the research itself, it provides the key to its findings.

The Research Onion is a tool developed by Saunders (Saunders et al., 2012), it presents a framework to aid researchers in deciding in the appropriate methodology for conducting their research. It is a design presented in circular layers and researchers can use it by moving from the outer layer towards the centre.

Adapting the Research Onion, the graph below is the visualization of the research methodology used in this research:
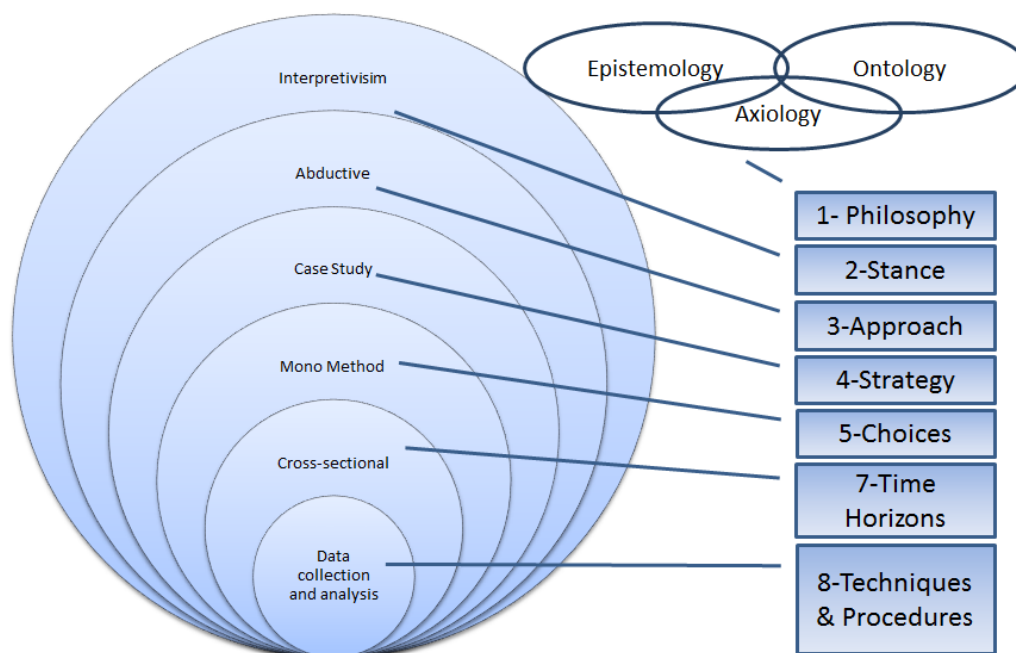
Figure 4.2 Overview of selected Research Methodology. Image adapted from Saunders et al., 2012

4.2.2.1.   Research Philosophy

Through the research gap, it has been established that there is a lack of studies addressing the core research question of the study: "Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?"

In the Research Onion model, there are three philosophies that define the beliefs underlying research. In order to identify the research philosophy leading to a valid methodology, revisiting the research question proves useful: Is RPA the appropriate digitalization solution that will enable an enhanced client service experience for MIM

CSG clients? This question implies that there is a known digitalization solution, RPA. What is known about RPA is addressed in the literature review. The question attaches a value to the proposed solution and the research aims to validate if there is indeed value in this solution; it is an axiological investigation.

- <u>Ontology</u> addresses the question **what** is known, what exists or what is true about the research.
- <u>Epistemology</u> addresses the question **how** what is known is known, relies on "facts and information that can be proved without doubt rather than changeable situations and opinions" (Saunders et. al, 2007:102).
- <u>Axiology</u> allows for the researcher to **attach value** and opinion (Onion.derby.ac.uk, 2019). The research question is based on the assumption that RPA integration will deliver higher performing client services teams. Therefore, there is a value attached to this inquiry, in this case simply put this value is that RPA is good. The research methodology most appropriate therefore is an axiological one.

4.2.2.2.   Stance

An interpretivist stance is suitable in this research. Interpretivism acknowledges the influence of the environment, human behaviour when interpreting data and is used heavily in qualitative research such as this one as opposed to quantitative research. In this study, the researcher is part of the research environment itself and plays an important role in the study. Furthermore, technology acceptance model and the change management model referenced in this study rely on the perception and behaviour of the people involved in the research, therefore interpretivist philosophy is used by the researcher in this qualitative study.

4.2.2.3.   Approach

Inductive and deductive (also known as **abductive** approach) approaches may be combined in conducting the research and this is the researcher's approach: "Abductive reasoning involves deciding what the most likely inference is that can be made from a set of observations" (Research Methods in the Social Sciences, 2009). The researcher is synthesizing data from various sets of observations, from existing research to field observation to her own work experience. While there is research on

RPA in general, and in client services, as well as change management and organizational transformation, there is insufficient research addressing the core research question: "Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?". Deductive approaches, while typically used in quantitative research, are suitable for questions with a "yes" or "no" answer to a question. This approach starts with the question followed by data collection to final findings of validation or rejection. Therefore, with this definition as anchor, part of the research follows a deductive approach while the core research question aims to "create a theory" in a research area with little research which is the inductive approach of this research. "This means the research goes from research question to observation and description to analysis and finally theory" (Derby, n.d.). The researcher, therefore, has adopted and abductive approach. The final theory would be to formulate the change management and organizational transformation framework that includes benefits, limitations, challenges and best practice (BLCP) for effective implementation of RPA in investment management client services.

4.2.2.4. Strategy

The selection of using inductive and deductive methods allows the researcher the usage of surveys and grounded theory as part of an overall case study within the research strategy:

Survey Method – this method is based on asking questions via mail, telephone, interviews, and questionnaires to a select group of participants and then interpreting their replies. In this research, interviews will be conducted via phone, and personal interviews. Surveys provide the deductive portion of the research.

Grounded Theory (GT) – this method is based on collecting data to draw conclusions. This is the inductive portion of the research. One caveat is that, typically, due to its nature on building theory out of collected information, takes time. As this research is time bound, GT will only be leveraged in specific areas, where conclusions need to be drawn.

Multiple types of data such as interviews, existing text from documents and observations can be used in GT to provide in depth assessment and formulation of conclusions.

These strategies together with the abductive thematic analysis form the case study chapter, Chapter 5, of this dissertation.

<u>Case Study</u>

As the RPA tool is a relatively new technology, the researcher adopts an iterative approach in carrying out the case study, allowing the research output from one phase to influence the research input of subsequent phases. This approach stimulates identification of any emerging or new themes that may impact RPA implementation analysis for MIM CSG. The benefit of the iterative process, specifically around field observation (conferences and webinars), is that it enables the researcher to proceed in an analysis that is in lock step with RPA market developments.

The research strategy, which is split into further five cyclical, iterative phases is depicted below:
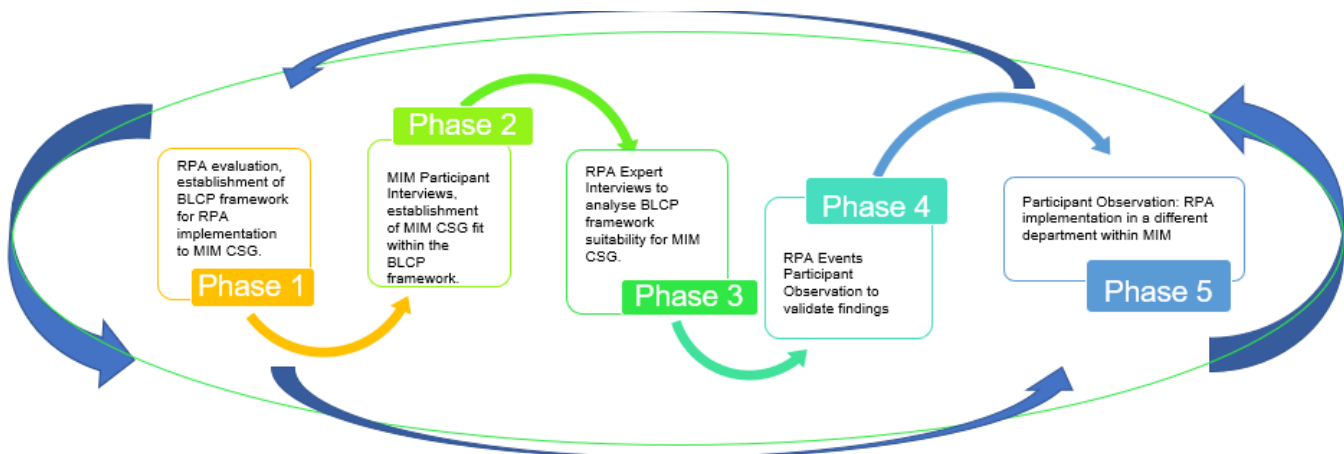
Figure 4.3 Research Strategy in Phases – image self-created.

Phase 1: <u>Summary of literature review</u> to establish the BLCP framework for confirmation or disconfirmation when implementing RPA within MIM CSG processes. This is the <u>secondary data collection</u> section of the analysis into the validity of the framework, as applicable to MIM CSG tasks and processes. In this phase the researcher also identifies the suitable test process for this case study.

Phase 2: <u>MIM Participant Interviews</u> to confirm or disconfirm a MIM CSG fit within the BLCP framework, specifically addressing the challenges section of the BLCP framework.

Phase 3: <u>RPA Expert Interviews</u> to confirm or disconfirm alignment of findings on challenges from Phase 2, MIM Participant Interviews to proposed best practices through highlighting expert view on BLCP applicability to MIM CSG.

Phase 4: <u>RPA Events Field Study</u>, a field study to confirm or disconfirm analysis from previous stages and to highlight triangulation of the research on BLCP applicability to MIM CSG.

Phase 5: <u>Observation Case Study (Empirical study)</u>: The researcher worked with IT and middle office departments in implementing RPA for a reporting function to observe suitability of BLCP framework for MIM in order to draw a similarity with CSG implementation. This analysis serves to test the validity of BLCP framework.

4.2.2.5.　　Choice

Along the same lines of the philosophy, stance and approach, the appropriate strategy for this research would be a mono method – which is an empirical qualitative case study. The qualitative study is comprised of formulating the in-depth interview questions and coding; there are two levels that the researcher explores, one directly related to RPA and the other related to organizational change and how receptive the ecosystem, the culture, is to transformation in order to present a BLCP framework.

4.2.2.6.　　Time Horizon

Cross-sequential research will be carried out in the research. Cross-sequential research combines elements of cross-sectional time horizon which takes a single point in time with different samples and longitudinal time horizon which takes several points in time with same sample to measure qualitative data.

This research has the deadline of conclusion of the DBA course, February 2021. The final draft for submission needs to be three months prior to the viva voce, therefore the final draft needs to be concluded by the end of August 2020, to allow

sufficient time for acceptance of the research by end of DBA. The researcher completed the RM Module in October 2017, with a period of research spanning thirty-four months.

The general timing:

1st Section: 6 months -> understanding the research, "WHAT" aspect of the research – completion of literature review.

2nd Section: 10 months -> Planning and execution of data collection and analysis, "HOW" aspect of the research.

3rd Section: 10 months -> "WHY" aspect of the research.

4th Section: 4 months -> Documentation and mock preparation, corrections, draft submission leading up to the final submission.

4.2.2.7. Techniques and Procedures

4.2.2.7.1. Data Collection

"A research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of study" (Yin, 2003). During the approval procedure for this research, the researcher remained active by attending investment management and RPA industry specific conferences and forums as a delegate as well as a speaker. Through networking sessions and continuous contact with internal robotics, technology, senior management and strategy teams, the researcher established a satisfactory data set that would provide accurate insight into her research. She developed open-ended questions for subject matter experts (SMEs) and a set of questionnaires for participants, in order to establish a thorough qualitative case study research by adopting an interpretivist stance.

4.2.2.7.2. Types of Data

Primary Data

Primary data is the collection of information for the specific reason of research. In this research, primary data is collected through interviews and field research.

Secondary Data

The secondary data in this study is utilized to provide the landscape of the research, with data collected from the industry as well as academic, government and organizational publications.

4.2.3. Step 3: Secondary Data Collection and Formalizing Methodology

Once the design and initial methodology was determined, the researcher compiled tasks within MIM CSG which would be suitable for automation and initiated breaking the tasks down into their internal steps, which aided in identifying the participants to observe and interview. In the meantime, SME's, as well as RPA experts to interview were identified through the literature review and through participating in conferences. The questions, data logging and storing were prepared at this stage while awaiting approval of the PG2 Ethics form.

4.2.4. Step 4: Research Data Collection and Processing

This section details the motivation and justification for data collection and processing.

4.2.4.1. Research Activity Location

The research activity is conducted in London, UK. The research is applicable to a large institutional investment management firm operating out of the UK. Some of the research participants or events are located elsewhere, however no ethical prohibitions applied as the participants were interviewed over the phone or webinar events.

4.2.4.2. Participant Numbers and Source

RPA is a new technology altogether and it is certainly a novel concept for MIM team. In selecting participant number size, based on actively participating in RPA related events, the researcher identified the saturation point for participants to be limited both within her organization as well as in the RPA expert field. Therefore, at the point of research, adding further participants for interviewing sessions would not add any new information for the specific purposes of the research. The researcher selected ten MIM participants (Appendix 1) and five RPA experts (Appendix 2) to take part in semi-structured interviews. The researcher also collected data through participating in twenty seminars, summits and live webinars (Appendix 3), collectively

referred to as RPA events hereafter). Through her interest and activities in the RPA related field, the researcher was invited to present on RPA in an annual Digital First conference that took place in Amsterdam, Holland in June 2019 and in London, UK in March 2020.

The research procedures were described to participants in advance. All participants were offered to review the findings before publication. However, participants did not opt for any revisions but were offered the opportunity to provide comments and feedback should the researcher require it.

4.2.4.2.1. MIM Participants

The researcher approached potential participants to see if they would take part in the study, described the study and advised on what to expect. As there is no reporting line connection between the participants and the researcher and as participants have not been made aware of each other's involvement in the study (except on two occasions participants referred other participants) there was no conflict of interest.

The participants were informed that their participation is for the researcher's purposes only, independent of any company project that may be ongoing and that their participation in the study will not impact their current roles. The sampling bias is mitigated as there is representation of all actor groups in a potential RPA implementation project: the researcher with two additional members of CSG formed the CSG sample out of a total of 7 team members worldwide. Three company automation representatives to confirm the validity of RPA implementation analysis for CSG were interviewed. Three IT representatives for this company initiative, as well as IT representation for CSG specific implementation, were interviewed. Four participants were selected for their involvement in strategy, operations, automation and business development. The participants and their interview dates and times are presented below:

Code	Name	Department	Date and Time of Interview	Duration
MR		CSG	N/A	N/A
M2		CSG	09-Jul-18	60 min
M3		CSG	17-May-18	60 min
M4		Investments IT	14-Sep-17	30 min
M5		Investments, Data Strategy and Integration	17-May-18	45 min
M6		Investments IT	09-Jul-18	45 min
M7		Strategy, Planning & Governance	11-Dec-19	45 min
M8		Head Of Service & Operations, UK	25-Nov-19	30 min
M9		UK Business Development	25-Nov-19	30 min
M10		Digital Automation	25-Nov-19	45 min

Figure 4.4 MIM Participant Sample

4.2.4.2.2. RPA Experts

The researcher selected the top five RPA influencers based on the literature review on the RPA landscape. The researcher approached these RPA experts to ascertain whether they would take part in the study, described the study and advised on what to expect. The researcher emphasised that in no way is she a decision-maker on selecting vendors for her current workplace and the study is solely for the purposes of investigating RPA implementation in an unexplored area, IM CSG for the purposes of her pursuing her academic research (non-work related). Therefore, there was no conflict of interest. The RPA expert participants were informed that participating or rejecting participation would not impact any current or future relationships they may have with MIM. Experts were keen on expressing their unique selling propositions and were very interested in adding value to the overall research confirming that there is lack of evidence in the CSG IM field. Sampling bias was prevented by targeting only the top five experts based on the existing research findings in Chapter Two. The interview details are provided below:

Code	Name	Company	Date and Time of Interview	Duration
E1			24-Jun-19	45 min
E2			02-Jul-19	60 min
E3			02-Aug-19	30 min
E4			02-Sep-19	45 min
E5			28-Oct-19	30 min

Figure 4.5 Expert Participation Sample

4.2.4.2.3. Field Study in select RPA events

As part of the iterative process of analysing the data collected from systematic literature review, MIM participants and RPA experts, the researcher focused on several RPA events to ensure that there is no new information or findings that would be required for further analysis in drawing conclusions for the purpose of this research paper. The details of the events are presented below:

Code	Organizer	Event Type	Name of Event	Date	Duration
E1	University of Chicago/Chicago Booth London Campus	Event	Labor Market Robot Apocalypse?	21-Feb-18	120 min
E2	Cutter Associates	Live webinar	Robotic Process Automation (RPA) - Practical Applications in Investment Management	31-May-18	90 min
E3	University of Chicago/Chicago Booth London Campus	Event	The Stir: People and Machines Working Smarter Together	03-Jul-18	240 min
E4	MetLife	Event	2018 EMEA Recognition Programme: Digital Transformation	10-Sep-18	Workshop
E5	AI IA	Live webinar	AI Live Global 2019	2-4 April 19	2 days
E6	The Outsourcing Institute with The Institute for Robotic Process Automation and Artificial Intelligence	Event	Digital OAISS – London, Countdown to 2020 - The Tipping Point	04-Jun-19	180 min
E7	Amistat	Event/speaker and panellist	Client Onboarding: Digital-First Banking for Digital-First Customers 2019	17-18 Jun 19	2 days
E8	Point B	Live webinar	The Future of RPA, Robot Assistants or Robot Apocalypse?	26-Jun-19	45 min
E9	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Recruitment Market Report - Webinar	27-Jun-19	60 min
E10	Understanding Deep Process Automation & How it Helps Scale RP	Live webinar	Understanding Deep Process Automation & How it Helps Scale RPA	30-Jul-19	60 min
E11	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Mid-Market RPA Journey: Empowering Your Employees through RPA Adoption	10-Oct-19	60 min
E12	HelpSystems	Event	2019 RPA Global Tour – London	06-Nov-19	180 min
E13	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Breaking Through the Digital Ceiling – A showcase for women driving change in Intelligent Automation	14-Nov-19	60 min
E14	Shared Services and Outsourcing Network	Event	4th Annual Intelligent Automation	Nov 25-27, 2019	360 min
E15	UiPath	Live webinar	Scale RPA with the right COE and Process Selection	28-Nov-19	60 min
E16	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Move Past Roadblocks and Successfully Scale RPA in Your Organization	05-Dec-19	60 min
E17	Gartner	Live webinar	Live webcast: Gartner Predictions for RPA and Intelligent Automation	05-Dec-19	60 min
E18	The Institute for Robotic Process Automation and Artificial Intelligence	Event	IRPA AI Summit	11-Dec-19	180 min
E19	Kofax	Webinar	Ignite Entreprise Automation Initiatives & Secure the Digital Workforce	05-Mar-20	60 min
E20	Amistat	Event/speaker and panellist	2nd Annual Client Onboarding Directors Forum for Banking	02-03 Mar 20	2 days

Figure 4.6 RPA Event Sample

4.2.4.2.4. Case Study

The researcher selected the reporting CSG task to use as a test case in implementing RPA. Reporting is voluminous, high in volume and high in importance and does not require intervention, therefore the researcher validated the reporting function as a suitable case study.

4.2.5.   Step 5: Iterative Data analysis and finalizing/formalizing methodology

Data collecting, processing and analysis occur in a cycle. The researcher started the research through informal interviews to organize the worldview and relevant questions that formed the subsequent interview questions. The formal data collection occurred during scheduled interviews which took place in 2019. As the interviews progressed, data was continuously analysed, and further research was conducted. As RPA is a new technology, the SME were constantly consulted to ensure alignment with the interview questions and have been included in the field research. The researcher was able to first-hand observe the transformation of the application of RPA in the scope of this thesis as an applicable case study. Therefore, the researcher was able to validate the appropriateness of the interview sessions in light of the case study. Observing the real-time deployment of RPA further enhanced the data analysis that forms this thesis.

4.3. Summary of Research Methodology

There is extensive information on investment management in general, as well as within FCA regulated investment management firms. It is also a given that digitalization is part of the strategy of these firms to remain competitive. There is also extensive research, literature and evidence that client services are paramount to the success of these firms. In order to gain competitive advantage, FCA regulated investment management firms can invest or focus on the potential that exists within enhancing their client services departments. One way that this can be achieved is through implementation of RPA as it fits in with the overall strategies of firms to move toward digitalization. However, firms implementing RPA are still an area to be explored.

Through the research, the expected outcome is identifying the source of delay and resistance - if there is resistance – in implementing RPA in firms that are in scope. The benefits, limitations, challenges and best practices are placed as a framework to facilitate validation of RPA implementation suitability to MIM CSG.   Once the framework is formed, the research focuses on identifying overarching client services tasks – these are common tasks that all investment management firms need to undertake such as onboarding tasks, performing KYC (know your client) and AML (anti-money laundering tasks) as well as internal and external reporting. These are the variables that are inherent to client services tasks. Out of the identified tasks, the research will undertake how to implement RPA in MIM CSG within the established BLCP framework.

In conclusion, the expected outcome is that RPA is beneficial to the performance of client services teams and as it promises, RPA is easily implemented as a tool to gain competitive advantage within the client services areas of investment management firms. Furthermore, this implementation is in line with the overall company's strategy on digitalization.

The contribution to the existing knowledge in the field will be a framework, a plan for the companies in scope to identify RPA solutions based on current research to derive informed decisions.

It is a natural outcome that once RPA infiltrates investment management companies, it will continue to develop and morph into further automation. In conclusion, my expected contribution will be to explore if RPA can be applied in investment management firms as a contributing factor to the bottom line and ways in which it will enhance client servicing.

5. Chapter 5: An Empirical Case Study on RPA Implementation in MIM CSG

This chapter provides an in-depth analysis into RPA implementation for MIM CSG composed of three parts across five phases of investigation; part I is an internal analysis into CSG tasks that are suitable for RPA implementation through the synthesis of existing research and a series of MIM participant interviews, part II is the external analysis through a series of expert interviews and field study conducted in the form of event participation and part III is a case study applying the findings from part I and part II.

Recalling the core research question, the researcher investigates if RPA is the right technology automation tool to implement in CSG to support MIM in its digital transformation journey. The supporting secondary questions aim to ultimately uncover a best practice framework (BLCP framework) to successfully implement RPA with the final core objective of concluding by confirming or disconfirming that implementing RPA within the suggested framework will benefit MIM CSG. The study is designed as an empirical single case study, conducted through an in-depth investigation. The researcher constructs the validity of the benefits, limitations, challenges and best practice headings and themes, using several sources of evidence (expert and user interviews, coupled with field observation and an end-to-end test implementation). This leads to identifying triangulation on implementing RPA established best practice as defined within a framework that is overlapped to implementing RPA within the CSG department (Yin, 2003).

5.1. Introduction

In Chapter 2, the overall study has been placed on three pillars upon which the literature study and the research strategy are utilised to form the background of the research.
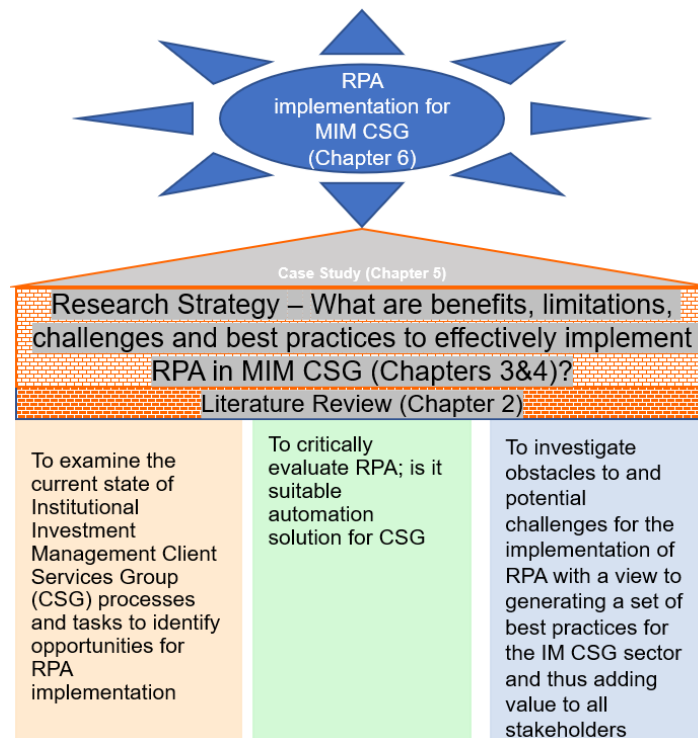
Figure 5.1 – Core and Secondary Research Questions – image self-created.

The core and secondary research questions are provided in the table below. The latter are researched and confirmed or disconfirmed through the following study in this chapter. The core question, "Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?" is addressed as a synthesis of the findings of the secondary research questions of the study and is presented in Chapter 6.

In synthesizing the IM, CGS and RPA worldview detailed in Chapter 2, the researcher has established the following table aligning the core and secondary research questions to existing literature and highlighting the level of further analysis/study required in the research:

	Research Questions	Literature Review Coverage	Study
	Core Research Question:		
	Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?	Not addressed in literature review	To be researched
	Secondary Research Questions:		
1	What are the challenges in CSG that warrant automation enhancement?	IM sector facing challenges and enhanced CSG activity can result in increased competitiveness and profitability	To be confirmed or disconfirmed
2	What are the solutions available to enable enhanced client servicing?	Digital Transformation	To be confirmed or disconfirmed
3	Can RPA address challenges faced in CSG better than other available solutions?	Not addressed in the literature review	To be researched
4	What would be the benefits of implementing RPA?	Benefit 1: Increased and Enhanced Operational Efficiency Benefit 2: Better Client Experience Benefit 3: Better Employee Experience Benefit 4: Risk Reduction, Adherence to Regulation and Auditability Benefit 5: ROI	To be confirmed or disconfirmed
5	What are the limitations of RPA?	Limitation 1: Bad or non-streamlined Processes Limitation 2: Low in Volume Limitation 3: Low in Importance Limitation 4: Structured data Limitation 5: Better Alternative Availability to RPA	To be confirmed or disconfirmed
6	What are the core challenges in RPA implementation?	Challenge 1 Ownership Challenge 2 Alignment Challenge 3 Suitability Challenge 4 Resistance	To be confirmed or disconfirmed
7	How is the success of RPA measured?	ROI	To be confirmed or disconfirmed
8	Is established best practice in RPA implementation that emerged from previous RPA implementation attempts in other areas applicable to CSG RPA implementation?	Best Practice 1: Ownership and Sponsorship Best Practice 2: Strategic alignment of Digital Transformation Best Practice 3: Selection of Vendor and Processes Best Practice 4: Success Measurement Best Practice 5: CoE and Change Management	To be confirmed or disconfirmed
9	Does CSG exhibit an environment for RPA implementation according to available best practice?	Not addressed in the literature review	To be researched
10	Will RPA implementation in CSG benefit the IM company overall?	Not addressed in the literature review	To be researched

Figure 5.2 – Core and Secondary Research Questions

Throughout the study, the researcher defines key learning points from data that is collected and how it supports key findings. The researcher then addresses implications of the findings and what they mean by demonstrating the validity of the BLCP framework, to serve as a starting point for institutional investment management companies implementing RPA in their client services departments.

In conducting the study, the phases of the iterative research are explained in detail in Chapter 4 as recalled below:
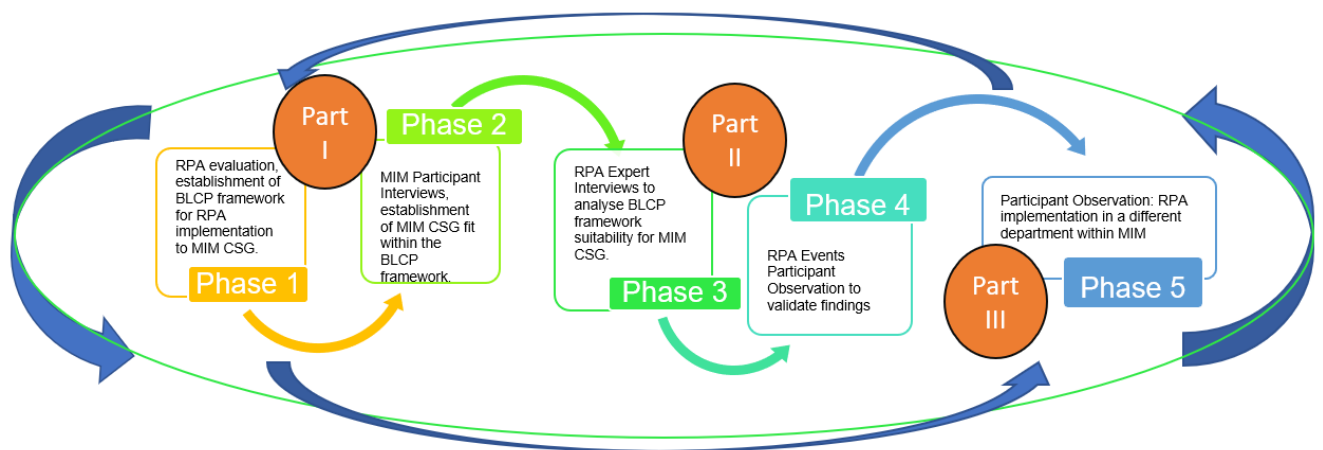
Figure 5.3 - Research Strategy in Phases – image self-created.

In this chapter, the researcher presents the analysis in three parts.

Phase 1 serves to validate the BLCP framework and the reporting function as a suitable test case for Phase 5.

Phase 2 serves to research the challenges within the BLCP framework as applicable to MIM CSG. Phases 1 and 2 are analysed in part I.

Phase 3 serves to investigate experts' knowledge and experience in best practice within the BLCP framework to validate if established best practice addresses the challenges highlighted by MIM Participants.

Phase 4 serves to analyse themes and headings to support the findings and further investigate if there are any uncovered potential points to address within the BLCP framework. Phases 3 and 4 are analysed in part II.

Phase 5 is the application of a test case study's findings to validate BLCP framework for MIM CSG in implementing RPA. This phase is analysed in part III.

5.2. Core Analysis

The following sections of Chapter 5 provide analysis of themes and headings that emerged from the existing research on RPA and are validated through the study in three parts.

5.2.1. Part I – Internal Analysis

Part I of the analysis is an internal investigation. It is focused on MIM CSG tasks uncovering the RPA suitable tasks in phase I, followed by interviews conducted with MIM employees that would be impacted by the implementation of RPA implementation. These are selected members of the CSG team, members of the IT department and members of the firm that are involved with the MIM strategy, specifically in automation as well as digital transformation in phase II.

5.2.1.1. Phase 1: Establishment of BLCP Framework for MIM CSG

In this phase, the researcher achieves two objectives: (i) synthesis of the findings from the literature review conducted in Chapter 2 to overlap the benefits, limitations, challenges and best practice (BLCP) framework to confirm or disconfirm alignment of the framework to MIM CSG and (ii) in this phase, the MIM CSG function selected for the RPA test case in Phase 5 is validated. The suitable function is the reporting function.

Chapter 2 introduces the RPA benefits, limitations, challenges and best practice worldview. 'Worldview' in this context refers to meaning "a basic set of beliefs that guide action" (Creswell, 2014, p35). In this section, RPA is set within a framework of implementing it within MIM CSG by adhering to existing limitations to derive perceived benefits; and to identify industry accepted best practice to overcome or at least minimize observed challenges.

Through the BLCP framework, the researcher anchors the RPA implementation's perceived benefits, accepted limitations, challenges and best practice to overcome

these challenges from existing research to a specific investigation of RPA implementation of MIM CSG. The objective of the framework is to provide a deeper level of understanding of RPA implementation through the lens of MIM CSG from a holistic perspective. It examines the characteristics of factors contributing to best practice for RPA implementation in CSG, to achieve the expected benefits and overcome challenges.

5.2.1.1.1. RPA Worldview through the lens of MIM CSG

In Chapter 2, the researcher identified that KYC, AML functions, client on/off boarding functions as well as reporting functions are the most suitable candidates for RPA implementation. In the following section, Phase 1, the researcher analyses the suitability of each candidate process, overlaying the BLCP framework on the MIM CSG processes in pinpointing a candidate for testing as part of this case study as part of phase 5.

5.2.1.1.2. Limitations of Implementing RPA in CSG

The table below provides a brief view of how each function is viewed in relation to RPA implementation limitations:

	L1: Bad or non-streamlined Processes	L2: Low in Volume	L3: Low in Importance	L4: Structured data	L5: Better Alternative Availability to RPA
KYC	Yes – therefore not a good candidate	Yes – therefore not a good candidate	No	No – therefore not a good candidate	No
Reporting	No	No	No	Yes	No
On/Off Boarding	Yes – therefore not a good candidate	Yes – therefore not a good candidate	No	Yes	No

Figure 5.3 – Predefined limitations alignment to RPA in CSG

115

Limitation 1: Bad or non-streamlined processes

In identifying a function to use as a test process in Phase 5 of this case study, the researcher uses the "Rule of Five" which an enterprise analyst at Forrester, Craig LeClair[11], suggested in identification of RPA suitable tasks:

(i)   "No more than five decisions" (Torres, 2019): As established in Chapter 2, RPA is not smart and cannot make decisions. The process to be performed by RPA should not be intricate, the bot should be able to follow tasks without having to make a selection more than five times.

(ii)   "No more than five applications": Similarly, RPA should not interact with more than five applications because beyond five applications, the interdependence, password check points and complexity of connectivity increases, which can lead to malfunction of RPA in the existing technology.

(iii)   "No more than 500 clicks": As RPA was developed out of screen scraping, i.e., mimicking a user, if a process requires more than five hundred clicks or selections, again it can become too complex for RPA as it exists to handle (Le Clair et al., 2018; Torres, 2019).

In selecting the reporting function to be tested for the BLCP framework in Phase 5, the researcher considers the facts that KYC and on/off boarding functions are non-streamlined, unstructured, and do not adhere to the "Rule of Five". The reporting function is better suited to testing the framework for the purpose of this study. Additionally, KYC requires CSG involvement in collecting data from various internal and external sources such as passport copies, certificates of incorporation, registration documents to various regulatory bodies. Therefore, they are not streamlined or standardized. Similarly, each on and off boarding process can be different: some clients have multiple portfolios with a single mandate, some have multiple mandates, but one signed investment management agreement (IMA) and so human involvement is required. These functions can be partially automated with current RPA or fully automated with future generations of RPA, which would be

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[11] https://www.forrester.com/craig-le-clair

areas for further research once the framework has been validated through this research.

Limitation 2: Low in Volume

KYC and on/off boarding are client dependent and only happen once in the client lifecycle. In fact, KYC as best practice should be renewed periodically throughout the relationship of the client with the IM, but KYC best practice is out of scope. For the purpose of this research, the function of KYC is a regulatory requirement, prior to the signing of any IMAs therefore before any further engagement. Future generations of RPA would potentially enable speedy periodic renewal of KYC checks. However, in its current version, RPA implementation, in the case of MIM CSG, KYC and on/off boarding functions are low in volume and they are not repetitive. Reporting functions on the other hand are very high in volume and client customization demands on various reporting templates and frequencies (daily, weekly, monthly, quarterly etc…) are on the rise. Reporting is a good candidate to test BLCP framework in this study.

Limitation 3: Low in Importance

All KYC, on/off boarding and reporting are high in importance as each carry a risk of regulatory, financial or reputational damage to MIM CSG and the limitation of low importance is not applicable. Therefore, while each score high in importance, so far, regarding this limitation, reporting would be the best RPA candidate to test the framework for the purpose of this case study.

> The key finding in this analysis evidences that the main MIM CSG functions score high in importance, therefore value in conducting this research is validated.

Key Finding 1

Limitation 4: Structured data

KYC and on/off boarding functions contain unstructured data, such as capturing information from pdf files, several spreadsheets, photos and e-mails to complete their processes. Therefore, they are unsuitable for current generation RPA without enhancements. Reporting, on the other hand, uses structured data which means

capturing data that already exists in the company's architecture. The booking of any trades and any trade characteristics would have been already entered into the existing system's architecture from which reporting is gathered. Therefore, the reporting function is suitable as the data is structured.

Limitation 5: Better Alternative Availability to RPA

KYC and on/off boarding have not been automated due to the limitations listed above, there are no alternatives to investigating RPA implementation in these functions as RPA is currently not the immediate solution as it stands. For the reporting function on the other hand, it can be argued that a traditional IT deployment process is an alternative. However, the benefits of deploying reports through RPA outweigh the traditional IT deployment as an alternative. In either instance of deployment, IT is involved in testing and deployment, so this requirement is common to both RPA and traditional deployments. What makes RPA a better solution, considering existing efforts in digital transformation, is it can be used as a steppingstone to pave the path for intelligent Automation or Cognitive RPA, next generation RPA.

5.2.1.1.3. Benefits of Implementing RPA in CSG

The table below provides a quick view on how each function is viewed in relation to RPA implementation benefits:

	B1: Increased and Enhanced Operational Efficiency	B2: Better Client Experience	B3: Better Employee Experience	B4: Risk Reduction, Adherence to Regulation and Auditability	B5: ROI
KYC	Yes	Yes	Undetermined	Yes	Undetermined
Reporting	Yes	Yes	Yes	Yes	Undetermined
On/Off Boarding	Yes	Yes	Undetermined	Yes	Undetermined

Figure 5.4 – Perceived benefits alignment to RPA in CSG

Benefit 1: Increased and Enhanced Operational Efficiency

KYC, on/off boarding and reporting functions of MIM CSG align with B1 of increased and enhanced operational efficiency.

For KYC and on/off boarding functions, assuming that the limitations inherent to current RPA technology are mitigated though more advanced RPA; or assuming that RPA implementation is justified as part of RPA scaling across the overall company's implementation, automation of KYC, on/off boarding functions increase efficiency in that CSG members could focus on the decision-making aspects of these functions, as well as those that require an intelligent interference element in facing various internal and external clients.

Additionally, while KYC and on/off boarding functions are not high in volume as described in the limitations section above, when they take place, they are heavily reliant on manual processing under short time pressure: they are time sensitive. Any delay can cause companywide regulatory, financial or reputational loss. In partially automating these processes through the digital workforce (RPA), the human workforce can focus on the client experience while having all manual and/or human error risks mitigated. Therefore, MIM CSG would benefit from full or partial implementation of RPA for their KYC and on/off boarding functions.

For the reporting functions, with the same justification, CSG members would not need to be preoccupied with the tediousness of manual reporting and can focus on value-added tasks without any risk borne out of repetitive manual processing; so B1 would apply to reporting function of MIM CSG if RPA were implemented.

Benefit 2: Better Client Experience

As evidenced above, increased and enhanced operational efficiency would lead the human workforce to provide a better client experience due to three factors, (i) clients receiving the required reports without errors in the requested time period as opposed to when the request is processed by the employee, (ii) the human workforce having freed up time, can better engage with the client which leads to a better overall client experience and (iii) the human workforce would have freed up time to engage in

other projects that may lead to other enhanced offerings, which would lead to better client experience.

Benefit 3: Better Employee Experience

In figure 5.4 above, the researcher notes that the better employee experience is undetermined for KYC and for on/off boarding functions. It has been described above that the nature of these functions requires multiple decisions to be made which means while these functions can be potentially at least partially automated, there is still a considerable reliance on the human workforce. It was determined in Chapter 2 that existing use cases of RPA implementation in KYC would alert the human workforce to any decision-making required actions to complete the processes. It is thus undetermined if these functions, should they be automated through RPA implementation, lead to a better employee experience overall as human intervention would still be required.

> It is therefore the view of the researcher and a key finding that RPA implementation in KYC and on/off boarding functions would need further analysis for RPA implementation in MIM CSG as part of future RPA technologies

Key Finding 2

Without doubt, for the reporting function, increased and enhanced operational efficiency, increased client to employee engagement and employee empowerment delivers benefits for a better employee experience.

Benefit 4: Risk Reduction, Adherence to Regulation and Auditability

KYC, on/off boarding and reporting are all functions that bear operational risk that can result in regulatory, financial or reputational damage. B4 is applicable across MIM CSG selected functions to reduce these risks through partial or full automation with RPA.

Benefit 5: ROI

As in any technological investment to improve processes, RPA ROI is difficult to measure due to intangible, non-financial benefits being hard to measure, by their very nature. However, despite the difficulty in measuring ROI, evidence in Chapter 2 clearly identifies that RPA investment across all industries is on the rise. RPA analysts, experts and providers argue that in order to drive ROI in RPA, there is several best practice guidance that needs to be adhered to (McEachern, 2018; Helpsystems.com, 2018): "Without this comprehensive approach, many organizations experience buyer's remorse due to poor ROI, misaligned resources, siloed usage and inability to scale" (Gartner, 2019). Therefore, ROI is marked as an undetermined benefit for MIM CSG. However, these findings do not prevent research being conducted as the ROI measurement is an overarching exercise that needs to be diligently completed in any implementation. RPA implementation is not unique with regard to this benefit. The existing research and the growth of RPA implementation across industries is sufficient in proceeding with this study.

> ROI measurement needs to be clearly documented.

Key Finding 3

The above sections confirmed the validity of the benefits and limitations of a BLCP framework set through the RPA worldview to apply to MIM CSG. In the next section, the researcher investigates validity of challenges and best practice factors of the framework, overlapping them with MIM CSG functions.

5.2.1.1.4. Challenge Categorization of RPA for MIM CSG

The four challenge categories for RPA implementation below have been detailed in Chapter 2. The table below aligns the challenge categories with the selected MIM CSG functions.

	C1: Ownership	C2: Alignment	C3: Suitability	C4: Resistance
KYC	Companywide	Companywide	Yes	Yes
Reporting			Yes	No
On/Off Boarding			Yes	Yes

Figure 5.5 – Challenge categorization alignment to RPA in CSG

For Challenge 1: Ownership (C1) and Challenge 2: Alignment (C2), all selected MIM CSG functions need to be aligned with the overall companywide initiative in its digital transformation strategy, which is studied in detail in Phases 2, 3 and 4.

> It is evident that RPA implementation cannot be analysed as a separate effort but as part of a companywide initiative.

Key Finding 4

In terms of suitability, Chapter 2 established that Challenge 3: Suitability (C3) challenges were (i) vendor suitability, (iii) infrastructure suitability, (iii) budget suitability, (iv) process suitability, (v) team suitability. The last challenge, Challenge 4: Resistance (C4), refers to resistance to change. In terms of KYC and on/off boarding, as it has been explained in the benefits section above, a better employee experience is undetermined therefore the researcher indicates that there may be some resistance to implementation of RPA in these functions. However, as the benefits for better employee experience are determined by automating reporting functions, faced with C4, reporting remains the best RPA candidate to test the framework.

> Challenge 4, Resistance, need to be clearly defined and measures to counter resistance need to be part of the companywide change management strategy as part of any digital transformation.

Key Finding 5

5.2.1.1.5. Best Practice Categorization of RPA for MIM CSG

	P1: Ownership and Sponsorship	P2: Strategic alignment of Digital Transformation	P3: Selection of Vendor and Processes	P4: Success Measurement	P5: CoE and Change Management
KYC	Companywide Effort				
Reporting					
On/Off Boarding					

Figure 5.6 – Best practice alignment to RPA in CSG

Best practice cannot be viewed in isolation and is part of an overall companywide effort. As evidenced in Chapter 2, ownership and sponsorship (P1) are pre-requisites in establishing the strategic alignment of automation efforts within the digital transformation strategy (P2) which will determine the vendor and process selection (P3) as well as the success measurement criteria (P4); and this can only be achieved through an effective change management plan that can be kept on track through an efficient CoE (P5). Furthermore, Best Practice 4: Success Measurement (P4), the literature review highlights the importance of implementation following a life cycle (Top RPA Interview Questions and Answers for 2020, 2020) which aids in achieving Benefit 5, ROI:

- **Analysis**: Defining and breaking down the processes that are targeted for RPA development.

- **Development**: Upon identification of the requirements, the development stage focuses on completing the requirements.

- **Testing**: Confirming that the development achieves the targeted results.

- **Deployment and Maintenance**: Once the bots are deployed, there is ongoing monitoring and maintenance to ensure quality results.

The above life cycle is used in the test case scenario in Phase 5, demonstrating the suitability of RPA in the reporting function of MIM CSG.

> Best Practice 5 (P5) is an overarching best practice that effectively incorporates all other best practice; therefore, it is the most important variable in effective RPA implementation.

Key Finding 6

5.2.1.1.6. Conclusion of Phase 1

In conclusion, the key finding from phase 1 is that a BLCP framework can be adopted to MIM CSG and that performing a test case scenario on a reporting function is suitable. Following the confirmation of the benefits, limitations and initial level validation of challenges and best practice of the BLCP framework to MIM CSG, the researcher further analyses challenges through MIM participant interviews to investigate alignment of challenges and worldview through an MIM participant lens in Phase 2. The researcher triangulates challenge themes and headlines that emerged in the literature review findings in Chapter 2 with the findings of Phase 1 and of Phase 2. Then best practice is analysed in the same triangulation in interviewing RPA experts in Phase 3.

> BLCP framework is applicable in testing RPA implementation for MIM CSG and the reporting function is a suitable candidate as a test case for Phase 5.

Key Finding 7

5.2.1.2.   Phase 2: MIM Participant Interviews

In the above section, Phase 1, the researcher was able to confirm in detail, the alignment of benefits and limitations from the existing literature on RPA to the MIM CSG environment. The researcher next examines the challenges that emerged from the systematic literature review to confirm or disconfirm alignment of established challenges to MIM CSG. The analysis of MIM Participant Interviews below serves to confirm or disconfirm alignment of interview results with existing research in establishing MIM CSG's fit within the BLCP framework.

In this phase, the researcher conducted a series of interviews, the number of participants and the motivation for selecting the participants is discussed in Research Methodology section, Chapter 4.

The questions are coded MQ denoting MIM participant interview questions (for example M Q1 refers to question 1). M followed by a number indicates the specific participants (for example M2 refers to the second interviewee).

The researcher assessed the validity of the participant interview questions by submitting initial questions to the lead supervisor, Dr. Luo, who provided feedback on the questions. The before and after questions with the approval from Dr. Luo are attached in appendix 1. The researcher then conducted a pilot interview with participant M2 to establish the validity and applicability of the interview questions to the MIM participants. "A pilot interview is intended not for data collection as such but as an aid to the design of later research" (Harvey, 2012). As the interview progressed, the researcher discovered that rather than following the semi-structured interview flow, much more detail was given by the participant in an unstructured format. The researcher revised the questions, a revision was required in question MQ 5 because during the pilot interview, MQ 5 was addressed while participant M2 commented on the question MQ 4. Similarly, MQ 8 was removed as the answer in MQ 7 covered MQ 8. Upon observing that the unstructured interview served as a way of further detailed analysis, the researcher re-formatted the participant interview questions as presented in the table below to serve as a guideline to conduct the unstructured interviews. The researcher ensured that all questions were addressed, therefore eliminating any omittance of information in the interview process. The finalized question table is below:

Revised Participant Interview Questions	
M Q1	Do you know what RPA is and its functions are?
M Q2	What is your interpretation of automation?
M Q3	When you think of your day-to-day process flows, how many of your daily tasks can be automated? Can you think of any other alternatives outside of automation - such as improving data points or process flows?
M Q4	Assuming the tasks that you described suitable for automation were automated, what difference will this make in your day-to-day work life?
M Q5	Assuming the tasks you wished to be automated were automated, what value-add do you perceive automation will have on your day-to-day job?
M Q6	Do you foresee any regulatory, financial, operational or reputational risk if automation does not take place? What impacts do you think automation can have on these risks?
M Q7	Do you know who to approach should you wish to automate any of your day-to-day processes?
M Q8	Would you like to learn about how to automate tasks yourself without having to go to receive approval from manager/IT?
M Q9	If your proposed tasks were automated, do you feel threatened that you would lose your job?

Figure 5.7 – Mapping of revised interview questions

The mapping of the MIM participant interview questions to the challenges is presented graphically in the table below:

| Challenge # | Challenge Categories -> | C1: Ownership | C2: Strategic Alignment | C3: Suitability (Technology, Vendor, Process, Team) | C4: Resistance | Applicable Participant Interview Question |
					Challenge Category	
CC1	Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative.	M4, M7, M10	M3, M5, M6, M7, M8, M9, M10	M2, M4	M2, M3, M5, M6, M7, M8, M9, M10	MQ1, MQ2, MQ7
CC2	Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation.	M3	M4	M2, M3, M6	M2, M3	MQ2, MQ3, MQ4, MQ5, MQ6
CC3	Streamlining the processes through an Agile approach and prioritizing flow of implementation.	M6	M2, M6, M7	M2	M6, M7	MQ2, MQ3, MQ6 MQ7
CC4	Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing	M2	M2, M7, M10	M2, M3, M6	M2, M7, M10	MQ2, MQ4, MQ5, MQ6
CC5	Creating a CoE to drive the overarching change management plan	M4, M7, M8, M9, M10	M4, M7, M8, M9, M10	M4, M7, M8, M9, M10	M3, M4, M7, M8, M9, M10	MQ1, MQ3, MQ7
CC6	Establishing a new organization and governance structure that incorporates creating new skill set for the future workforce and upskilling the workforce.	M4, M7, M8, M9, M10	M3, M4, M10	M4, M7, M8, M9, M10	M2, M4, M7, M8, M9, M10	MQ5, MQ8, MQ9
CC7	Embracing a holistic approach to RPA implementation, ensuring that RPA is a companywide initiative with a long-term vision and action plan	M2	M3, M6	M2	M3	MQ1
CC8	Misaligned companywide strategy that targets RPA implementation and expansion as short-term and quick solution	M3	M3, M4	M2, M6	M2, M3	MQ6
CC9	Existing infrastructure interference to RPA implementation to minimize RPA malfunction with each companywide IT deployment.	M4	M4	M2, M3, M4, M6	M2, M4	MQ2
CC10	Speed of technology development creating skills gaps and risk and fear of job loss	M5,	M2, M5, M7	M3, M5	M2, M4, M5, M7	MQ1, MQ5, MQ8, MQ9
CC11	Achieving scale	M3, M7	M7, M9	M7, M8, M9, M10	M2, M7, M10	MQ3
CC12	Not documenting contingency planning to mitigate risk of RPA project failing	M3	M4	M2, M6, M7	M4	MQ1, MQ4
CC13	ROI		M4, M7, M10		M4, M7, M10	MQ3

Figure 5.8 – Summary of Participant Interview results

5.2.1.2.1. Analysis of results:

Challenge CC1: Selecting and engaging the right stakeholders from business, IT and the workforce to sponsor and champion the RPA initiative

In interviewing MIM participants, the researcher first analysed if the participants had an understanding of what RPA is used for, its functions and what automation means to them in their day-to-day tasks as well as for the organization overall.

In providing a definition of RPA, its functions, a clear interpretation of automation and the overall corporate structure into which RPA fits, a key finding is that the participants who were able to clearly articulate and formulate answers were unsurprisingly participants M5 through M7. These participants are either from the IT department, or departments that are part of automation, strategy, governance and business development. This taken into account, CSG members also indicated awareness and knowledge on what RPA is at a conceptual level, with a clear indication of what automation should be for their day-to-day tasks and that RPA is an automation tool. M2 responded with misguided information with reference to actual robots rather than the software that is RPA. M2 and M3 were unaware of who they should approach for automation ideas but did indicate they would inquire initially with their IT contact first and if there was possibility of automating any processes, they would obtain approval from their manager but would feel comfortable owning the automation project with the IT contact. The participants M5 through M10 were clear on who the contacts were and M6, who was one of the IT contacts for CSG, provided the researcher with contacts on the RPA team. M6, also mentioned a potential RPA suitable project that could be useful to the researcher that involved a different department, the Middle-Office (MO), which is situated as a department interrelated department with CSG. This project involved a request to IT from MO to provide a report, required by the Markets in Financial Instruments Directive II (MiFID II) and fits the finding from Phase 1 that a reporting function would be a suitable test case scenario. This report as a test case is detailed in Phase 5 as part of confirmation or disconfirmation of the BLCP framework in implementing RPA in MIM CSG.

In summary, the answers from participants to CC1 provided sufficient evidence of alignment to the framework by acknowledging a definition of RPA, how it is an

automation tool that can enhance processes with reference to all four benefits detailed in Phase 1.

> Business users are less familiar with RPA compared to IT and Strategy participants. Prior to RPA implementation, awareness and exposure to RPA need to be incorporated into the project.

Key Finding 8

Challenge CC2: Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation.

MIM CSG participants (MR through M4) indicated awareness that their interpretation of automation applies to rules-based repetitive tasks. None of the participants used the terminology rules, however there was an understanding that requests were repetitive in nature from one input source to another output source, always in the same sequence without variation, intervention or exception and this is the definition of a rules-based process. CSG participants indicated exasperation with the high volume of repetitive reporting requirements and requests, in addition to the importance of timely delivery while attending to daily requests from clients. From the IT, Automation, Strategy, Governance and Business Development participants, none of them detailed the selection of specific processes as they weighed the further importance of the strategic alignment of RPA, rather than detailed specifics of tasks. This is except for M6, which is part of MIM IT and who are involved in the traditional implementation of any IT deployment for MIM CSG. They refer to RPA as an alternative to traditional IT deployments. Key findings are that (i) while CSG participants did not know technical terms, the challenges they face triangulate with challenges established in the BLCP framework for MIM CSG and (ii) while MIM IT contact was more attuned to the specific tasks for MIM CSG, the outer layer of IT participants replies remained at a higher level. Therefore, the key finding is that MIM CSG participant and MIM IT are an integral part of overall participants in the implementation of RPA – it should not be IT or business led at higher levels but involve the day-to-day contacts on whom RPA implementation would impact. Day-to-day users are often overlooked in initial RPA implementation research and case

studies however they are much more relevant than expected in terms of re-skilling and upskilling in effective digital transformation journey. All participants indicated the importance of automation in facilitating adherence and auditability of meeting regulatory requirements.

> RPA implementation needs to be a joint effort incorporating business users (SMEs), IT and Strategy workforce.

Key Finding 9

Challenge CC3: Streamlining the processes through an agile approach and prioritizing flow of implementation

This challenge, CC3, is specifically geared toward the implementation approach of RPA or any wider implementation. Only MIM CSG users (M2), who were not in IT, Automation, Strategy, Governance related departments indicated project management approaches, stating their project management expertise, advising that a specific methodology needs to be set in place. Agile methodology was specifically referenced by M6. The key finding in investigating this challenge is that an agile approach is not unique to RPA and is a preferred methodology. An article published by McKinsey found that some challenges faced in RPA is "encouraging more companies to pursue agile development approaches in their automation projects. With its emphasis on tight-knit cross-functional teams, focused development efforts, and continual testing, agile has proved highly successful in addressing similar challenges in other areas of software development" (McKinsey & Company, 2018). Agile methodology evaluation is not within the scope of analysis in this research paper and the challenges of this methodology will not be addressed. It only evidences the importance of cross functional teams working together and breaking complex processes into smaller portions, such as tasks, as a key finding.

Challenge CC4: Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing

This challenge, CC4, emphasizes the importance of documenting clear objectives and a clear vision of transforming from the current state to the desired state, the latter being that of a digitally transformed organization. While MIM CSG participants

indicated that the ownership of documenting these objectives and determining success measurement criteria should be CSG's responsibility, they indicated that they would not want to be involved in testing or any other activity that would make the day any busier than it is currently. Given the current non-automated or partially automated (through other non-RPA automation) workload, the members indicate being at capacity. Furthermore, participants agree that a transformation would occur only if it were mandated by senior levels, thus ownership as an important challenge is underlined. On the IT, Automation, Strategy and Governance participants, the emphasis is on the strategic alignment of the RPA project to the overall digital transformation strategy. M7 and M10 have indicated further sources within MetLife Inc. (parent of MIM) that are actively involved in a digital transformation strategy. The key finding is that documentation requirements need to be communicated from top-down and a CoE needs to own the responsibility of documenting it.

> Documentation is a key factor in successful implementation of RPA, and it is a joint cross functional effort to provide data that needs to be documented. Documentation need to be owned not by the cross functional teams but within a central command center such as the CoE.

Key Finding 10

Challenge CC5: Creating a CoE to drive the overarching change management plan

As the concept of CoE is mostly specific to RPA and digital transformation, IT and strategy department participants referred to CoE as part of a digital transformation and only one of MIM CSG participants (M3). All non-MIM CSG participants alluded to CoE's and M10 pointed out the CoE launched in Kuala Lumpur in November 2019 as part of MetLife Inc. While the MetLife entities are different and independent, M10 commented that these innovative initiatives are "quick to spread" which led the researcher to locate a posting on the MetLife public website: "The global Finance function is transforming with strategic initiatives aimed at improving Finance and how we operate so that our company can realize its competitive advantage…That is why MetLife is building a Finance Center of Excellence (CoE) in Kuala Lumpur,

Malaysia…[12]". Therefore, for CC5, MIM is in line with the RPA worldview even though CoE is not yet directly linked to MIM CSG and established yet, the groundwork aligning with the overall strategy exists in the MetLife platform.

Challenge CC6: Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling it

This challenge, CC6, is linked to the effective establishment addressed in the previous challenge, CC5, in that both an effective CoE, together with an effective change management plan needs to address the challenge of establishing a new structure. This would incorporate guidance in creating a new skill set and upskilling the workforce. In terms of what value added automation would bring to day to day operations (question MQ5) and the existence of a perceived threat of losing jobs (question MQ9), the participants were in agreement that automation would allow for more bandwidth for teams to focus on tasks that require interference and or client interaction and at the same time none of the participants felt that their jobs were at risk but were rather more concerned that "this automation project would create more work for them in the short term". For question MQ8, M2 and M3 respondents replied that they would not want to own the automation process and M3 specified that the "automation process should mature before we can own it and explore it". This concern was in line with the IT, Automation, Strategy and Governance participants who felt that upskilling needs to be an "orchestrated" (participant M5) effort and automation of tasks should not be left to team members alone: "otherwise we will run into the same issue we did with macros, in that the automation would be person dependent. IT would not be able to troubleshoot nor monitor bot performance".

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[12] https://jobs.metlife.com/content/FMG/?locale=en_US

The key finding in the analysis of this challenge is that monitoring the performance and maintenance of automation needs to be a priority focus in the newly established governance structure, working in coordination with the CoE in creating a new skill set and upskilling the workforce while maintaining control of automated tasks so as not to have oversight and expertise dependency on single employees.

Key Finding 11

Challenge CC7: Embracing a holistic approach to RPA implementation, ensuring that RPA is a firmwide initiative with a long-term vision and action plan

Any change implementation in any organization requires a companywide approach and incorporation into the long-term strategy; RPA implementation is no different. In the interviews, the CSG participants M2 and M3 strongly emphasized that if any automation or RPA project were to be rolled out, it would need to be part of the overall effort from the organization top-down. M2 stated: "I'm not concerned about job loss, there is so much to do day to day, but I am more worried that we get stuck with more work to do. I would hate to start with RPA, do the crunch work and then it fizzles out without really achieving the original plan". Participant M6, being more intricately linked with IT, confidently expressed that RPA, automation and digitalization are at the forefront of the companywide digital transformation strategy within MIM. Much like using bots to automate processes require clearly stated action plans, RPA implementation as an overall project, similarly needs to have clearly stated action plans in line with any other change management programme to achieve the desired results.

CC8- Misaligned companywide strategy that targets RPA implementation and expansion as short-term and quick solution

This challenge relates to previous ones in terms of results analysis on strategy. All challenges relating to strategy emphasize the importance of a clearly stated implementation plan and focus as a long term, strategic solution rather than short term, tactical solution. M6 addressed this misalignment specifically, in that when

firms onboard any new technology, the effort typically starts from a top-down cascade and one or two town hall type meetings. Here, the new technology holds the spotlight, however as time progresses and as other business decisions require attention, it falls from the spotlight. Sometimes, as a firefighting requirement or sometimes out of a change in regulations, a new implementation takes precedence over the long-term strategic decision: "this is why CoE or a similar command center plays an important role to avoid scope creep" (M6). The key finding in analysis of Challenge 8 is that, while existing research establishes an urgency for firms to implement RPA quickly or risks going out of business, in reality firms who do the appropriate due diligence in investigating RPA prior to onboarding it as a project, will have better positioned themselves, as part of an overall digital transformation. Doing the "heavy lifting" at the beginning will ultimately benefit those changing at a slower pace, compared with companies who have rushed into implementing RPA too quickly, focusing on increasing the number of bots. Misalignment, not having the right governance over RPA "leads to inefficient planning and overall loss of confidence in the effectiveness of the automation initiative" (Agarwal, 2019). Another key finding is that the higher the number of bots does not mean more successful RPA implementation. Governance of RPA refers to effective and efficient usage, not expanding RPA implementation but increasing the number of bots utilized within the firm.

> A higher number of bots does not mean efficient RPA implementation and while RPA promises quick ROI, firms should not rush into implementation without proper due diligence in implementing it as a companywide cross functional effort led by CoE and sponsored top-down.

Key Finding 12

Challenge CC9: Existing infrastructure interference to RPA implementation to minimize RPA malfunction with each firmwide IT deployment

In analysis of CC9, replies to M Q2 provided the basis of analysis. IT participants (M4, M6) directly addressed the suitability or interference to the existing architecture, while the existing infrastructure was unknown to the CSG participants (M2, M3).

Their replies provided insight into suitability and the overall digital transformation aspect of the challenge. In the ownership category of the challenge, M4 articulated the importance of RPA implementation being IT led as part of the overall companywide digital transformation strategy. This is in line with existing best practice. To counter C9, RPA should be led by both combined IT and business leadership. Participant M4 indicated that existing infrastructure suitability for RPA implementation may pose compatibility issues but in addition, M4 raised IT concerns around integrity of security around new implementation and it should not interfere with the security measures in place.

A secondary concern raised by M4 is around the governance and maintenance of RPA implementation. M4 cited the example of a password expiring on a task that is performed by RPA. If it is not monitored or governed properly, then the bot will malfunction without appropriate ownership of the project. As a final concern about infrastructure, M4 cited that a centralized team could validate integration between RPA implementation to the existing infrastructure. Alongside ownership, strategic alignment to the overall company strategy would ensure the minimization or mitigation of the challenges faces in integration and continuous functioning of the existing infrastructure with RPA implemented tasks. M6 addressed importance IT readiness as much as infrastructure in deploying new technology, "this requires a clear vision, which is why both IT and business need to work together, it needs to be the perfect combination of expertise and mindset". Similarly, in terms of challenge around suitability, participants M2, M3, M4 and M6 emphasized the importance that implementing anything new should be in a controlled environment. Importance should not only be in infrastructure suitability but equally in the suitability of the tasks and those impacted by implementation should be considered at an overall strategy level. In analysing this reply, the researcher found that components of Leavitt's Diamond are applicable in addressing this challenge. The components in the Leavitt Diamond are (i) tasks, (ii) people, (iii) structure, (iv) technology and Leavitt put forward that any change in one of the components requires an adjustment in the other three components.
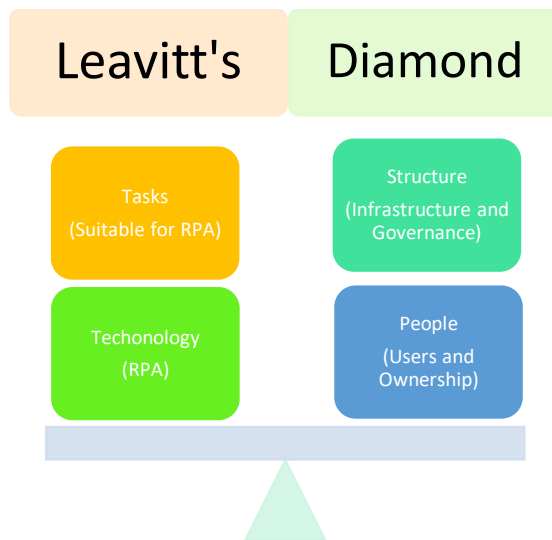
Figure 5.9– Adopted from Leavitt's Diamond (Leavitt's Alignment Model - Tahir, 2020)

The findings supporting previously stated key findings in analysis of CC9 that infrastructure challenges should not be isolated to IT teams alone but analysed as part of the overall RPA strategy by the governing body and senior stakeholders (or CoE).

Challenge CC10: Speed of technology development creating skills gaps and risk and fear of job loss

The researcher approached analysis of this question in relation to replies obtained by participants, by breaking down challenge CC10 into three groups, (i) RPA and the speed of technology, (ii) RPA and the skills gap, and (iii) RPA and the fear of losing jobs.

Participants from each segment group responded, creating a link to the question in addressing CC10. In terms of speed of technology, two themes emerged, one is the speed in which RPA is growing and the second is other complementary technologies developing alongside RPA. From the IT participants, a key finding is that speed is important, not only is there a pressure to obtain the right technologies but also obtaining and launching them in a timely manner play important roles. The specific example that is often used in expressing the speed in digital transformation is comparing it to the telephone versus mobile phones. It took 60 years for the telephone to reach 80% adoption by the US population but only 8 years for mobile phone to reach the same adoption levels (The Mid-Market RPA Journey:

Empowering Your Employees Through RPA Adoption, 2019). Drawing on this conclusion, it may take some time for the firms to adopt RPA and other digital transformation tools but once they are in place, the expectation of speed of growth and adoption will be highly significant.

The question that raises concerns and is an area for further research as an extension of this dissertation is: assuming that companies establish efficient CoE's and implement RPA successfully, there is a fear that technology will advance at a much higher rate than upskilling/reskilling human employees. Combined with this fear is that once an employee has been upskilled/reskilled, they may move to work for other companies or competitors. The key finding in analysing this question in response to this challenge is that RPA will not cause loss of jobs but will complement and augment the workforce. M9 detailed that RPA bots at launch are similar to entry level employees and as they are configured, the digital employees also get upskilled. The specific example given was that an RPA bot can be compared to an employee delivering the post in the office to then becoming an office manager. The analogy applies to RPA bots as well as bots will be reconfigured and reused. The gap between the speed of technology and a skilled human and/or digital workforce remains to be seen and researched. At the point of this research, the key finding is that companies need to incorporate upskilling and reskilling digitally, as well as their human workforce as part of their overall digital transformation strategy.

> Getting the digital transformation strategy right is more important than deploying the newest form of RPA technology. The strategy needs to clearly communicate the HR side of the digital transformation in terms of finding the right talent to keep up with technology to minimize a skills gap and in terms of upskilling the current human and digital workforce.

Key Finding 13

Challenge CC11: Achieving scale

Achieving scale, as a challenge, is not unique to RPA implementation but is a target for any digital development (Nelson, 2019). M10 described a digital development journey as starting with identification and learning to select tasks and piloting it and to finally expand and measure it in order to achieve scale.
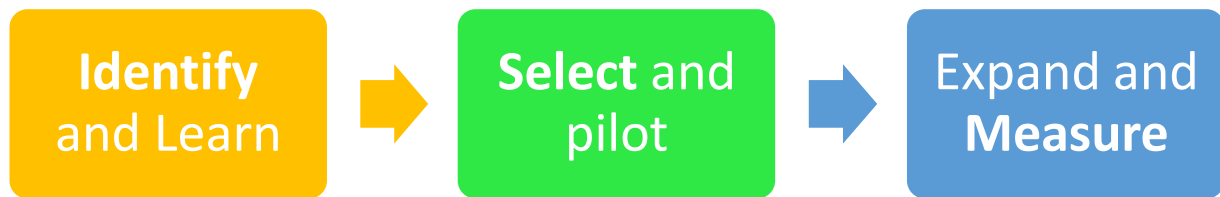
Figure 5.10 Digital development journey - Image adopted from M10 reply to interview question

M10 continued to explain that most projects are stuck at the identification and learning stage and fearful of pushing forward in selecting and measuring to achieve expansion. Other participants have addressed the issue that some projects do not go beyond selecting and piloting and in line with previous observations, even before being able to move on the achieving scalability stage, a new project is a "shining object". M8 stated that in order to achieve scale, scale and how to measure success of implementation need to be clearly defined. Best practice in RPA implementation often refers to starting with 'low hanging fruit', the reason being to present the impact to stakeholders – these being sponsors or senior members as well as those day-to-day staff who will be impacted by implementation. In addressing the question of how many daily tasks can be automated, the participants indicated in unison that not everything is worth automation, some tasks can be improved as processes prior to being candidates for automation. This challenge is an extension of CC8, in that when RPA or any project is onboarded with a short-term vision, there will be process fragmentation which "occurs when critical processes aren't managed as an integrated system" (Fragmented Business Processes Destroy Value | BPMInstitute.org, 2019). In selecting the right processes to achieve scale, it is vital to identify the robustness of the existing flow; stable processes must be in place. As RPA interacts at user interface level and not the database level, data input needs to be clear, clean and processes need to be defined end to end, even if RPA is not implemented end to end. A solid understanding of the process end to end needs to be clear. Supporting findings on previous challenges is that processes need to be identified and streamlined end to end prior to attempting RPA implementation.

Challenge CC12: Not documenting contingency planning to mitigate risk of the RPA project failing

Some RPA projects have failed as there was not a contingency plan in place. As M6 mentioned in their interview, all IT deployments have a pilot and a test environment whereby a roll back plan is in place. However, in adopting new digital tools, there

seems to be a lack of applying the roll back process as "it's believed that the digital tool can accomplish superior results. There still is the human factor, a robot cannot guess, cannot imagine nor can it see the overarching goal" (M6). During the analysis phase of any potential RPA implementation, measurement of ROI and scalability need to clearly be defined prior to any deployment. During testing, all feedback and results need to be clearly documented. If the desired results are not achieved, the key finding is that there needs to be a contingency plan and a roll back plan in place so as not to mark the potential RPA project as a whole as a failure. This will impact stakeholder buy-in negatively and potentially cause the RPA project to be shelved indefinitely. M3 gave a comparable example of a food product that has just expired, a person may smell the product or look for signs if it has gone bad beyond the expiry date and decide to consume it. However, there will always be a sliver of doubt or checking if there is any food poisoning would detract from the experience of consuming that food product. Similarly, if the RPA project delivers negative results, it will be very difficult to retain buy-in from stakeholders. M7 quoted the 7Ps of the British Army adage: Proper Prior Planning Prevents Painfully Poor Performance". M7 continued by emphasizing the importance of documenting not only the tasks and process but the experience of implementing a digital transformation project such as RPA implementation. This document would also be a resource in implementing any future AI projects.

> The key finding out of this challenge is to set out a clear project documents that would serve as a reference, a "lessons learned" as well as roll back strategy log; this challenge supports CC4 as well.

Key Finding 14

Challenge CC13: ROI

Similar to the challenge of achieving scale in CC11, the challenge of achieving ROI is also not unique to RPA projects and implementation. Inserting the terminology "achieving ROI in IT projects" in google search returns 6.6 million results in 0.58 seconds. From participant replies, it is confirmed that overcoming the challenge of achieving ROI relies on strategic alignment, as well as the overall companywide digital transformation strategy. There are examples of ROI results as high as 650%

ROI[13] as well as numerous failed RPA implementation projects. Most failed projects, according to M7 are "caused by not using the technological tools well" (M7). In identifying the day-to-day process flows in detail and assigning the amount of time it takes to complete them without automation is a supporting finding in partially mitigating the challenge of ROI calculation. The next component of successful ROI measurement lies in identifying and matching the requirements of a company to those of vendors. Although none of the participants have addressed suitability, there seem to be a gap between the link of successful RPA implementation and ROI achievement. The second supporting finding then is that a CoE needs to establish a clear method of educating all stakeholders on what the ROI is in each process of a prospective RPA implementation candidate.

5.2.1.2.2. Conclusion of Phase 2

The themes of the worldview challenges that were established in Chapter 2 have been mapped into interview questions for MIM participants in order to validate whether the challenges in the pre-established BLCP framework are applicable to MIM CSG. Through the analysis of interview results, the researcher was able to confirm the validity of the challenges as being applicable to MIM CSG. Furthermore, the scalability and ROI have been uncovered and are part of overarching IT deployment projects which therefore will require further analysis. The next section is a set of interviews with RPA experts to confirm or disconfirm the application of best practices to MIM CSG.

5.2.2. Part II – External Analysis

Part II of the analysis is an external investigation. It is composed of two sections covering phases 2 and 3 in the form of RPA expert interviews alongside field research in the form of various RPA sector related events. Through RPA expert interviews, the key findings aim to support the core and secondary research questions. Through RPA sector related events, key themes complement the key findings.

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[13] https://www.helpsystems.com/customer-stories/automate-integrates-critical-applications

5.2.3. Phase 3: RPA Expert Interviews

This phase serves to highlight how challenges and proposed best practices overlap and to identify if any other challenges may arise beyond the initial implementation of RPA in CSG. Assessing the findings of challenges in Phase 2 and best practice in this phase, Phase 3, the researcher validates the BLCP framework, specifically regarding challenges and best practice in research conducted in Phase 4 to justify implementation of the test case in Phase 5.

In Phase 2, the researcher was able to confirm the alignment of challenges from existing research on RPA to MIM CSG environment. The researcher next examines the best practice that emerged from the systematic literature review to confirm or disconfirm alignment of best practice, as applicable to MIM CSG. RPA expert interviews serve as an analysis to confirm or disconfirm the alignment of interview results analysis with existing research to confirm or disconfirm the MIM CSG fit within the BLCP framework.

The researcher assessed the validity of the expert interview questions by submitting initial questions to her lead supervisor, Dr. Luo, who provided feedback on them. The before and after questions with the approval of Dr. Luo are attached in appendix 2. Similar to MIM participant interviews, the researcher established that an unstructured format was most suitable and used the questions as a conversation starter or a guide to the interview sessions. During the analysis stage of the research, the researcher, condensed XQ1 and XQ3, as well as XQ7 and XQ8 because during the unstructured interviews, experts responded to both sets of questions at the same time. Question XQ11 has been removed from the analysis as the pricing of RPA, as established as a key finding in Phase 2, is dependent on too many variables to be analysed and is out of the scope of this research. The researcher ensured that all questions were addressed, therefore eliminating any omittance of information in the interview process. The revised expert interview questions, and the way they were mapped and used in the research analysis, are provided below:

Revised Expert Interview Questions	
XQ1	Of the clients you have interacted with, in your opinion, what are their general views/understanding of RPA?
XQ2	Where does your pitch attract interest, what convinces potential clients to sign on to RPA?
XQ3	What are your clients' main concerns?
XQ4	What are the top five requirements for the successful implementation of RPA?
XQ5	What are the top five challenges in implementing RPA?
XQ6	Do you foresee any regulatory, financial, operational or reputational risks if automation does not take place?
XQ7	What is a successful Center of Excellence model? Should it be centralized or de-centralized?
XQ8	What happens after the first implementation, how do you monitor continuous improvement?

Figure 5.11 – Mapping of revised expert interview questions

The mapping of the RPA expert interview questions to the best practice is presented graphically in the table below:

Best Practice#	Best Practice Category ->	Best Practice Category					Applicable Expert Interview Question
		P1: Ownership and Sponsorship	P2: Strategic Alignment of Digital Transformation	P3: Selection of Vendor and Processes	P4: Success Measurement	P5: CoE and Digital Transformation	
BP1	Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative.	x	X	x	x	x	XQ1, XQ4, XQ6, XQ7, XQ8
BP2	Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation.			x		x	XQ1, XQ2, XQ3, XQ4, XQ5
BP3	Streamlining the processes through an agile approach and prioritizing flow of implementation.		x		x		XQ1, XQ2, XQ3, XQ5
BP4	Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing	x	x	x	x	x	XQ4, XQ6, XQ7, XQ8
BP5	Creating a CoE to drive the overarching change management plan	x	x		x	x	XQ7, XQ8
BP6	Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling the workforce.	x	x	x	x	x	XQ3, XQ6, XQ7, XQ8
BP7	Focusing on process efficiency creation rather than cost cutting			x	x		XQ3, XQ8
BP8	Embracing a holistic approach to RPA implementation, ensuring that RPA is a companywide initiative with a long-term vision and action plan	x	x	x	x	x	XQ2, XQ3, XQ4, XQ7, XQ8

Figure 5.12– Alignment of interview questions to established challenges

5.2.3.1.   Analysis of results:

Best Practice BP1: Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative

Best practice in selecting and engaging the right stakeholders from business, IT and the workforce to sponsor and champion RPA initiative has by far resulted as the main theme in the overall research analysis. It is a key finding that the most important best practice is the engagement of the right stakeholders for buy-in, then for evangelizing about RPA within the organization and finally engaging the right teams to foster and nurture RPA efforts. This single best practice, according to expert replies, covers the best practice categories that have been established in Chapter 2 which are (i) Ownership and Sponsorship, (ii) Strategic Alignment of

Digital Transformation, (iii) Selection of Vendor and Processes, (iv) Success Measurement and (iv) CoE and Digital Transformation.

On Ownership and Sponsorship: X1 stated that IT involvement from the beginning is critical and that organizations which view RPA as bypassing IT involvement will face challenges and frequently face failure in RPA implementation. X1 and X3 referred to executive sponsorship to drive the initiative forward. X2 commented on following the executive sponsor, the necessity of appointing an RPA executive to oversee deployment of RPA companywide. X5 emphasized the value in various stakeholder engagement while the project should be owned by C suite executives.

On Strategic Alignment of Digital Transformation: A long term view should be applied in looking at RPA implementation, some organizations seek out the fastest and cheapest ways in which RPA can be adopted in their organization, which fails to address sustainability and limits scalability.

On Selection of Vendor and Processes: Engaging the right stakeholders from the initiation of the RPA implementation efforts would maximize accurate selection of vendors and the identification and streamlining of suitable processes. In vendor selection, the key finding is that the selected vendors should offer platforms that are current and synchronized with the ever-evolving technology. In process selection, the key finding is not to underestimate the work required in streamlining processes end to end. This will not only enable measuring the success of RPA deployment but also help organizations clean their end-to-end processes, eliminating stale tasks or optimizing alternatives, if RPA is not the most suitable automation tool.

On Success Measurement: The key finding in success measurement is to shift the focus onto employee engagement rather than hard measures such as ROI. This synthesis has been echoed in previous analysis of the prior phases of this research paper.

On CoE and Digital Transformation: The supporting finding around building CoE, is that it is not necessarily a blanket solution in keeping it centralized or decentralized but involving the right people from IT and business that have the "right attitude". Some organizations may prefer to have their RPA providers partner up within their CoE.

In terms of the BLCP framework, the findings of P1 are in alignment to MIM CSG application, P1 is therefore confirmed.

> The key finding is that the most important best practice is the engagement of the right stakeholders for buy-in, then for evangelizing about RPA within the organization and finally to engage the right teams to foster and nurture RPA efforts.

Key Finding 15

> The key finding is that there needs to be a synchronization of the vendor platform with the overall infrastructure (hard constraint alignment) and strategy (soft constraint alignment).

Key Finding 16

Best Practice BP2: Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation

Best Practice P2 is focused on confirming or disconfirming the findings in triangulating the initial findings with expert opinions laid out in Chapter 2. The results of the interviews addressed two main areas that were established in the BLCP framework: (i) Selection of Vendor and Processes and (ii) CoE and Digital Transformation.

On Selection of Vendor and Processes: BP2 maintains that the right processes are rules-based, repetitive and high in volume as well as importance. The second argument in BP2 is that middle and back-office functions are ideal candidates. The analysis of expert interviews is in alignment with the BLCP framework. Further key findings on these limitations are two-fold. Firstly, organizations will seek solutions to automating more complex processes and secondly, RPA providers and technology are advancing at a speed that will enable an increased offering of RPA capabilities. AI, IA, smart RPA, Cognitive RPA are some of the terminologies that have emerged o from the interviews. RPA is seen as being just at the beginning of an era of technological advancement that will enable organizations to take full advantage of automation tools. The future of RPA is an area for further research.

In terms of middle and back-office functions being ideal candidates, experts agree that the reason why these tasks are prime candidates is due to their nature of being ideal candidates for pure business process automation or outsourcing; they are necessary for the business but are repetitive, rules based and voluminous. Not only will they not appeal to the upcoming generation of the workforce, while remaining necessary, but will at the same time enhance and augment the current workforce. The key finding is that the upcoming workforce will be a driver in the expansion of RPA.

On CoE and Digital Transformation: As RPA enters organizations, it is reshaping operations, not only of processes but also from mindset and employee perspectives as well. Experts point out that RPA is a link that supports organizations in their digital transformation journeys. The CoE supports the efforts of incorporating employees in the deployment of automation projects.

> The key finding related to success measurement is that the work required for the analysis of RPA implementation should not be underestimated, keeping employee engagement rather than ROI as central to the success measurement.

Key Finding 17

> The key finding in selecting the right processes is that complex processes that employees do not want to perform due to complexity should not be the primary RPA targets

Key Finding 18

Best Practice BP3: Streamlining the processes through an agile approach and prioritizing flow of implementation

BP3 best practice is focused on streamlining processes applying an agile methodology. In questioning experts, the researcher discovered that the Agile methodology, Waterfall and Lean Six Sigma management are terms referenced. Agile and Waterfall methodologies apply to software development essentially, whereas Lean Six Sigma is generally used in reference to optimize processes and eliminating waste (Six Sigma vs. Lean Six Sigma, 2020). These terms are briefly defined in relation to RPA implementation:

> Agile methodology: Breaks the project development into continuous phases (Waterfall Vs. Agile: Must Know Differences, 2020).

> Waterfall methodology: "sequential linear approach, with no phase overlapping… resulting in a clear indication on the projects progress" (Gadhok, 2017).

> Lean Six Sigma: identification and elimination of the root cause of inefficiencies in a process (Six Sigma vs. Lean Six Sigma, 2020).

The findings are that middle and back-office functions are prime for RPA implementation, complement the usage of Agile, Waterfall and Lean Six Sigma methodologies because the middle and back office functions have traditionally and for decades been the focus areas for business process outsourcing and optimization, which defines the success of RPA implementation. Companies in these efforts have gained experience and can leverage this experience in RPA implementation. The key finding is then to determine the project management style, which can be a combination of the above-mentioned methodologies. X2 suggested, for example, that the agile approach may be used in forming the CoE and use the waterfall model in automating processes through RPA.

Most firms have already adopted these methodologies and can leverage in the RPA implementation on strategic alignment and measuring success.

> The methodology selected does not necessarily need to be Agile or Lean Six Sigma, but it needs to adhere to clearly documented project flow.

Key Finding 19

Best Practice BP4: Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing

In researching best practice which relates to documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing, it is observed that BP4 ties tightly in with BP3 where the imperative of streamlining processes following a structured methodology, method or approach has been

confirmed. Subsequent best practice then is the documentation of the gathering, analysis, preparation, exit and contingency scenarios. The document should address requirements, detailed explanation of the design, the desired outcome, why and how it adds value, metrics on how to measure the process, configuration and plan for reconfiguration of the bots, maintenance and monitoring. Some experts also suggest conducting surveys and gathering feedback for "documenting lessons learned". The supporting finding is that the document should be created in partnership with the RPA developer as well as the SME from the business. This finding ties in with the overall RPA success criteria that advises on a strong partnership between IT and business. The documentation should be easily understood to enable it to be replicated and for troubleshooting. It should contain steps with added screenshots. It should contain charts and flowcharts, mapping the relationship between tasks that complete a process. It should describe in detail the test plan with test scripts. It would clearly define the pilot case and finally provide the exit strategy, contingency planning and reuse details.

The experts addressed the POC document, which is not to validate the use case for RPA. RPA in its journey has proven to be successful. The POC document should be used to move beyond RPA implementation and serve as a document to map out the RPA implementation of specific tasks.

Best Practice BP5: Creating a CoE to drive the overarching change management plan

The creation of CoE, as well as implanting an RPA mentality as part of an overarching change management plan that impacts the whole organization, has been repeated thoroughly throughout most of the RPA related literature and the same resonated through expert interviews. The concept of a center of excellence is perhaps not novel, however its importance has been pinned with RPA implementation. There has not been a case until now in which IT and business had to partner up so closely. Technology is advancing at an unforeseen speed and it is impacting all businesses which agree that a "digital first" mindset is a requirement for staying in business. In order to create, foster and nurture a growth environment, the CoE is vital. On the other side of the spectrum of firms having experience with Lean Six Sigma, Agile or other business models and methodologies which aid in RPA

implementation mentality, is that firms have not had experience before in adopting so much new technology so quickly and across all departments. The key finding from the expert replies is that this is not only a technological change, but also a socio-economic and demographic and culture one too. To quote X1, "the way that people worked over the last three industrial revolutions, fundamental on how business is done is changing". In order to synchronize with this massive shift, the proposal is to establish a CoE that will impact the overall change management strategy of organizations.

In researching change management and RPA in a google search, over ten million hits returned in 0.49 seconds. Change management as a business topic on its own is studied extensively. The existing change management models and practices that organizations have in place should be leveraged to ensure the amount, frequency and level of communication across all stakeholders is continuous, to avoid disruption of the RPA journey. The change management programme needs to ensure that an RPA project is on track, minimizing the risk of failure due to technical, budget or culture constraints. The change management program needs to continuously evolve. The key finding on change management programme efficiency is to ensure adding HR to the IT and business partnership that was uncovered in earlier best practice. The formation of this partnership needs to focus on how RPA implementation and the change it brings will be supported by the human workforce: "from a training perspective, from a process perspective, and from a policies perspective" (Datamatics Inc., 2020). The key finding is that these changes need to be documented enabling the workforce to follow and adapt to the new way of completing processes.

In terms of the BLCP framework, the findings of P5 are in alignment with MIM CSG application, in that an RPA implementation journey ought to be placed in an overarching change management programme that is clearly documented and communicated.

> The key finding is that change management and CoE needs to diligently address the HR aspects of implementing RPA and any future technologies in becoming digitally transformed organizations.

Key Finding 20

Best Practice BP6: Establishing a new organization and governance structure that incorporates creating both a new skill set for the future workforce and upskilling the workforce

Best practice BP6 states establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling it is a natural flow from BP5 where the incorporation of HR into the IT and business partnership has been a key finding, validating BP5.

Expert opinion in the change management process as in project management is embedded in communication. The researcher was PMP® certified in 2006 (PMP: Project Management Professional, PMP # 1304238), according to PMP research, "85% - 90% of a project manager's time is spent in communicating…There is a need for structured communications management plan" (Project Management Professional (PMP), n.d.). The Project Management Body of Knowledge (PMBOK) published by the Project Management Institute (PMI) set guidelines for written communication under the 5Cs: (i) Correct, (ii) Concise, (iii) Clear, (iv) Coherent and (v) Controlling. This guideline is applicable to communication on RPA implementation in that what RPA is, what it aims to achieve, how it fits within the overall firm digital transformation need to be communicated in the same way that is advised by PMI. The expert interview results reveal a key finding that all questions and concerns that the human workforce may have need to be addressed. One main concern raised by experts is around the fear that bots will replace the human workforce and the expert view is that they will not replace it, but it will change, creating what is called the augmented workforce. The role of HR, in turn, is changing: "The role of HR in a workforce that is augmented by artificial intelligence cannot be underestimated, ultimately HR teams will be leaderships foot soldiers in driving a successful, motivated and innovative augmented workforce" (Cook, 2019).

A key finding is that HR will need to work closely with C suite executives in driving change.

As AI and automation filter into daily lives, not all of the workforce is concerned about losing their jobs to automation or bots or RPA or any other form of AI but there is an unknown in upskilling or re-skilling. These two areas need to be studied in further research. However, HR together with the CoE and C suite executive carry the burden of laying the foundation for upskilling and re-skilling both the human and the digital workforce, i.e., the augmented workforce.

> The key finding is that a communication strategy needs to be defined in terms of content, frequency and objectives.

Key Finding 21

Best Practice BP7: Focusing on process efficiency creation rather than cost cutting

RPA in 2016 was led with the tag line focusing on cost cutting. The research around RPA in articles and whitepapers, during the initial phases, focuses on cost efficiency, cost savings and how RPA is more beneficial than labour arbitrage (Cline, Henry and Justice, 2016; Green, 2017). In 2019, the benefits of RPA are proclaimed to be so much more than the cost savings it brings. The key finding is that expert interviews results reveal that out of the companies that the experts reach out to in discussing why they would want to implement RPA; cost cutting is very low on the list of reasons. Process efficiency ensures a smooth running, digitally ready business with employee engagement and satisfaction at higher rates and at the same time it enables compliance with regulations, while being positioned as an attractive workplace for the upcoming digital savvy generation.

Process efficiency certainly provides an opportunity for companies to benefit from cost reductions, but it also improves customer experience through providing requirements in the time they are required with minimal errors. Even without the introduction of RPA, companies would benefit from process efficiency. The key finding is that experts argue that launching RPA efforts with the focus on cost reduction does not capture the full benefits that can be derived from rendering

processes efficient. Repeatedly, experts advise that a bad process is a bad process and automating a bad process is not where the value of RPA can be derived.

Contrary to the fears of job losses addressed in BP6, companies can maintain their human workforce and manipulate / reconfigure their bots, which in turn allows firms to operate in a scalable fashion (Yeo, 2019). The process efficiency concept also applies to an RPA project in that when bots are configured in their most efficient manner, it allows for firms to adapt to ever changing regulatory requirements much faster and in an auditable and reliable manner. This new adaptability in turn delivers cost reductions during crunch times. The company as a machine can function with higher performance, while the human workforce can focus on their tasks that require human interaction and intervention. Hence, focusing on cost reduction as the purpose of RPA is inefficient, cost reduction is a "welcomed side effect but not the symptom to be cured" (X5).

Best Practice BP8: Embracing a holistic approach to RPA implementation, ensuring that RPA is a firmwide initiative with long-term vision and an action plan

Embracing a holistic approach to RPA implementation, ensuring that RPA is a companywide initiative with long-term vision and an action plan is a key theme that stands out throughout the research. It was prevalent as an outcome of the literature review. Experts agree that a top-down approach with C suite involvement is critical, not only for the RPA implementation but on a wider scale as part of the enterprise level digital transformation strategy. A consistent agreement at all levels of the organization on the RPA and other IA efforts needs to be achieved and documented as part of the long-term vision and mission in prioritizing and delivery of the steps within the digital transformation journey. The key finding is that the CoE that experts emphasize plays a central role in the scale of RPA and also the expansion and development that is required to achieve the digital transformation strategy.

5.2.3.2.   Conclusion of Phase 3:

In Phase 2, the researcher was able to confirm the alignment of challenges from existing research on RPA to MIM CSG environment. Phase 3 is designed to highlight how challenges and proposed best practice overlap in using the BLCP as a

framework in implementation of RPA in CSG. Additionally, the researcher aimed at uncovering any challenges that require further assessment or best practice that formed specific themes, to be further analysed in the following phase, Phase 4, prior to implementing the test case in Phase 5.

5.2.4. Phase 4: RPA Events Fields Study to confirm or disconfirm analysis from previous stages and to validate the BLCP framework.

Concurrently with the above phases and throughout the research, the researcher conducted field research in the form of observing participants in the field (field study) by participating as an attendee and on occasion as speaker at various RPA, AI and IA conferences, webinars and seminars.

In this phase, the researcher validates the BLCP framework specifically in relation to challenges and best practice. The headings analysed in above phases are presented below which are addressed in this phase:

Challenge Categorization of RPA for MIM CSG

1. Challenge 1 Ownership
2. Challenge 2 Alignment
3. Challenge 3 Suitability
4. Challenge 4 Resistance

Best Practice Categorization of RPA for MIM CSG

1. Best Practice 1: Ownership and Sponsorship
2. Best Practice 2: Strategic alignment of Digital Transformation
3. Best Practice 3: Selection of Vendor and Processes
4. Best Practice 4: Success Measurement
5. Best Practice 5: CoE and Change Management

Challenge 1 on ownership is remedied by extensive findings on best practice results analysis of Best Practice 1: Ownership and Sponsorship. The alignment of RPA as it applies to MIM CSG is affirmed and key findings on ownership and sponsorship do not require further analysis to proceed to Phase 5.

Challenge 2 on alignment is remedied by best practice 2. Analysis of findings on Best Practice 2 evidenced the importance of Strategic Alignment of Digital Transformation to overall company strategy, to provide guidance on implementing RPA strategically. In alignment with a digital transformation strategy that fits within the mission and vision of an overall company, it highlights the importance of ownership and sponsorship from C-suite top-down cascading. The alignment of RPA as it would apply to MIM CSG is affirmed and key findings on strategic alignment of digital transformation does not require further analysis to proceed to Phase 5.

Challenge 3 on suitability is remedied as a continuation of best practice 2. The strategy of RPA implementation within the Digital Transformation provides guidance on detecting suitability of vendor and processes. Therefore, the challenge on suitability is assessed as a result of Best Practice 3 as it relates to vendor and process suitability. The findings are in alignment with RPA as it applies to MIM CSG. While vendor selection is part of the overall company initiative, the selection process is thoroughly analysed in phase 1. Therefore, no further analysis is required to proceed to Phase 5

The last challenge, Challenge 4 on resistance, is addressed and key findings are explored within the analysis results of best practices 4 and 5. Best practice key 4 findings uncovered the importance of the Success Measurement criteria and the importance of documenting, contingency planning and logging lessons learned. Best practice results highlighted that the documentation, preparation and execution for an RPA project sit within a CoE and are part of an effective change management plan. The next phase, Phase 5, further explores the last challenge: resistance and best practice on success measurement, CoE and change management to further support the findings in prior phases in order to proceed with Phase 5.

5.2.4.1.   Research Analysis of Phase 4

The field research events, and the findings are presented below:

Code	Organizer	Event Type	Name of Event	Date	Duration
E1	University of Chicago/Chicago Booth London Campus	Event	Labor Market Robot Apocalypse?	21-Feb-18	120 min
E2	Cutter Associates	Live webinar	Robotic Process Automation (RPA) - Practical Applications in Investment Management	31-May-18	90 min
E3	University of Chicago/Chicago Booth London Campus	Event	The Stir: People and Machines Working Smarter Together	03-Jul-18	240 min
E4	MetLife	Event	2018 EMEA Recognition Programme: Digital Transformation	10-Sep-18	Workshop
E5	AI IA	Live webinar	AI Live Global 2019	2-4 April 19	2 days
E6	The Outsourcing Institute with The Institute for Robotic Process Automation and Artificial Intelligence	Event	Digital OAISS – London, Countdown to 2020 - The Tipping Point	04-Jun-19	180 min
E7	Amistat	Event/speaker and panellist	Client Onboarding: Digital-First Banking for Digital-First Customers 2019	17-18 Jun 19	2 days
E8	Point B	Live webinar	The Future of RPA, Robot Assistants or Robot Apocalypse?	26-Jun-19	45 min
E9	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Recruitment Market Report - Webinar	27-Jun-19	60 min
E10	Understanding Deep Process Automation & How it Helps Scale RP	Live webinar	Understanding Deep Process Automation & How it Helps Scale RP	30-Jul-19	60 min
Code	Organizer	Event Type	Name of Event	Date	Duration
E11	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Mid-Market RPA Journey: Empowering Your Employees through RPA Adoption	10-Oct-19	60 min
E12	HelpSystems	Event	2019 RPA Global Tour - London	06-Nov-19	180 min

Code	Organizer	Event Type	Name of Event	Date	Duration
E13	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Breaking Through the Digital Ceiling – A showcase for women driving change in Intelligent Automation	14-Nov-19	60 min
E14	Shared Services and Outsourcing Network	Event	4th Annual Intelligent Automation	Nov 25-27, 2019	360 min
E15	UiPath	Live webinar	Scale RPA with the right COE and Process Selection	28-Nov-19	60 min
E16	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Move Past Roadblocks and Successfully Scale RPA in Your Organization	05-Dec-19	60 min
E17	Gartner	Live webinar	Live webcast: Gartner Predictions for RPA and Intelligent Automation	05-Dec-19	60 min
E18	The Institute for Robotic Process Automation and Artificial Intelligence	Event	IRPA AI Summit	11-Dec-19	180 min
E19	Kofax	Webinar	Ignite Enterprise Automation Initiatives & Secure the Digital Workforce	05-Mar-20	60 min
E20	Amistat	Event/speaker and panellist	2nd Annual Client Onboarding Directors Forum for Banking	02-03 Mar 20	2 days

Figure 5.13 Field Research Events

E1: "Labor Market Robot Apocalypse?"

This event addressed the growing fear around mass unemployment due to the fast penetration of automation. Mr. Gibbs who is a Clinical Professor of Economics at the University of Chicago presented his research on the impact of technology on the employment and the labor market. His findings were that jobs that are clerical, administrative and performed by mid-skilled workers are at risk of being automated and he points out that the problem to be addressed is in re- or up skilling these workers, who may find it difficult to do so after advancing midway through their careers, which will lead to qualified workers looking for jobs that pay less and require fewer skills (Why All Is Not What It Seems in the 'Robot Apocalypse', 2018). Mr.

156

Gibbs's presentation is in line with Best Practice 6 in Phase 3: Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling it, therefore validates BP6 in the BLCP framework.

In terms of Challenge 4 on resistance, this event solidified prior results on incorporating up and reskilling as part of a success measurement criteria that the CoE needs to address in a change management plan.

> The theme addressed is on upskilling and re-skilling strategies to be part of a new governance structure, embraced by the employee as well as the employer and the responsibility of up/reskilling is on both parties.

Key Theme 1

E2: "Robotic Process Automation (RPA) - Practical Applications in Investment Management"

Best Practice 1: Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative was validated through the suggestion of building partnerships between senior executives and the IT department, combined with a digital transformation team. A table on selecting suitable RPA processes which listed repetitive tasks, those that require multiple user interfaces to complete a job, a high volume of manual tasks, those that require multiple third-party applications and web look-ups and tasks with spreadsheets bridging gaps (Robotic Process Automation (RPA) - Practical Applications in Investment Management, 2018). This finding is in line with Best Practice 2: Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation. Best Practice 3: Streamlining the processes through an agile approach and prioritizing flow of implementation was addressed, in explaining the concept of continuous improvement efforts to find ways to improve processes continuously and in real time. Best Practice 4: Documenting a clear implementation plan with clear objectives, success measurement criteria, pilot and testing have been validated by the presentation in the key success criteria. Best Practice 5: Creating a

CoE to drive the overarching change management plan was addressed in a section dedicated to preparation for scalability, which included addressing organization and change management and the location of the CoE. In terms of a proposal for governance, monthly meetings with senior leaders to approve budgeting, bi-weekly meetings with senior stakeholders to discuss the RPA experience and lessons learned and weekly meetings to provide updates and challenges were some of the proposals which addresses Best Practice 6: This is establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling the workforce. An interesting poll of the webinar attendees validated Best Practice 7: Focusing on process efficiency creation rather than cost cutting. The poll question and the results are presented below:
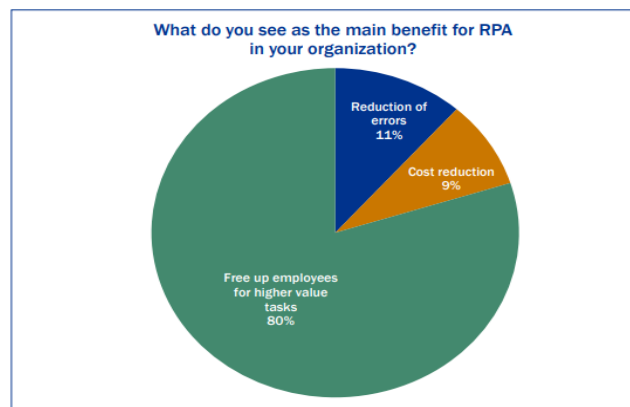

Figure 5.14 Cutter Cast: Robotic Process Automation (RPA) - Practical Applications in Investment Management, 2018

This webinar solidified the findings in terms of best practice on success measurement criteria, CoE, effective change management plans and addressing resistance challenge, in that the overall theme of the event was on maintaining the workforce with better allocation of resources. Cost reduction and ROI aspects were secondary benefits.

> The theme addressed is on resource re-allocation, how to plan and communicate effectively in order to reduce resistance to change.

Key Theme 2

E3: "People and Machines Working Smarter Together"
This panel discussion focused on the anticipated culture shift in organizations due to a change in demographics as well as that due to the advancement of technology;

and addressed business strategies and optimal operations companies need to adapt holistically, which is in line with Best Practice 8 of the BLCP framework: Embracing a holistic approach to RPA implementation, ensuring that RPA is a companywide initiative with a long-term vision and action plan, validates the framework. One memorable comment was that the workplace has undergone a shift from "work-life balance" to "work-life integration". With automation, technology and a shift in demographics, more flexible working hours are being implemented and, on another spectrum, this requires a workforce that can work outside of traditional work hours and etiquette.

In terms of Challenge 4 on resistance, this event focused on the human workforce engagement aspect of overcoming challenges that are expected to arise due to automation.

> The key theme is the change in demographics as a critical factor in expressing the urgency for digital transformation, eliminating work that does not engage employees.

Key Theme 3

E4: 2018 EMEA Recognition Programme: Digital Transformation

In 2018, the researcher was selected to take part in a regionwide recognition program comprised of forty selected employees from MetLife in an exclusive event on Digital Transformation. While the event was not on RPA, it does address Best Practices 6 on creating a new skill set for the future workforce and 8 on communicating the long-term plans around digital transformation. Phase 5 will address MetLife in further detail.

In terms of Challenge 4 on resistance and on best practice in change management, workshops validated the findings in prior phases.

> The key theme is that MIM CSG is part of the MIM platform that initiated rewarding employees in digital transformation.

Key Theme 4

E5: AI Live Global 2019

In this two-day virtual event, there were several presentations. The key themes that emerged supported best practice from BP1 to BP5 within the BLCP framework: AI is algorithms, in order to configure it effectively and efficiently, the right people need to be involved in a collaborative effort. It was highlighted that the focus of automation needs to be on processes and not on automating every task and process, which can be the root cause of some failed automation implementations. In terms of up and reskilling, proposals to implement include incentivizing the human workforce and destroying the fear of failing at innovation. This also means doing this within an efficient and effective change management plan to drive the automation journey in succeeding at digital transformation.

In terms of the challenge on resistance, it was highlighted that: "Human beings are a harder problem to solve than the dataset or the tech" (Kottapalli et al., 2019) and to overcome this challenge building credibility in the CoE and change management was evidenced as best practice.

> The key theme centred around collaboration, configuration and congratulation; teamwork around efficient configuration of RPA implementation and the work inherent to the project should be recognized and incentivized.

Key Theme 5

E6: Digital OAISS – London, Countdown to 2020 - The Tipping Point

This event focused on intelligent automation and hyperautomation with a panel discussion: "From RPA to AI: How Do You Achieve Scale and ROI Across a Global Enterprise? [14]". The definition that George Westerman, a Research Scientist in the MIT Initiative on the Digital Economy, used in digital transformation was anchored in the following remarks: "Digital transformations marks a radical rethinking of how an organization uses technology, people, and processes to fundamentally change business performance" (Boulton, 2019).

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[14] https://www.techuk.org/events/partner-event/item/15176-digital-oaiss-london-countdown-to-2020

The effective change management best practice was addressed in moving from the current state to the desired state as described below:

<u>Systems</u>: shift required from IT requirements to the whole workforce together in a holistic ecosystem

<u>Workforce</u>: shift required from mixed on/offshore to augmented workforce with human and digital workers

<u>Processes</u>: shift required from optimizing tasks in processes to orchestrating process flows

<u>Outcomes</u>: shift required from focusing on cost reduction to creating new value in winning ecosystems.

> The key theme addressed paradigm shifts – a change from the current state to the desired state in the way business is done today, to be a digitally transformed business that continues operation in the future.

Key Theme 6

E7: Client Onboarding: Digital-First Banking for Digital-First Customers 2019

The researcher was invited as a speaker, as well as a panellist, in this two-day event in Amsterdam which was focused on the digital transformation journeys of financial services companies, which in turn lead to customer experience (CX) enhancement that will impact the bottom line. During the session and the panel, the researcher was approached by participants about questions relating to P2 and P4, as many firms had been experiencing ROI and scale roadblocks in their RPA journeys.

The researcher's presentation on RPA (Appendix 4), which addressed the findings up to June 2019, was well received and not challenged by other experts in the field, confirming the BLCP framework in order to proceed with proceeding with Phase 5.

E8: The Future of RPA, Robot Assistants or Robot Apocalypse?

This webinar approached some issues companies face generating value from RPA as those firms viewing "RPA as a solution looking for a problem". It started off by

addressing the challenge of achieving ROI, in that companies need to have realistic expectations and that of achieving 2,000% ROI within 6 to 8 months with 85% cost take out is not the right way to approach RPA and the digital transformation journey. It validated Best Practices P3, P7 and P8, the sugggestion being to augment the human workforce. The failure to support an organization as whole from operational and cultural change is a significant cause of RPA implementation failure. Most firms approaching RPA with the suggested 'low hanging fruit' is a good starting point but scalability is not as simple as more complex processes. The RPA implementation strategy needs to accommodate this increase in complexity and therefore it is paramount. The strategy on how to use RPA as a digital transformation tool needs to be clearly defined from the start of the RPA journey. The outcome is to focus on fixing tasks and data, then to fixing processes and next to begin the automation journey to realize its value. Simon Sinek's Golden Circle was referenced in that companies know "What" RPA is, RPA solution providers know "How" to implement RPA but not the focus on the "Why", which is where the mission and vision are embedded (Vajre, 2016). The findings directly addressed the CoE and effective change management in addressing the challenge to resistance and furthermore confirmed the BLCP framework.

> The key theme addressed the focus to be on fixing tasks and processes and not ROI.

Key Theme 7

E9: The Recruitment Market Report – Webinar

This webinar focused on BP6: Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling the workforce in that it explained the skills demographics, market trends and predictions. Companies are invited to take advantage of the available resources to re-skill their human workforce. Financial services stand out as a strong market for RPA talent recruitment, not only from process requirements but also because these companies then are able to capture talent at higher salaries. The statistics and projections support the importance of addressing change management effectively to address resistance in the workforce.

E10: Understanding Deep Process Automation & How it Helps Scale RPA

This webinar focused on agility and how to add the agile layer in validation of P3: Streamlining the processes through an agile approach and prioritizing flow of implementation. 70% of all digital transformation journeys stall or fail due to being overly ambitious and being ineffective in prioritizing automation projects. The importance of the alignment of business and IT and bridging the mismatch between the visionaries and doers validated BP1: Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative and BP8: Embracing a holistic approach to RPA implementation, ensuring that RPA is a firmwide initiative with a long-term vision and action plan.

E 11: The Mid-Market RPA Journey: Empowering Your Employees through RPA Adoption

In defining and projecting RPA adoption rates, the webinar validated BP7: Focusing on process efficiency creation rather than cost cutting by referencing a Deloitte survey in which cost reduction was voted 4th in benefits of RPA, with the first three being compliance, quality and productivity. BP6: Establishing a new organization and governance structure that incorporates creating a new skill set for the future workforce and upskilling, it was also validated by referencing that according to research not many companies have faced resistance from their employees and RPA actually is a driver for employee engagement. BP1: Selecting and engaging the right stake holders from business, IT and the workforce to sponsor and champion the RPA initiative; BP2: Selecting the right processes – rules-based, repetitive tasks that are high in volume and importance. Middle and back-office functions are ideal candidates for initial implementation and BP5: Creating a CoE to drive the overarching change management plan were validated by documenting the challenges that organizations face in their RPA journeys.

> The key theme was on achieving scale as a long term firmwide initiative.

Key Theme 8

E12: 2019 RPA Global Tour – London

This conference also began by explaining why such a high percentage of companies fail in their digital journeys and addressed all best practice in the BLCP framework.

In selecting and prioritizing the right processes, a weighted matrix scoring solution was discussed, and a simple ROI calculation methodology was presented.

The focus on how to build a CoE that takes requirements from any department as input, to deliver the most efficient process through automation as output to maximize the benefits of RPA has been its definition. To achieve an effective CoE, the requirement of involving C-suite executives as well as evangelists has been highlighted. The core team would hold key functions such as finding business cases, analysing functionally, development of RPA, operation and ROI calculation in addition to involving the end users, effectively addressing best practices BP5 and BP6.

E13: Breaking Through the Digital Ceiling – A showcase for women driving change in Intelligent Automation

The tipping point or next generation RPA, IA, Hyperautomation are expected trends that enable "breaking through the digital ceiling" and finally achieving optimization. This event approached RPA implementation from a holistic perspective, addressing BLCP framework. Referencing the Millennial Survey conducted by Deloitte (Deloitte Global Millennial Survey 2019, 2020) that almost half of millennials will not pursue jobs that do not measure up to advanced technologies; the presenters addressed the urgency in addressing the digital ceiling. In terms of addressing resistance, the event focused on communication with leadership stakeholders as well as all stakeholders in a continuous communication cycle, thereby confirming that CoE and an effective change management plan are paramount to overcoming resistance.

> The key theme was on "Educating all stakeholders on 'what success looks like'" in addressing success measurement best practice.

Key Theme 9

E14: 4th Annual Intelligent Automation (4th Annual Intelligent Automation, 2019)

The researcher attended the below sessions:

- Session 1: Lloyds Banking Group | Gerald Pullen (Head of RPA Centre of Excellence) 'How RPA has saved 900,000 and where to next: the technology ecosystem'.

- Session 2: Ringier AG |Marcus Dauck (CIO and Head Publishing Technology & Services) | 'Panel discussion: Establishing a workforce culture that embraces changes versus fearing it'.

- Session 3: Mizuho |Nadia Abouayoub (Strategist/Improvement Lead) 'Implementing the successful intelligent automation equation: 10% tech + 15% data + 75% change and culture management'.

The sessions confirmed the validity of the BLCP framework. Particularly in Session 3: addressing the best practice in a success equation requiring ten percent technology, fifteen percent data and the remaining seventy five percent as change and culture management has been insightful in cementing the BLCP framework components.

E15: Scale RPA with the right COE and Process Selection

The webinar focused on scale, CoE and process selection which are directly related to best practice within the BLCP framework. The challenge on how to scale beyond the initial easy automatable, less complex processes to more complex processes is overcome by engaging employees through an effective CoE, which enforced the findings from previous phases.

E16: Move Past Roadblocks and Successfully Scale RPA in Your Organization

This live webinar started with an initial poll in trying to classify roadblocks that participants face in their RPA journey:
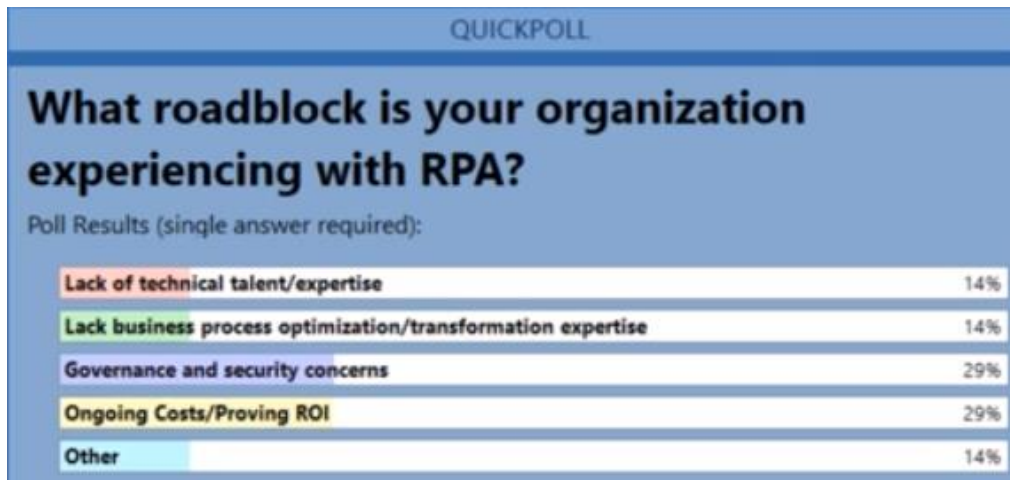
Figure 5.15 Poll Results (Move Past Roadblocks Successfully Scale RPA in Your Organization | HelpSystems, 2019)

The top roadblocks that were evenly selected were around ongoing costs/proving ROI and governance and security concerns.

The webinar confirmed the validity of the BLCP framework by addressing best practice throughout. The factors driving a digital transformation journey were listed in order of importance as enhancing CX, preparing for the future of IA, increased efficiency and quality, increased employee productivity as well as experience, improved governance and compliance, and finally cost savings (Move Past Roadblocks Successfully Scale RPA in Your Organization | HelpSystems, 2019). This event emphasized the importance of best practice in creating clear success measurement criteria, together with the implementation of an effective change management program in addressing challenges and therefore fits within the BLCP framework.

E17: Live webcast: Gartner Predictions for RPA and Intelligent Automation

In terms of the predictions for RPA, the theme of this event was to ensure that firms be best positioned in the automation road map to fully benefit and partake in the future of automation which is called hyperautomation. The recommendations addressed were on creating and building effective CoEs for establishing an effective change management plan covering the governance, training and re/up skilling of the workplace. The redesign and clarity in defining short and long term goals are critical success factors in measuring success and ROI is directly linked to scaling the RPA project. Therefore the established BLCP framework is highly correlated to the

recommendatinos set in this event with special effort needed to be allocated to remedying resistance, through effective CoE and change management plans.

> The key theme Hyperautomation and Intelligent Automation are the next steps in RPA.
>
> Successful RPA implementation will facilitate firms in their digital transformation journeys.

Key Theme 10

E18: IRPA AI Summit

The AI Summit cantered around RPA and AI and validated the BLCP framework. Statistics on up-to-date research were shared relating to resistance; half of global staff believe that automation will bring opportunities compared to risks and only twenty percent believed the opposite; seventy-seven of adults agreed that learning new skills or re skilling is important for their futures. The underlying positivity on the outlook of automation is a leverage for firms in their digital transformation change management plans. In achieving scale, the recommendation is to ensure the foundations are in place for the tipping point which requires a strategic approach from top management. Therefore, the themes validated the BLCP framework specifically around using change management strategy to overcome challenges in resistance.

E19: Ignite Entreprise Automation Initiatives & Secure the Digital Workforce

The event addressed the imperative in enterprise-wide strategy of fostering initiatives to combat the challenge of resistance through a future looking strategic digital transformation roadmap. The digital transformation journey should provide the roadmap for implementing new technologies and automation tools such as RPA to optimize processes, hence enhancement applies to the business overall. This event validated the best practice detailed in Phase 3, specifically around approaching RPA within a holistic framework, thereby validating the establishment and usage of the researcher's BLCP framework.

E20: 2nd Annual Client Onboarding Directors Forum for Banking

The researcher was invited to speak at the Client Onboarding Directors Forum for a second consecutive year and the presentation is attached in appendix 5. By this time, as the researcher had progressed in this research paper, the findings and analysis of this paper were leveraged in presenting a case specifically addressing human workforce challenges, C4: Resilience, in addition to detailed discussion on strategic alignment to achieve scalability, hence ROI which can only be achieved through clear success measurement criteria, effective CoE and a change management plan. The presentation was well received among presenters and attendees, positive feedback was received and there were no challenges to the findings. Therefore, the researcher was confident in proceeding with finalizing the findings of this research paper.

5.2.4.2. Conclusion of Field Research

In researching a technology topic such as RPA, the researcher benefited from being able to reach many experts at live webinars and events. There is a lack of available practical and academic literature on the topic of RPA. These events are "live" and reflect the speed of technological changes surrounding RPA.

Through a series of questions asked live, the researcher remained close to the overarching focus areas of RPA implementation in relation to the BLCP framework established earlier. The findings of the field research supported the validity of the BLCP framework to implement a test scenario in the following final phase of the analysis, Phase 5.

5.3. Part III – Case Study

Part III of the analysis is the case study and is the final phase of the research analysis. The researcher identified that reporting is a suitable test case for analysing RPA implementation. Through a related department, the researcher evaluates the RPA implementation in MIM.

5.3.1. Phase 5: Case Study Introduction

Working with MIM IT and Middle Office on RPA implementation to validate case for RPA implementation in MIM CSG.

The researcher investigated with MIM IT department on the RPA journey that MIM is pursuing as evidenced in Phase 2. At the time of the research, MIM itself had not started their RPA journey, however, overall, the parent company had partnered up their RPA team with Blue Prism as their vendor.

The researcher was requested to assist the middle office (MO) department in launching new reporting rules required for MiFID II regulation: "The objective of the new rules for transaction reporting is to obtain better insight into the trading behaviour of market participants and to improve the detection of market abuse" (MiFID II - Transaction reports | MiFID II | AFM Professionals, 2018). The researcher identified in Phase 1 above that reporting is an advisable process to investigate for RPA implementation. The researcher asked MO and MIM IT if they could experiment with implementing RPA on MiFID II reporting and permission was granted. Phase 5 is a case study on how RPA was implemented in a reporting required for MO in order to align the BLCP framework on a user case study and identify areas of the BLCP framework that worked well for MIM and to uncover any potential gaps that needed addressing.

As the phases 1 through 4 validated the BLCP framework as it is applicable to MIM CSG, the researcher further worked on a case study on implementing one reporting function and confirmation or disconfirmation to the BLCP framework is detailed below.

Problem Statement:

MiFID II reporting requires firms to report on transactions daily, on the day of the transactions. In order to standardize fields, the regulator specified fields that needed to be reported on (Conduct of Business Chapter 16[15]). This meant that operations would need to map existing fields in the internal existing systems to gather the input and produce an output that would report on the required fields. As this is a daily

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[15] https://www.handbook.fca.org.uk/handbook/COBS/16/3.pdf

reporting requirement based on daily transactions, MIM encountered two roadblocks: first, the internal systems run on batch cycles which are currently set based on a US time zone (MIM being head quartered in the US) and therefore would not run and be published in time for reporting to the regulator in the UK. The second roadblock was related to the field requirements which were numerous and required pulling information from various existing systems within MIM and then to manually map the existing field data to the required fields. The researcher proposed working with RPA for this MO reporting requirement to set a user case for launching RPA in CSG.

5.3.1.1. Analysis of Research on Test Case

In the next section, the researcher places the reporting requirement within the BLCP framework:

5.3.1.1.1. Cross checking limitations based on BLCP framework

Limitation 1: Bad or non-streamlined Processes

A bad or non-streamlined process would mean that the process causes bottlenecks or errors. The required reporting production process is not bad. This is a simple reporting requirement that processes inputs to produce a report as an output. The process is good, as is clear and clean. The issue with relying on existing systems is timing and volume of the report. Without automation, this report would run and produce an output on existing fields, then a user, a human worker would need to transpose the data into the reporting format required by the regulator. This manual component is time consuming and due to the nature of manual tasks, is open to manual errors.

The fact that the process is not bad and streamlined means that this limitation does not apply to the purpose of this case study, therefore it is not a limitation. BLCP is confirmed to proceed.

Limitation 2: Low in Volume

Tasks or processes that are low in volume are a limitation to fully benefit from RPA and automating tasks that are low in volume through RPA would not be an economic

solution. Manually running the report, which requires pulling information together from the system, manually processing it and uploading into the required template would take up resources in terms of time and errors and delays may arise.

The case study for the MiFID II transaction level reporting is required daily on all transactions, therefore is not low in volume and relates to the BLCP framework so the case study is confirmed to proceed.

Limitation 3: Low in Importance

The daily transaction reporting is a regulatory requirement, therefore exposing the firm to regulatory risk, which can cause financial and reputational losses in return. Therefore, there is a regulatory, financial and reputational risk.

The report that is chosen for the case study important, therefore is suitable for RPA and relating to the BLCP framework is confirmed to proceed.

Limitation 4: Structured data

The current version of RPA is best suited for structured data which is unambiguous. The transaction details are very clear and are housed in an internal database, therefore this limitation is not a hurdle for the case study because all data that needs to be pulled from one system and inputted into a spreadsheet is structured. Therefore, the case study is suitable to proceed and fits within the limitation of the BLCP framework

Limitation 5: Better Alternative Availability to RPA

The case chosen for the purpose of research does not have an alternative that would be more suitable, due to the timing requirement as well as the volume and intricacy involved in mapping existing system fields to the required regulatory fields. It is best suited for RPA to minimize manual errors and delays. Therefore, the selected case is suitable within the BLCP framework.

5.3.1.1.2. Cross checking benefits based on the BLCP framework

Benefit 1: Increased and Enhanced Operational Efficiency

Operationally, the required report would take up valuable resource time therefore would be inefficient if not optimized, and RPA can ensure optimizing the process by eliminating the human factor so operational efficiency will be increased. It also enhances operational efficiency by eliminating the risk of regulatory, financial and reputational losses. Therefore, the selected case fits within B1 of the BLCP framework.

Benefit 2: Better Client Experience

A better client experience impacts on three clients: the internal client, the IT team which is the MO department; the external client- the regulator and the third external client is other clients who will benefit from employees who can focus on their requirements with their time that has been freed up. Therefore, the selected case fits within B2 of the BLCP framework.

Benefit 3: Better Employee Experience

Th employee experience will be enhanced as they will no longer have to manually pull the data from a system, manually process and upload into a spreadsheet day in day out and will have capacity (time and mental) to focus on value-added activities. Additionally, it has been stated in this research that the upcoming generation will not be engaged by repetitive manual tasks, therefore by ensuring a better employee experience, the workplace becomes attractive to talent. Thus, the selected case fits within B3 of the BLCP framework.

Benefit 4: Risk Reduction, Adherence to Regulation and Auditability

The selected case is based on a regulatory requirement therefore it fits within B4 of the BLCP framework.

Benefit 5: ROI

ROI calculation methodologies are out of the scope of this research paper. However, during document gathering in preparation for the case study, the researcher estimates that this task would be performed by one person and take 2 hours each morning. For demonstrative purposes, the researcher is not sharing internal confidential methodology, instead the researcher based the average salary based on Morgan McKinley UK's published 2019 salary guide of financial services operations department (2019 Financial Services Operations Salary Guide, 2019) the average client services employee salary is £55,000 per annum.

ASSET MANAGEMENT & PRIVATE BANKING - PERMANENT SALARIES			
JOB TITLE	LOW (£)	HIGH (£)	AVERAGE (£)
Asset Servicing	35,000	65,000	50,000
Cash Management	35,000	65,000	50,000
Client Onboarding	35,000	65,000	50,000
Client Reporting	35,000	70,000	50,000
Client Services	35,000	75,000	55,000

Figure 5.16 – Salary Guide (2019 Financial Services Operations Salary Guide, 2019)

The researcher used the google foreign exchange rate for simplicity to convert the GBP amount into USD as of 16 April 2020 which equates into average USD salary of a client services employee of $68,358.68. Then the published ROI calculator template published by HelpSystems was used, in which they estimate a 3-year cost of ownership of RPA to $105,000 with a disclaimer that the ROI calculator is demonstrative, and each project will be priced differently (How to Calculate RPA ROI | HelpSystems, 2019). The simplified and demonstrative table for 5 automated similar reports yields 41% ROI within the first year.

helpsystems

Robotic Process Automation ROI Calculator

This ROI calculator can assist in determination of the financial justification to implement a software automation solution. In the below worksheet replace the sample data with your company's inputs and the calculator will do the rest. If you have any questions or need any assistance along the way please contact us at info@helpsystems.com.

Task			
Description of task: Implementing RPA for reporting purposes.			

	Inputs		
Average hours spent per week performing task	100.0		
Average number of people performing task	5.0		
Average hourly rate of people performing task	$ 164.32		
Average cost reduction percentage with automation solution	1%		

Annual salary in hourly rate
32.86

	Weekly	Annual	
Total People Cost Associated with Task 1	$ 82,162	$ 4,272,418	
Total People Cost Associated with Task 1 after implementing the Automation Solution	$ 81,340	$ 4,229,693	

	Weekly	Annual	
Total People Cost Associated with All Tasks	$ 82,162	$ 4,272,418	
Total People Cost Associated with all Tasks after implementing the Automation Solution	$ 81,340	$ 4,229,693	

HelpSystems Automation Platform Investment		Annual	
3-Year Cost of Ownership	Total	$ 105,000	

Return on Investment (ROI) Summary	Year(s)	Amount	ROI
Total Savings with HelpSystems Automation Solution	1	$ 42,724	41%
Total Savings with HelpSystems Automation Solution	3	$ 128,173	122%
Total Savings with HelpSystems Automation Solution	5	$ 213,621	203%

HelpSystems would be happy to help you make the most of the ROI calculator.
Contact us at info@helpsystems.com if you have any questions or need assistance.

Disclaimer: The values included in this ROI calculator for an automation solution are based on HelpSystems customers using our solutions. These are averages intended for guideline purposes only. Every project is different, so it is necessary to evaluate each value and adjust it to match your project as needed.

Figure 5.17 (How to Calculate RPA ROI | HelpSystems, 2019)

According to research, "Most people would agree that, over time, an average annual return of 5 to 12 percent on your passive investment dollars is good, and anything higher than 12 percent is excellent" (Elgin, 2010). As detailed ROI calculation is out of the scope of this research, the simplified ROI analysis satisfies the fact that the selected case fits within P5 of the BLCP framework to proceed with the analysis.

5.3.1.1.3. Cross checking challenges & best Practice to overcome them based on the BLCP

The researcher overlapped challenges with best practice to overcome those challenges in the earlier analysis. Therefore, in the next section, the best practice sequence to overcome challenges based on the BLCP framework will be used in analysis of the case suitability to the BLCP framework.

Best Practice 1: Ownership and Sponsorship

On ownership and sponsorship, best practice is to have IT involved from the beginning of the RPA implementation effort with the support of overall sponsorship. Related to the relevance of the reporting RPA implementation case study, the

researcher approached the IT team first, who reached out to the overall parent organization to leverage RPA platform, MetLife Inc., which was using RPA for their insurance business. The sponsorship on digital transformation is clearly communicated in the MetLife website[16] which confirms the sponsorship commitment to digital transformation: "In addition, we have made significant progress in developing automated systems to improve our efficiency and the experience of our customers. We have used robotic processing automation technology since 2016, and we now have 65 "software robots" across claims, policy administration and finance processes. We will continue to scale up our capacity in this area in the coming years" (MetLife Inc.). RPA is established as a tool in digital transformation, therefore from the point of view of best practice, the case study fits within the BLCP framework.

Best Practice 2: Strategic alignment of Digital Transformation

It has been established that efforts around RPA should not be limited to the traditional methods of implementing another IT deployment, it needs to be part of the overall digital strategy that fits within the enterprise level strategy. In a publicly available whitepaper[17] presents the MetLife digital strategy within the enterprise level:

Figure 5.18 MetLife's Digital Transformation Strategy (Christopher, 2019)

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[16] https://www.metlife.com/corporate-responsibility/customer-focus/digital-transformation/
[17] https://www.hfsresearch.com/pointsofview/how-metlife-used-transparency-and-inclusion-to-drive-intelligent-automation-success

The case study therefore fits within the BLCP framework best practice 2 that requires a strategic alignment of the digital transformation strategy.

Best Practice 3: Selection of Vendor and Processes

Regarding process selection, through analysis presented above, MiFID II reporting requirement is a suitable process for RPA.

In terms of vendor selection, MetLife selected Blue Prism: "Key decision criteria included the enterprise-grade nature of Blue Prism's software and its business-friendly configurability" (Christopher, 2019). Gartner published a report on RPA software ranking RPA software providers in which Blue Prism is ranked as a leader as an RPA software provider:

Figure 5.19 Gartner Magic Quadrant Magic Quadrant for Robotic Process Automation (Miers, Kerremans, Ray and Tornbohm, 2019)

"From the beginning, it has focused on supporting enterprisewide deployment, balancing the democratization of automation development with the governance tooling needed for long-term success" (Miers, Kerremans, Ray and Tornbohm, 2019). In establishing the case study for MiFID II reporting, best practice of vendor and process suitability fit within the BLCP framework.

In terms of suitability, Chapter 2 established that Challenge 3: Suitability (C3) challenges were (i) vendor suitability, (iii) infrastructure suitability, (iii) budget suitability, (iv) process suitability, (v) team suitability.

Best Practice 4: Success Measurement

The success measurement in the case for MiFID II reporting is straightforward; success is determined by the daily reporting of completion and failure if the report does not get sent out, what the contingency plan would be and troubleshooting. The RPA team who monitors the bot dashboard receive an error upon failure and while troubleshooting, they inform teams to manually intervene to send the report out. The best practice for success measurement for the case study therefore fits within the BLCP framework.

Best Practice 5: CoE and Change Management

The CoE and change management plan that would be applicable to MIM, cascading from MetLife Inc, is based on open and ongoing communication: "This "glass box" approach has thus far included hundreds of demos on RPA, the creation of dashboards and metrics for transparent benefit and performance tracking, and the creation of an internal RPA training track to enable the reskilling of employees impacted by the changes and staff interested in professional development" (Christopher, 2019). In applying the test scenario, detailed interaction with the CoE has been coordinated by the IT team, however the finding is that there is an effective CoE and change management in place to support RPA implementation within MIM CSG.

5.3.1.2.　Conclusion of Phase 5

Phase 5, implementation of RPA in a test scenario has resulted in successful implementation of a reporting function that could easily be applied/scaled to MIM CSG. Reference to the success measurement criteria from Phase 1 described a life cycle of implementation repeated below (Top RPA Interview Questions and Answers for 2020, 2020):

- **Analysis**: Defining and breaking down the processes that are targeted for RPA development.

    - o This was completed during the POC creation together with IT, MO and researcher.

- **Development**: Upon identification of the requirements, the development stage focuses on completing the requirements.

    - o This cycle was completed by IT leveraging the companywide RPA team

- **Testing**: Confirming that the development achieves the targeted results.

    - o This stage was completed by IT and validated by both the MO team member and the researcher.

- **Deployment and Maintenance**: Once the bots are deployed, there is ongoing monitoring and maintenance to ensure quality results.

    - o The deployment was handled by IT through a parallel test for a period of one week. An MO team member, as well as the researcher, receive the daily report that is published and are alerted should any malfunction or reconfiguration is required by the RPA team.

5.4. Concluding Remarks of Chapter 5

In synthesising the key findings and themes of the completed study, the researcher summarizes the investigation and contribution to existing research in the following table.

	Research Questions	Literature Review Coverage	Study
	Core Research Question:		
	Is RPA the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey?	Not addressed in literature review	Research Complete **Key Findings 1, 2, 7**
	Secondary Research Questions:		
1	What are the challenges in CSG that warrant an enhancement?	IM sector facing challenges and enhanced CSG activity can result in increased competitiveness and profitability	Confirmed **Key Findings 1, 8, 17**
2	What are the solutions available to enable enhanced client servicing?	Digital Transformation	Confirmed **Key Finding 2 & 4, 20**
3	Can RPA address challenges faced in CSG better than other available solutions?	Not addressed in literature review	Confirmed **Key Findings 17**
4	What are the benefits of RPA?	Benefit 1: Increased and Enhanced Operational Efficiency Benefit 2: Better Client Experience Benefit 3: Better Employee Experience Benefit 4: Risk Reduction, Adherence to Regulation and Auditability Benefit 5: ROI	Confirmed **Key Findings 11,12, 14 and BLCP framework**
5	What are limitations in RPA?	Limitation 1: Bad or non-streamlined Processes Limitation 2: Low in Volume Limitation 3: Low in Importance Limitation 4: Structured data Limitation 5: Better Alternative Availability to RPA	Confirmed **Key Findings 14 and BLCP framework**
6	What are core challenges in RPA implementation?	Challenge 1 Ownership Challenge 2 Alignment Challenge 3 Suitability Challenge 4 Resistance	Confirmed **Key Findings 13,16, 17,20, 21 and BLCP framework**
7	How is success of RPA measured?	ROI	Confirmed **Key Findings 3,11, 12,17, 21**
8	Are established best practices in RPA implementation that emerged from previous RPA implementation attempts in other areas applicable to CSG RPA implementation?	Best Practice 1: Ownership and Sponsorship Best Practice 2: Strategic alignment of Digital Transformation Best Practice 3: Selection of Vendor and Processes Best Practice 4: Success Measurement Best Practice 5: CoE and Change Management	Confirmed **Key Findings 11, 13, 14, 15,16, 17,19, 20, 21 and BLCP framework**
9	Does CSG exhibit an environment for RPA implementation according to available best practices?	Not addressed in literature review	Confirmed **Key Findings 11, 16,17, 18**
10	Will RPA implementation in CSG benefit the IM firm overall?	Not addressed in literature review	Confirmed **Key Findings 13 20**

Figure 5.20 Consolidated Summary of Chapter 5

Chapter 5 is the presentation of the research conducted for the completion of this dissertation. It is a critical case study formed of five phases in triangulating benefits, limitations, challenges and best practice in RPA implementation with the aim of confirming or disconfirming if RPA is the right automation solution tool for MIM CSG in its digital transformation journey. In order to confidently address the core research question, the researcher established secondary research questions.

RPA is a new technological automation tool; therefore, research is limited in practice and in academia. The researcher starts by establishing the benefits, limitations, challenges and best practice as a framework and marks its BLCP framework. This framework allows for theme, headlines and patterns to emerge from existing literature and user cases. Next, the researcher interviews participants within her organization to align if the BLCP framework would be applicable to her department, CSG and furthermore if it matches with overall MIM organization. At the same time, the researcher conducts interviews with RPA experts and attends RPA sector related events to draw conclusions in support of the findings.

As a culmination of the research conducted in this chapter, it seems that all core and secondary research questions in the table have been answered to a large degree. The next and final chapter will focus on the significance and implications of the findings arrived in this chapter. Efforts will be made to highlight my contributions by proposing a RPA framework for all CSG sectors in IIM firms, and by identifying some research gaps and limitations in this field.

6. Chapter 6 - Conclusion

This is the concluding chapter of this dissertation. It is composed of six sections; the first section is a brief summary of the research addressing each research question posed in Chapter 1, aligned with the three research pillars established in Chapter 2. The second section sets out conclusions drawn from the research, together with emergent themes. Section three proposes recommendations for future general research while section four proposes recommendations for MIM CSG, which are the researcher's contributions to best practice for the industry. The fifth section highlights why this research is important in terms of its contribution to existing research and the limitations encountered in this study. The final section summarizes the concluding remarks of the overall dissertation.

6.1. Summary of the Research

Key findings and themes throughout the study support the validation of the core research question if RPA is the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey.

6.1.1. Summary of Research Questions

The research has been framed around one core and ten secondary research questions listed below with their summary findings. The summaries of findings to the secondary research questions are listed first which together culminate in responding to the core research question.

Secondary Research Questions:

1.   What are the challenges in CSG that warrant automation enhancement?

Summary finding: **Key Finding 1** stated that all functions that MIM CSG perform score high on importance and in volume to warrant an automation enhancement to not only increase productivity and the quality of the tasks but also equally important to free up time as a resource for the human workforce to be able to contribute to value added tasks that require human intervention and interaction. **Key Finding 8** addressed the reality that MIM CSG users may not be fully aware of automation technologies and awareness as well as exposure to these technologies will yield benefits in implementing automation in MIM CSG. **Key Finding 17** stressed the

importance of keeping employee engagement as a central focal point, it has been established that one of the benefits of automation – such as RPA – yields better employee experience.

2.   *What are the solutions available to enhance client servicing?*

Summary finding: Throughout the research, digital transformation as part of a company wide effort in achieving competitiveness has been proven. **Key Findings 2 and 7** highlighted that while some functions such as reporting are suitable for RPA implementation, other functions such as KYC and on/off boarding are better suited for further technology solutions. Key **Finding 4 and 20** addressed that digital transformation, of which RPA is a part, is a company wide effort and cannot be undertaken in silos. A centralized CoE involving the right stakeholders from senior management, SMEs, IT and HR need to spearhead this effort in aligning the requirements of client servicing tasks with appropriate digitalization strategies.

3.   *Can RPA address the challenges faced in an CSG better than other*
       available solutions?

Summary finding: **Key Finding 17** addressed this question in highlighting the fact that while RPA does not address all challenges faced in CSG, during the investigation of RPA implementation and the best practice exercise, other solutions that may be better suitable for a particular task would be uncovered during the analysis phase of that particular task.

4.   *What would be the <u>benefits</u> of implementing RPA?*

This analysis to this question is summarized below under the BLCP framework.

5.   *What are the <u>limitations</u> of RPA?*

This analysis to this question is summarized below under the BLCP framework.

6.   *What are the core <u>challenges</u> in RPA implementation?*

This analysis to this question is summarized below under the BLCP framework.

7.   *How is success of RPA measured?*

Summary finding: Throughout the investigation into RPA implementation, the researcher evidenced that ROI is a key measurement in measuring the success of RPA, not only applicable to the latter but also to any investment that an organization undertakes. In that aspect ROI is anchored in RPA's success measurement. ***Key Findings 3,11, 12,17, 21*** all address RPA measurement in its various aspects and the summary finding is to shift the focus from solely relying on ROI but to define the success of RPA implementation in actually measuring effective integration of RPA implementation within the company wide digital transformation strategy.

8.   *Is established <u>best practice</u> in RPA implementation, that emerged from previous RPA implementation attempts in other areas, applicable to CSG RPA implementation?*

This analysis to this question is summarized below under the BLCP framework.

9.   *Does CSG exhibit an environment for RPA implementation according to available best practice?*

Summary finding: **Key Findings 11, 16, 17, 18** addressed factors in harbouring an environment for the successful implementation of RPA within CSG. The summary finding is that MIM CSG, is in fact suitable for RPA implementation. Overall MIM is part of an organization which is in synch and current with worldwide technological developments, therefore obtaining buy-in from the wider organization is not a hurdle compared to other organizations which are lagging behind in following current technology. The MIM CSG environment is supportive in implementing this technology, RPA in enhancing its operations. Further analysis in the RPA implementation environment is also addressed as part of the BLCP framework analysis further on in this chapter.

10.   *Will RPA implementation in CSG benefit the IM firm overall?*

Summary finding: **Key Findings 13 and 20** supported the worldview that RPA is part of an overall digital transformation strategy. This is true for MIM overall as an IM firm; therefore, implementation of RPA supports the strategy of the firm and yields benefit.

Core Research Question:

Is RPA the right automation tool to be implemented in CSG to support the IM firm in its digital transformation journey?

Following the responses to the secondary research questions, it is established that without a doubt, especially for the reporting functions initially, full RPA implementation and for other functions such as KYC and on/offboarding partial RPA implementation supports the IM firm in its digital transformation journey. Recommendations on the approach to implementation is analysed further as part of BLCP framework later in this chapter.

6.1.2. Summary of the Research Pillars

The researcher had placed the research on three pillars in this study:

Figure 6.1 Three pillars of the study – image self-created.

Pillar one targeted assessing the current state of CSG in IM in response to an industry-wide need that required change. It has been evidenced that several internal and external pressures in the investment management environment are causing firms to look for opportunities to reduce costs through enhancing their business models, process optimization or reduction in costs. One of the external factors is speedy technological advancements causing disruption in the macro-environment and therefore requiring firms to adapt to ever-evolving technologies to remain competitive at best or to at least remain in business. One way of adopting such an enhanced state is through embedding a digital transformation strategy into the overall strategy of the firm which would incorporate direction, mission and vision on how to utilize current technologies and to define a roadmap of the digital transformation journey, as AI is gaining ground. One technological tool in automation is RPA.

The second pillar critically analysed RPA as it is at the time of the study. RPA is accepted as a non-invasive and system agnostic automation tool. It has been evidenced that adopting RPA is now seen as a necessity, not only to improve business processes but also as a gateway to adapt to further technological developments, such as next generation RPA, cognitive automation or hyperautomation, all through the usage of AI. RPA has been spreading across industries and it is used in the financial services sector, though there exists a research gap in specific RPA implementation for investment management firms' client services teams. Experts agree that client services teams would really benefit from RPA. However due to the complexity of functions that are mostly tailored to clients' needs, gaps exist in research specific to this area. Through critically analysing existing use cases and research in RPA, the researcher outlined best practice collected in a framework to be applied to RPA implementation for MIM CSG which formed the third pillar of this study.

In the third pillar, the researcher synthesized existing research in forming a benefits, limitations, challenges and best practices (BLCP) framework in an attempt to exhaust the worldview of RPA implementation to strategically analyse its implementation in MIM CSG. The Benefits, Limitations, Challenges and Best Practice have been analysed through an establishment of a framework – the BLCP framework - in order to; triangulate the results of the various phases of this research

in confirmation of the applicability of the BLCP framework to MIM CSG; to provide confirmation or disconfirmation of the core research question, which is if RPA is the right technology automation tool to implement in CSG to support the IM firm in its digital transformation journey. The key findings do support that indeed, RPA is the right automation technology for MIM CSG.

6.2. Key findings, Implications, Limitations

6.2.1.   Key Findings

The key findings emergent out of the BLCP framework are summarized in this section.

It has been evidenced that RPA implementation in CSG MIM appears to be suitable and it is probably fair to say that it is the best available automation tool with the researcher's established BLCP framework applicable to its implementation. Adhering to the framework facilitates RPA implementation in MIM CSG, provided that it is not analysed as a separate project or effort but is part of the overarching aim of the wider MIM in their digital transformation strategy. It has been validated that RPA is part of the overall wider MIM strategy, therefore the key finding is confirmed and validated should CSG decide to implement RPA. In terms of the test cases, it has been validated as a key finding that starting with automating the reporting functions of MIM CSG would be an appropriate and suitable process to initiate RPA implementation within the department.

RPA implementation is not a siloed effort, it is a collaborative one. Effective implementation requires active participation from SME's, IT and the orchestration requirement need to be mandated from the C-suite management.

Ownership and sponsorship are the most important factors in effective RPA implementation; it is not a coincidence that the term orchestration is commonly used in RPA implementation. Orchestration ensures clarity not only in the tasks that form processes that are to be automated through RPA but also in ownership of the documentation, configuration, performance, maintenance and success measurement. Therefore, a central command center, CoE is a requirement to guarantee effective RPA implementation.

In measuring success, while ROI is easily referred to as a financial benefit, it has been evidenced that the mindset should not be focused on ROI but rather on enhancing both employee and client experience and therefore the softer, non-financial benefits. In order to successfully measure these benefits, documentation on the expected results need to be broken down and clearly identified.

Documentation for the RPA implementation is often underestimated; however, it should be simple and map out the processes that have been streamlined. This document not only serves as a guide but also as a reference should configuration errors occur. Clear documentation on contingency planning prevents failed RPA implementation attempts. Finally, clear documentation also serves as a lesson learned and provides a reference point for future technological tools that are already communicated in the pipeline of the technological movement.

The orchestrated effort, through the CoE, needs to incorporate detailed HR planning in terms of the digital as well as the human workforce, collectively referred to as the augmented workforce. Two major factors are considered in up and re-skilling employees. The first is to ensure that the workforce resource is re-utilized effectively once RPA is implemented which can be achieved through reskilling and upskilling. The other is the concern that with technology advancing at a high speed, there will be skills gaps within organizations. Effective talent acquisition planning and collaboration with future technology providers can mitigate this risk and can form part of HR planning.

HR needs to address effectively not only the future projected impact of RPA in terms of talent acquisition but also the right communication strategy in terms of message and frequency to address any concerns that the human workforce may have, in light of the automation of their tasks.

Getting the digital transformation strategy right is more important than deploying the newest form of RPA technology. The strategy needs to clearly communicate the HR side of the digital transformation in terms of finding the right talent to keep up with technology to minimize a skills gap and in terms of upskilling the current human and digital workforce.

6.2.2. Implications

It has been evidenced that the main MIM CSG functions which are KYC, on/offboarding and reporting all score high in importance and therefore there is value in pursuing RPA implementation. The implication of RPA implementation is that it delivers the expected benefits of a better employee and client experience through increased and enhanced operational efficiencies, while adhering to regulation in an auditable platform. The risks of regulatory, financial and reputational damage are reduced which contribute to indirect ROI.

It is therefore for the benefit of the whole organization to orchestrate the RPA implementation effort.

In implementing RPA, it is an established best practice that processes need to be clearly broken down into smaller tasks and each task needs to be streamlined, which means that there is an efficiency gained already, even prior to RPA implementation - that operational efficiency has been achieved. Breaking the processes down into tasks need to adhere to a predefined and well documented methodology, this can be Agile or Lean Six Sigma or any other methodology, but it needs to be done in a consistent well documented and coherent manner. Regarding the level of familiarity around RPA, it has been established that business users are less familiar with RPA compared to IT and Strategy groups. Prior to RPA implementation, awareness and exposure to RPA need to be incorporated into the project plan, created in collaboration with a CoE to drive the overarching change management plan.

An effective change management plan incorporates a clearly defined action plan with success measurement criteria. Clarity in direct and indirect communication aids in reassuring the concerns of the human workforce, thereby. reducing resistance to change.

While these positive implications infer that MIM CSG would benefit from RPA implementation, the limitations below need to be considered.

6.2.3. Key Themes

The overall key theme emerged is on embracing and incentivizing change. Key themes are further summarized below:

Key Theme 1: The theme addressed is on upskilling and re-skilling strategies to be part of the new governance structure, embraced by the employee as well as the employer with the responsibility for up/reskilling lying with both parties.

Key Theme 2: The theme addressed is on resource re-allocation, how to plan and communicate effectively in order to reduce resistance to change.

Key Theme 3: The key theme is the change in demographics as a critical factor in expressing the urgency for digital transformation, eliminating work that does not engage employees.

Key Theme 4: The key theme is that MIM CSG is part of the MIM platform that initiated rewarding employees in digital transformation.

Key Theme 5: The key theme is centred around collaboration, configuration and congratulation; teamwork around efficient configuration of RPA implementation and the work inherent to the project should be recognized and incentivized.

Key Theme 6: The key theme addressed paradigm shifts – a change from the current state to desired state in the way business is done today, to be digitally transformed business that continues operations in the future.

Key Theme 7: The key theme addressed is the focus on fixing tasks and processes and not ROI.

Key Theme 8: The key theme was on achieving scale as a long-term companywide initiative.

Key Theme 9: The key theme was on "Educating all stakeholders on 'what success looks like'" in addressing success measurement best practice.

Key Theme 10: The key theme Hyperautomation and Intelligent Automation are the next steps in RPA. Successful RPA implementation will facilitate firms in their digital transformation journeys

6.3. Recommendations for MIM CSG (Practitioner)

The depiction below gathers the BLCP framework, and it is the researcher's unique contribution to the best practice framework of implementing RPA in MIM CSG.

Figure 6.2 BLCP Framework for MIM CSG

Based on the analysis of the findings in this research and case study, it is confirmed that RPA is the right automation tool for MIM CSG to support the IM firm in its digital transformation strategy. The researcher recommended a framework, the BLCP framework which has been justified through the study presented in Chapter 5. This BLCP framework is the culmination of the analysis of this dissertation.

Uniqueness of the BLCP Framework

The BLCP framework is the unique contribution of the researcher; it is the first scholarly research combining benefits, limitations, challenges & best practice. The researcher's unique BLCP framework is an amalgamated synthesis of the worldview of RPA implementation across various industries placed in a framework suitable for institutional investment management CSG. As the research progressed, the researcher found that the framework is applicable to wider disciplines than to CSG as it is a comprehensive guide in implementing the technological tool. The BLCP framework holds the key to successful implementation of RPA as each element in the quadrant has been tried and tested since RPA entered the process automation as a solution. It's comprehensive in that, it also accounts for processes that would

not be suitable for RPA but better served with alternative solutions to process optimization.

6.3.1. Benefits for MIM CSG

The established worldwide benefits of RPA have been validated to be applicable to MIM CSG. It is proven that RPA implementation yields efficiency gain in several areas of the operations itself as well as contributing to the digital transformation strategies of the organization. These efficiency gains then impact in enhancing client as well as employee experience which in turn results in elevating the reputational value of the organization. In terms of minimizing reputational, financial and regulatory risks, RPA is a proven tool.

Through implementing RPA, MIM CSG would benefit from the below:

1. Increased and enhanced operational efficiency

Chapter 5 provided empirical evidence to support the worldview that automating suitable MIM CSG tasks yield increased and enhanced operational efficiency. Specifically, for MIM CSG, the researcher evidenced that implementing RPA on reporting functions is the appropriate starting point. The daily, monthly, quarterly or even ad hoc reporting functions merely gather information that already exists in the company's current system infrastructure to provide output according to each relevant portfolio. There is no human intervention required, aside from initial configuration and periodic fine tuning as client requirements on reporting fields can periodically change. Moving the reporting functions to automation through RPA would be an easy exercise as the current IT technology already allows for some automation. Setting the current reporting to be automated through RPA would increase operational efficiency in several aspects, not only from the day-to-day management of reports for the CSG team member but also from client perspective as well as for IT. IT would be able to familiarize themselves with implementing RPA through this exercise, therefore not only an operational but also an RPA implementation strategy would be addressed, therefore enhancing efficiency from various aspects. It has been discussed that efficient use of bots leads to ROI, scalability and better adoption rates.

2. <u>Better client experience</u>

A better client experience would be achieved through error minimalization. RPA orchestration allows for errors to be detected during the running of the reports. Currently no other system allows for error identification prior to reports being published, and clients then having to reach out to CSG members advising of erroneous or empty reports. The errors are quickly fixed however and eliminating errors prior to publishing yields a better client experience. Additionally, there is a comfort for the client knowing that their investment manager is operating using the most recent technology which builds trust between client and company.

3. <u>Better employee experience</u>

Reporting is often a time of extra resource utilization. CSG members need to address all reporting related queries in addition to their BAU. This constant state of alertness, doing- redoing, communicating between client and IT departments is time consuming and there is little value-add from the employee perspective. RPA would relieve this additional resource requirement, therefore allowing CSG members to be able to focus on tasks that require human interaction, adding value to their jobs, yielding enhanced employee engagement with the company as well as with the clients.

4. <u>Risk reduction, adherence to regulation and auditability</u>

Reduction in errors inherently reduced the risk of regulatory, reputational or financial losses. One of RPA's feature is that it is auditable. Additionally, the centrally orchestrated RPA allows for adoptability and scale in a completely controlled environment. Regulatory requirements change often, RPA allows for nimble manipulation of data inputs into the reporting output. Therefore, MIM CSG would be able to adhere to changing regulatory reporting requirements taking advantage of the non-invasive nature of RPA. Furthermore, the tightened regulations impose detailed regulatory requirement and RPA is one of the most effective tools in customizing the required regulatory reports.

5. ROI

In terms of ROI calculation, specific to MIM CSG, the researcher stated that ROI calculation for RPA is not different to any alternative implementation, therefore MIM

CSG along with IT would continue the ROI measurement that fits within the established firm practice of calculating ROI. Ultimately, it has been evidenced in this report, that although ROI calculation should not be the focal target in RPA implementation and through adoption across functions, as RPA is scaled, ROI is an inevitable result.

6.3.2. Limitations for MIM CSG

1. <u>Bad or non-streamlined processes</u>

Reporting functions are inherently streamlined in terms for RPA implementation in that there is data that is inputted which results in report as an output. The real effort that ought not to be underestimated for MIM CSG is to revise each reporting requirement to validate with each client. In time, some reporting requirements become obsolete, and others are added to the reporting suite without reviewing existing reports. Therefore, there is "heavy lifting" work to be done prior to RPA implementation and this step is addressed in the analysis section of implementing RPA best practice.

2. <u>Processes that are low in volume</u>

Reporting is voluminous for MIM CSG. Additionally, invoicing is viewed as a type of report by its nature, in that it takes the data points for relevant portfolios to compute the relevant fee structure and produces an invoice as an output. Combining all the daily, weekly, monthly, quarterly reporting with the quarterly invoices produces many tasks that can be automated and orchestrated through RPA. Volume is not a limitation for MIM CSG in implementing RPA.

3. <u>Processes that are low in importance</u>

The literature review as well as the analysis in this dissertation support that client servicing tasks are high in importance. The risk of error can lead to regulatory, reputational or financial losses for an investment management company. Specifically, for MIM CSG, errors in reporting (including invoicing) can lead to devastating consequences. Alongside benefit 4, it is evidenced that adhering to regulatory requirements is paramount for the survival of the company, therefore this limitation is a moot point vis-à-vis MIM CSG. Additionally, implementing RPA in MIM

CSG is an important starting point for adopting and scaling this technology as well as the future generations of RPA.

4. Data that is unstructured

Reporting functions for MIM CSG are structured data. Recalling the definition from Chapter 1, structured data can be exemplified by a simple excel table, which is organized and housed in databases (Jones, 2018). Reporting output is an excel table that takes inputs that are already housed in databases in the firms' system infrastructure. RPA is system agnostic; it can access and manipulate structured data with ease in a non-invasive manner. This limitation is not applicable for MIM CSG; therefore, RPA implementation is a preferred solution. The reporting functions do not require human intervention and the data is completely structured. There are no emails, images or videos that need to be converted.

5. Better alternative to RPA

The only other alternative to RPA is the current reporting structure that exists within MIM CSG. The researcher, being employed by MIM CSG, through first-hand experience sought alternatives to the current structure and identified RPA as an alternative to the current system that had inherent issues. RPA is the best suitable alternative to the current reporting processes that exist within MIM CSG.

6.3.3. Challenges and best practice for MIM CSG

The researcher summarizes the challenges together with best practice for RPA implementation in MIM CSG because these best practice suggestions are designed to counter the challenges of RPA implementation. A detailed analysis of the factors is addressed in chapter 5.

1. Ownership and Sponsorship

The first challenge in RPA implementation is lack of ownership and sponsorship. In order to counter this challenge, the best practice is to have C-suite ownership and senior level sponsorship that collaborate with IT specialists as well as subject matter experts, in this case CSG members. It has been evidenced that ownership and sponsorship are paramount to the success of RPA implementation. For MIM CSG, the first step would be to identify the CoE that is housed within the larger

organization and then collaborate with the CoE in implementing RPA effectively for reporting functions of MIM CSG, addressing adoptability and scale into other functions.

2.   <u>Strategic alignment of digital transformation strategy</u>

User cases evidence that lack of strategic alignment and worse, lack of digital transformation strategy, are challenges to effectively implementing RPA. Through this research and through her employment within MIM, the researcher identified that RPA is in effective part of the digital transformation strategy of the wider MetLife, Inc. Therefore, for RPA implementation to MIM CSG, the CSG leaders would need to collaborate with members of the overall committees in seeking buy-in from stakeholders, then to effectively collaborate in embedding MIM CSG in alignment with the digital transformation strategy. The fact that RPA is already part of the overall company strategy facilitates the buy-in process for implementing RPA into MIM CSG.

3.   Vendor and process selection and suitability

MetLife, Inc. have partnered up with Blue Prism as its RPA vendor and have been publicly collaborating in paving the path in driving RPA together. MIM CSG would leverage this already existing partnership, therefore aligning with the already agreed upon collaboration with the vendor. In terms of process selection, it has been established that specifically reporting functions of MIM CSG are suitable for RPA implementation. The analysis of the steps in implementation are already in place, therefore the relevant SME and IT specialist would collaborate with the already existing RPA platform to onboard MIM CSG. This would also enhance the usage and utility of already existing bots.

4.   Success measurement

Leveraging the already existing RPA implementation practice and measurement within MetLife, Inc., MIM CSG already has the required criteria for measuring success of the RPA implementation in their department. The process of successfully implementing RPA within MIM CSG would contribute to the overall success measurement of companywide RPA implementation. It would also contribute in terms of adoptability and scalability of RPA capabilities that are being utilized within

the organization effectively as best practice in countering the challenge of success measurement.

5.   CoE and change management to counter resistance

It has been evidenced in the analysis in Chapter 5 in MIM participant interviews, that there is not an anticipated resistance to automating manual, repetitive, mundane tasks through implementing RPA. Nevertheless, it is important to have a plan in place for upskilling and reskilling team members in order to enable them to configure or trouble- shoot RPA orchestration together with the IT team, to maintain a controlled environment. It is preferable for MIM to have their CoE driving the implementation within MIM, in collaboration with the overall MIM organization. Best practice to address any resistance is to address all concerns and to project the development of the augmented workforce. At this point HR would need to be involved in developing the plan alongside the CoE.

6.4. Importance of this research and Limitations

6.4.1.   Importance of this research/Research Gap

The researcher launched research into RPA in 2016, at that time the London School of Economics (LSE) conducted a series of research on Business Services Automation and into RPA as part of the series. In their research objective, it is stated that: "Potential adopters need exposure to actual and realistic client adoption stories." (Robotic Process Automation at Xchanging, 2015). There is a need for evidence backed research in RPA adoption and there is a lack of evidence as to how RPA can be effectively and efficiently implemented in the client services areas in investment management firms. It is this research gap that the researcher has addressed in this dissertation. The case study explores in detail the implementation of RPA in CSG within her workplace, whether it is the appropriate solution for MIM CSG, what the implications to stakeholders are, and if RPA is an overall value-added solution.

Existing research in RPA and asset management agree that RPA "could be the route to better service, fewer mistakes, a full audit trail, more scalability and yes, lower costs" (Accenture Consulting, 2017). However, since the rapid spread of RPA since 2016, even though client services is continually mentioned as an area prime for

RPA, there is little or no research on automating client service-related tasks within investment management firms. It is argued that the tasks performed in these areas may have been underestimated in complexity: "These employees use complex judgements that enable businesses to run smoothly and reasonably, using a human decisioning process-which was not always apparent upfront" (Medium, 2018). This dissertation is aimed at uncovering how value can be achieved in client services teams in investment management through RPA.

6.4.2.   Limitations of the Research

<u>Lack of prior and existing research in RPA</u>

The research gap highlighted the fact that there is a research gap in evaluating RPA implementation in MIM CSG. However, it is a limitation that RPA is a relatively new technology and not all aspects have been exhausted on the topic. Furthermore, RPA is already developing into more complex automation, which is referred to as intelligent automation and hyperautomation. Therefore, even before research is exhausted on the topic of RPA, the technology will have moved on to more advanced levels. The research in Chapter 5 found that a concern from the HR perspective is that there would be a skills gap and this concern is echoed in this limitation of this research in that there may be research gaps between RPA and next generation RPA.

<u>Measuring ROI and Scale</u>

While the research brought to surface best practice around ROI calculation and achieving scale, the researcher observed that there is not clarity on either of the elusive objectives when implementing RPA, if the success measurement criteria are not detailed sufficiently. It is suggested that adhering to best practice certainly provides the best course of action, however there is no one way of calculating and measuring either concept.

The key finding in selecting the right processes is that complex processes employees do not want to perform due to complexity should not be the primary RPA targets.

The higher number of bots does not mean efficient RPA implementation and while RPA promises quick ROI, firms should not rush into implementation without proper due diligence in implementing RPA as a companywide cross functional effort led by CoE and sponsored top-down.

6.5. Recommendations for Future Research (Academic)

It flows from the identified research gap and the general themes stated above that hyperautomation and other AI developments are fields for extensive future academic research. As the AI umbrella expands and becomes more available, an important area for development and research is the HR aspect of managing integration of AI in the workplace, along with change management best practice to implement speedy developments. The HR model needs to be robust to attract and maintain talent by providing upskilling and reskilling opportunities which will need to address the evolution of CoE's. Change management models to accommodate this growth in a controlled environment adhering to security protocols will need to be developed. Additionally, as demonstrated in this research, in a short time period, the focus on RPA success measurement shifted away from pure ROI calculation to measuring and achieving adoption and scalability. RPA implementation and research with findings in best practice for adoption and scalability are areas that need to be researched academically as well as practically. The RPA service provider landscape is changing almost as fast as the technology changes, which results in another area for further analysis; as future generations of RPA are driven to market, either as a result or as a trigger, there are many mergers and acquisitions in the service provider landscape. These developments are geared to enhancing customer experience (CX), customer satisfaction, ultimately resulting in customer retention.

In summary further areas for research are:

1. Next generation RPA: There are many new terms and acronyms that develop daily related to RPA or related automation in one way or other. RPA is definitely viewed as the starting point for future automation efforts. In an article, it is stated that RPA will most likely become the main automation platform in 2020: "Just as YouTube became the focal point for video content, RPA could become the central automation repository… This trend is expected to significantly simplify and expand the overall use of RPA" (Botha, 2020).

2. RPA and CX: While there are budding research and some evidence that RPA directly contributes to enhanced client experience, further study on this is required to definitively judge its direct contribution and to measure the impact on this aspect alone.

3. Adoption and Scalability: There are a plethora of use cases and it is accepted worldwide that RPA is a "must have" technology, however the success rate of the user cases does not measure up to the "hype". It appears that RPA being non-invasive and easy to implement creates mismanaged expectations. As these expectations become more realistic, there needs to be further study into adoptability and scalability of RPA to more accurately measure these factors and increase them.

4. Governance: The importance of an effective CoE has been thoroughly evidenced. The governance and operational maintenance of the CoE as it develops alongside the evolving RPA technology is an area for further research. As RPA is adopted across a company, keeping the adoption controlled while aiming to achieve scalability initially, can be perceived as competing factors.

5. Role of HR: HR will play a more involved role in terms of talent acquisition in face of the change in demographics, as the upcoming generation will be looking for stimulating work and not be attracted to manual work. HR will need to manage talent acquisition and furthermore talent retention via upskilling and reskilling the human workforce who face job loss, due to their tasks being automated. HR will also need to effectively address any fears and concerns around this sensitive topic, HR need to address the fear of more work as well as fear of job loss. Additionally, HR will need to develop models in managing the digital workforce alongside the human workforce – the augmented workforce.

It is the belief of the researcher that the above areas are paramount in further understanding RPA implementation and impact. Overall Conclusion of the dissertation

The core research question in this dissertation was:

> *Is RPA the right automation tool to be implemented in CSG to support the IM firm in its digital transformation journey?*

The secondary research questions facilitated the structure of the research, embedded within three objectives which were to investigate (i) the current status of CSG and then (ii) to critically evaluate if RPA would yield results and (iii) a desired future state of CSG. The three objectives of Chapter 1 formed the basis for the three pillars of this research.

A systematic analysis through a set of interviews held across MIM participants and RPA experts, combined with field research allowed the researcher to conduct a case study in which the BLCP framework was established. This framework addresses the collective information available to effectively identify the benefits, limitations, challenges and best practice to overcome these challenges.   Through adherence to this framework, an effective RPA implementation for MIM CSG can be achieved and is in line with the company wide digital transformation efforts of the wider organization.

Based on the key findings, it is evidenced that RPA is the right automation tool for MIM CSG, and it is in fact in alignment with the overall digital transformation journey of MIM.

The key emergent themes demonstrate that RPA is a new and constantly evolving technology, and it is imperative to get RPA implementation onboarded sooner rather than later in order to remain competitive in lock step with the advancement of technologies. RPA, in a way, is the first layer of infrastructure that will allow companies and MIM CSG, to develop further during their digital transformation journey.

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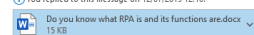
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Appendixes

Appendix 1 – MIM Participant Interview Questions

KL Keith Luo <Keith.Luo@uws.ac.uk>
To Hizir, Zeynep

Fri 12/07/2019 09:32

DBA

You replied to this message on 12/07/2019 12:10.

W Do you know what RPA is and its functions are.docx
15 KB

I have attached my edited version to this mail for your consideration.
Good luck!
Keith

From: Hizir, Zeynep <zeynep.hizir@metlife.com>
Sent: 11 July 2019 15:27
To: Keith Luo <Keith.Luo@uws.ac.uk>
Subject: RE: Re: Zeynep's annual review files attached

The source of this email is EXTERNAL to UWS
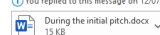
Thank you Dr. Luo –
It was a very productive meeting:

These are the questions I intend to ask internally to users – please if you could comment when you can…I will also work on questions for the vendors. Then I intend to overlay the outcomes with existing research to clarify gap in order to propose a change management solution.

1- Do you know what is RPA is?
2- What is your interpretation of automation?
3- When you think of your day-to-day process flows, how many of your daily tasks can be automated?
4- Can you think of any other alternatives outside of automation - such as improving data points or process flows?
5- Assuming the tasks that you described suitable for automation were automated, what difference will this make in your day to day worklife?
6- Assuming the tasks you wished to be automated were automated, what value-add do you perceive automation will have on your day to day job?
7- Do you foresee any regulatory, financial, operational or reputational risk if automation does not take place?
8- Do you foresee any regulatory, financial, operational or reputational risk if automation does take place?
9- Do you know who to approach should you wish to automate any of your day to day processes?
10- Would you like to learn about how to automate tasks yourself without having to go to receive approval from manager/IT?
11- If your proposed tasks were automated, do you feel threatened that you would lose your job?

Warm regards,
Zeynep

Appendix 2 – RPA Expert Interview Questions

KL Keith Luo <Keith.Luo@uws.ac.uk>
To Hizir, Zeynep

Fri 12/07/2019 13:26

DBA

You replied to this message on 12/07/2019 13:50.

W During the initial pitch.docx
15 KB

Again, I have made some technical changes. But please feel free to edit it as you see fit.
Best wishes
Keith

From: Hizir, Zeynep <zeynep.hizir@metlife.com>
Sent: 12 July 2019 12:10
To: Keith Luo <Keith.Luo@uws.ac.uk>
Subject: RE: Re: Zeynep's annual review files attached

The source of this email is EXTERNAL to UWS

Dear Dr. Luo,
Thank you very much for your comments!
Here are my vendor related questions – please may you review and comment when you can?

1- During the initial pitch, do your prospective clients know what RPA is and its functions?
2- Where does your pitch receive interest, what convinces potential clients to sign on to RPA?
3- Of the clients you interact with, in your opinion, what is the general view/understanding of RPA?
4- What are the concerns clients voice?
5- What are top five requirements for a successful implementation of RPA?
6- What are top five challenges facing implementation of RPA?
7- Do you foresee any regulatory, financial, operational or reputational risk if automation does not take place?
8- Do you foresee any regulatory, financial, operational or reputational risk if automation does take place?
9- What is a successful Center of Excellence model? Should it be centralized or de-centralized?
10-   What happens after the first implementation, how do you monitor the continuous improvement?
11-   Can you please speak about pricing in general terms, it appears that Cost/Benefit analysis is an impediment, what is your approach?

Zeynep

The field research events, and the findings are presented below:

Code	Organizer	Event Type	Name of Event	Date	Duration
E1	University of Chicago/Chicago Booth London Campus	Event	Labor Market Robot Apocalypse?	21-Feb-18	120 min
E2	Cutter Associates	Live webinar	Robotic Process Automation (RPA) - Practical Applications in Investment Management	31-May-18	90 min
E3	University of Chicago/Chicago Booth London Campus	Event	The Stir: People and Machines Working Smarter Together	03-Jul-18	240 min
E4	MetLife	Event	2018 EMEA Recognition Programme: Digital Transformation	10-Sep-18	Workshop
E5	AI IA	Live webinar	AI Live Global 2019	2-4 April 19	2 days
E6	The Outsourcing Institute with The Institute for Robotic Process Automation and Artificial Intelligence	Event	Digital OAISS – London, Countdown to 2020 - The Tipping Point	04-Jun-19	180 min
E7	Amistat	Event/speaker and panellist	Client Onboarding: Digital-First Banking for Digital-First Customers 2019	17-18 Jun 19	2 days
E8	Point B	Live webinar	The Future of RPA, Robot Assistants or Robot Apocalypse?	26-Jun-19	45 min
E9	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Recruitment Market Report - Webinar	27-Jun-19	60 min
E10	Understanding Deep Process Automation & How it Helps Scale RP	Live webinar	Understanding Deep Process Automation & How it Helps Scale RP	30-Jul-19	60 min

Code	Organizer	Event Type	Name of Event	Date	Duration
E11	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	The Mid-Market RPA Journey: Empowering Your Employees through RPA Adoption	10-Oct-19	60 min
E12	HelpSystems	Event	2019 RPA Global Tour - London	06-Nov-19	180 min
E13	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Breaking Through the Digital Ceiling – A showcase for women driving change in Intelligent Automation	14-Nov-19	60 min
E14	Shared Services and Outsourcing Network	Event	4th Annual Intelligent Automation	Nov 25-27, 2019	360 min
E15	UiPath	Live webinar	Scale RPA with the right COE and Process Selection	28-Nov-19	60 min
E16	The Institute for Robotic Process Automation and Artificial Intelligence	Live webinar	Move Past Roadblocks and Successfully Scale RPA in Your Organization	05-Dec-19	60 min
E17	Gartner	Live webinar	Live webcast: Gartner Predictions for RPA and Intelligent Automation	05-Dec-19	60 min
E18	The Institute for Robotic Process Automation and Artificial Intelligence	Event	IRPA AI Summit	11-Dec-19	180 min
E19	Kofax	Webinar	Ignite Enterprise Automation Initiatives & Secure the Digital Workforce	05-Mar-20	60 min
E20	Amistat	Event/speaker and panellist	2nd Annual Client Onboarding Directors Forum for Banking	02-03 Mar 20	2 days

MetLife

Navigating life together

FUTURE TRENDS AND APPLICATION OF RPA IN INVESTMENT MANAGEMENT CLIENT SERVICES

Zeynep Hizir

Client Services Group

June 2019

Agenda

FUTURE TRENDS AND APPLICATION OF RPA IN INVESTMENT MANAGEMENT CLIENT SERVICES

1. MetLife Investment Management & CSG

2. RPA

3. Future Trends

MetLife CLIENT ONBOARDING: DIGITAL-FIRST BANKING FOR DIGITAL-FIRST CUSTOMERS
Conference June 2019

MetLife Investment Management

MetLife Investment Management ("MIM") is MetLife, Inc.'s institutional management business.

$605.6 Billion of Total Assets Under Management[1]

Why MetLife Investment Management

- Over 100 years of investment experience
- Parent company (MetLife, Inc.) is ranked #43 on the 2018 Fortune 500® list[2]
- Tenured senior investment team
- 900 investments employees globally across 20 countries[3]
- Deep fundamental research and underwriting
- Sophisticated risk management modeling and stress testing processes
- Expertise across major asset classes and global markets
- Diverse investor base including insurance companies, corporate plans, public and private pension plans, endowments, foundations and sovereign wealth funds
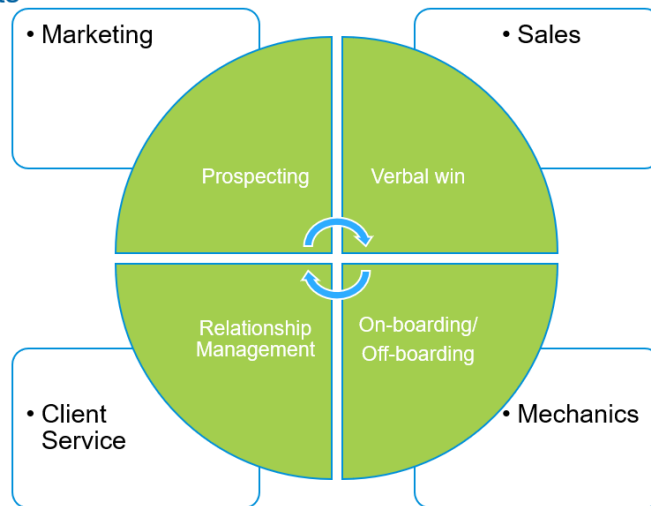
[1] As of 03/31/19. Includes all assets managed by MIM. See Total Assets Under Management fact sheet for non-GAAP financial information, definitions and/or reconciliations.
[2] As of 2018. Fortune 500 is a registered trademark of Time, Inc.
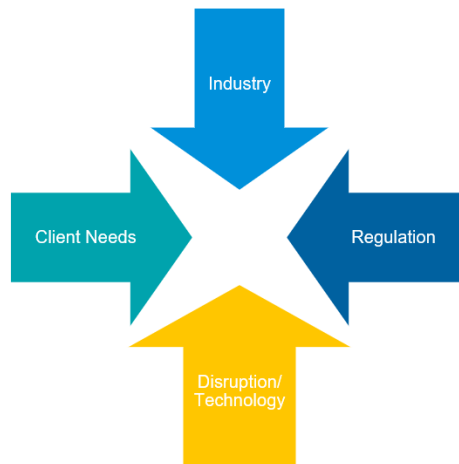[3] Does not include support staff.
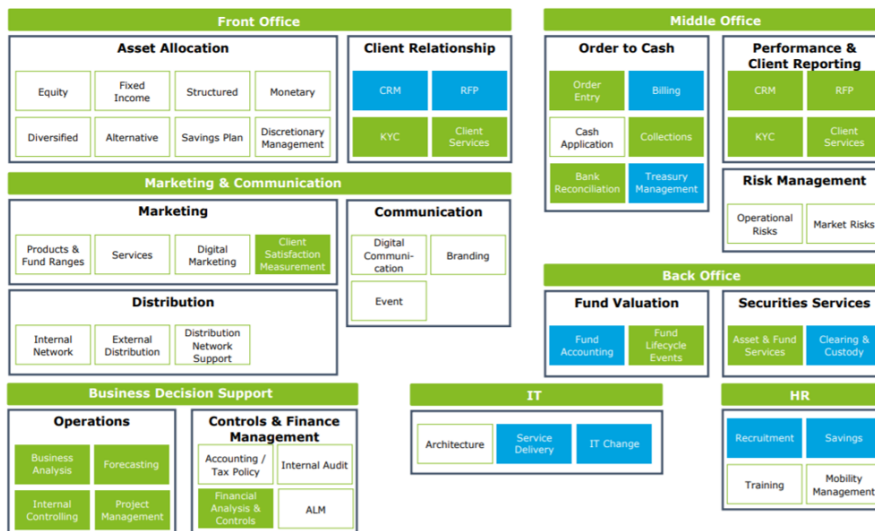

Client Journey

Institutional Clients

- Marketing
- Sales

Prospecting | Verbal win

Relationship Management | On-boarding/ Off-boarding

- Client Service
- Mechanics

RPA

Quick Glimpse & RPA Market

RPA – Robotic Process Automation

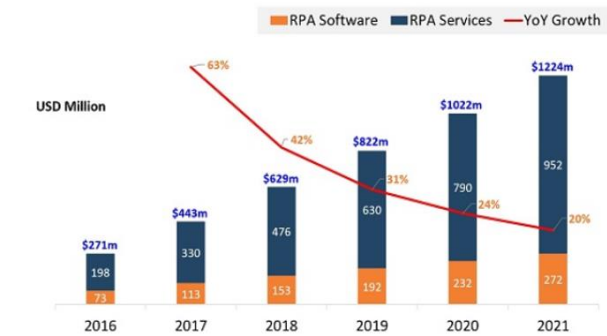• Robot: Czech word, *robota,* meaning "forced labor"

AI & IA – Artificial Intelligence & Intelligent Automation

• Combining RPA and AI produce IA

BPO – Business Process Outsourcing

• Simple repetitive task that have been moved offshore

• Ideal candidates for RPA

Global Robotic Process Automation (RPA) Market, 2016-2021

Source: HfS Research 2017

© 2017 HfS Research Ltd.
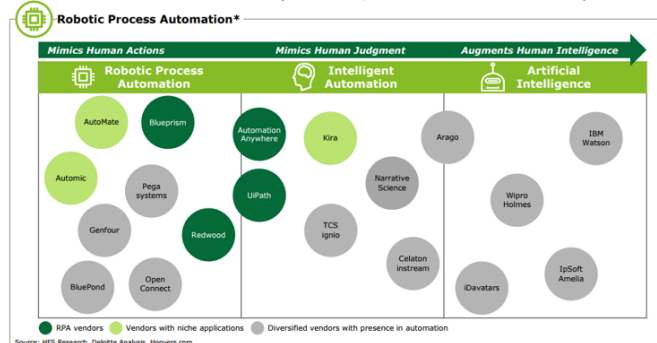

RPA Vendor Landscape & Selection

DIY – Partnership – BPO

Robotic Process Automation – Vendor landscape

The RPA vendor landscape is highly fragmented with no clear market leader. Some are focused only on RPA, others have a diverse portfolio

(Image source Deloitte, 017)

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Automation Suitable Tasks

Manual task transformation into the digital world

The principles of RPA

Rules-based processes

Highly repetitive processes

Multi-step processes

Manual processes

Image Source Sopra Steria

Types of Automation[1]

Baseline understanding of automation

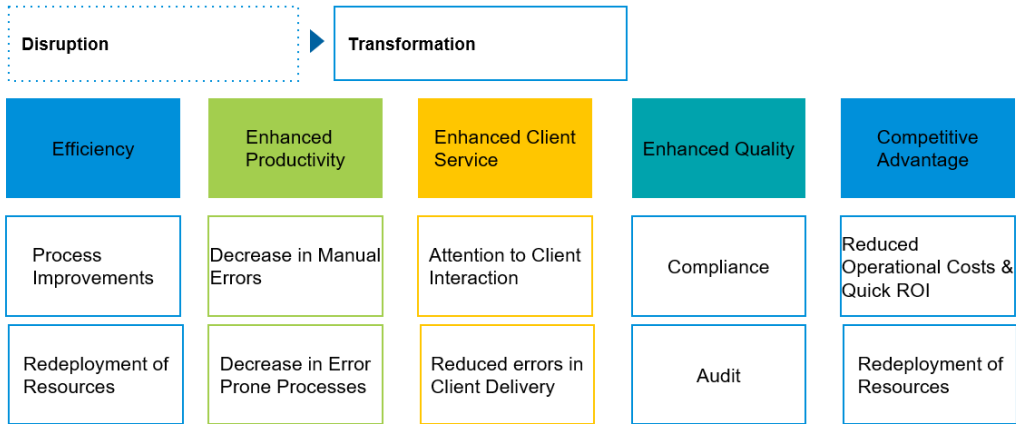|	
Office Automation	Evolution of End User Computing (EUC)
Attended Automation	Augment EUC processes (aka RDA)
Unattended Automation	No human interaction (MIM CSG first RPA task)
Virtual Assistants	Chatbots – Alexa, Siri (NLP)
Artificial Intelligence	AI + RPA = IA

[1] Based in Digital Workforce by Bob King

RPA Benefits

Moving from Tactical Solutions to Strategic Solutions Faster

| Disruption | ▶ | Transformation |

Efficiency	Enhanced Productivity	Enhanced Client Service	Enhanced Quality	Competitive Advantage
Process Improvements	Decrease in Manual Errors	Attention to Client Interaction	Compliance	Reduced Operational Costs & Quick ROI
Redeployment of Resources	Decrease in Error Prone Processes	Reduced errors in Client Delivery	Audit	Redeployment of Resources

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RPA Challenges & Solutions

Successful RPA Ingredients & CoE

Build the team & Foster Environment

One team, one dream!

Strategy, Mission & Vision

Governance & Communication
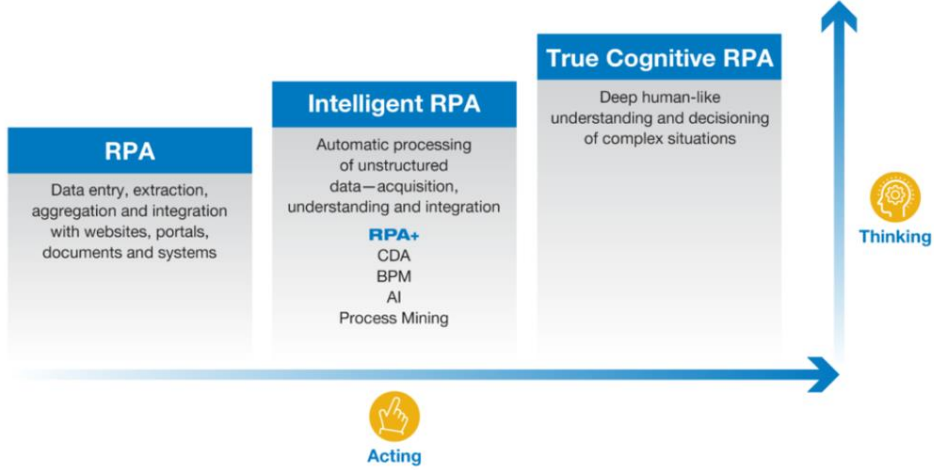
Control Framework

Continuous improvement

Scaling & CoE

Past the POC

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Future Trends

Intelligent Automation[1]

Increasingly Intelligent RPA

RPA
Data entry, extraction, aggregation and integration with websites, portals, documents and systems

Intelligent RPA
Automatic processing of unstructured data—acquisition, understanding and integration
RPA+
CDA
BPM
AI
Process Mining

True Cognitive RPA
Deep human-like understanding and decisioning of complex situations

Thinking

Acting

MetLife [1] Image Source: Robotic Process Automation (RPA): Past, Present and Future, Kofax
https://www.kofax.com/Blog/2018/august/robotic-process-automation-rpa-past-present-and-future

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Thank You!

Please feel free to contact me for any queries!

Zeynep Hizir

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Officer
CommerzBank

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Managing Director -
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mBank

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Netherlands

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