The Case for Robotic Process Automation (RPA)

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1. What is Robotic Process Automation (RPA)?

Robotic Process Automation (RPA) is the automation of back and front office processes that are largely rules based, structured, and repetitive. The automation takes place when software "robots" (not physical robots) carry out processes or tasks normally completed by humans.

Process automation software has been around since the turn of the century but it has recently had a positive injection with a new label added to its name: "robotic". This name change has modernised and linked the business case for RPA to head-count savings. The software vendors of RPA have positioned their software as a headcount saving and have priced their software on the higher end of software, but on the lowest end of hiring a human employee.

The name change has also positioned RPA within the wider context belonging to the next wave of digital disruption. As outlined in previous research[1] the technologies of robotics and AI will play an integral role in what has now been termed by economic authors as the Fourth Industrial Revolution.[2]

The adoption rate of RPA has been gaining momentum over the past two to three years largely due to the increasing attention it has received from tier one consulting firms, and from the increase in IT vendors providing RPA solutions and delivering more sophisticated software.

Our research into RPA identifies how an organisation could benefit from this software and more importantly what strategic and tactical actions need to be taken to successfully implement an RPA solution. Our goal was to identify the business case that would resonate well with C-level decision makers in a business. The primary aim of this paper is to provide C-level executives with key information about RPA to make an informed decision on how to

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[1] The paper titled: Technological Tsunami to Change CX" – Kinetic Consulting Services 2015

[2] The term was first used in 2011 at the Hannover Fair.[In October 2012 the Working Group on Industry 4.0 chaired by Siegfried Dais (Robert Bosch GmbH) and Kagermann (acatech) presented a set of Industry 4.0 implementation recommendations to the German federal government.

proceed based on their readiness to introduce a digital workforce into their organisation.
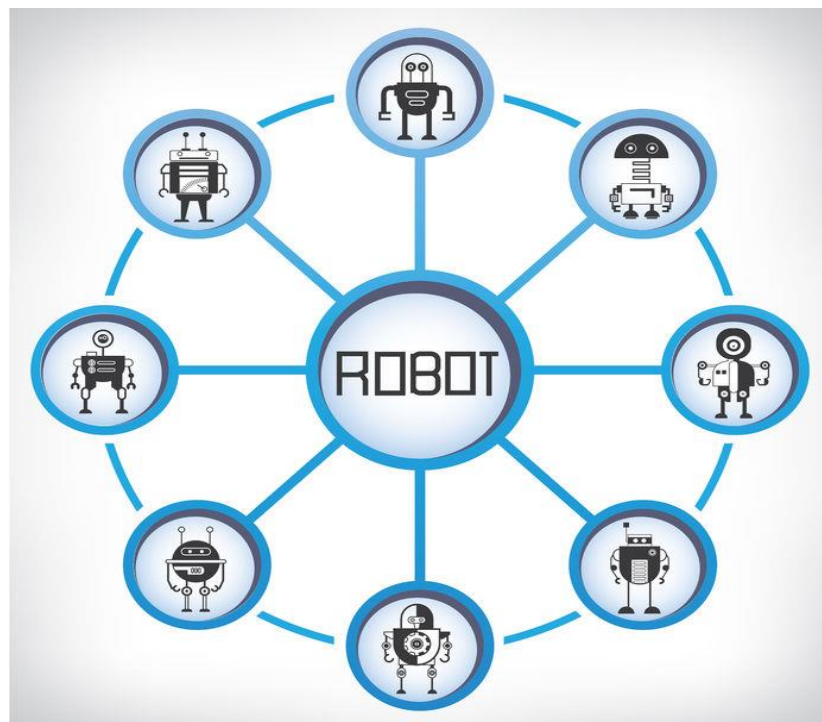
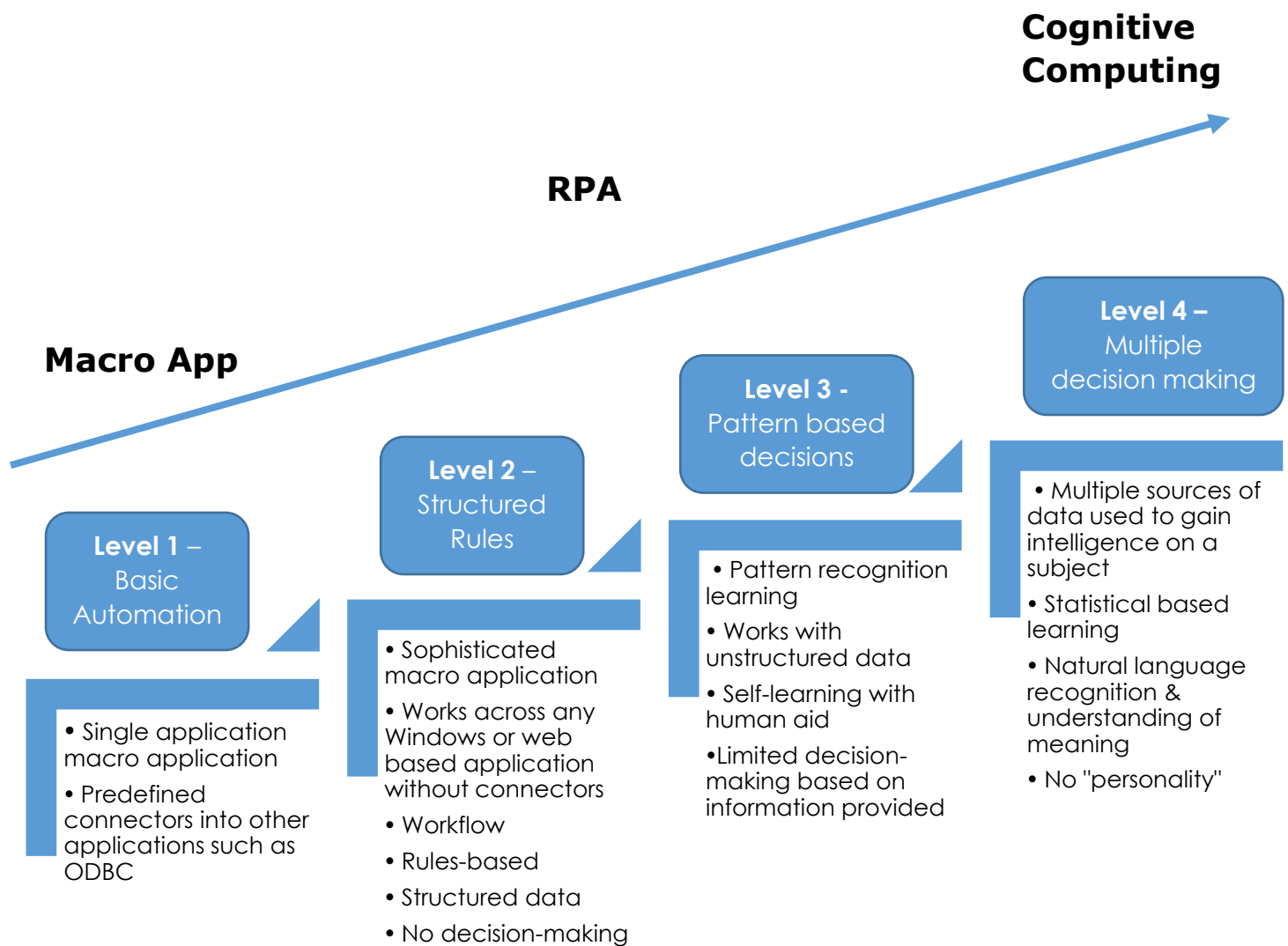## 2. Understanding the Spectrum of RPA Technology

The technology reviewed can best be broken down into four key categories. Each category measures the software on four key functional dimensions. The key dimensions defining the software vendors is as follows:

1. **Data**: The level of sophistication in dealing with business data (structured or unstructured);
2. **Type of Tasks predominately performed**: tasks are either rules based or require knowledge from multiple sources to complete the process.
3. **Interoperability**: working across multiple applications (single application or multiple applications and platforms), and;
4. **AI**: The level of artificial intelligence provided by the application (none, machine learning based on pattern recognition and statistics, or emerging true AI).

The four dimensions enable us to place the software vendors into common groups. The range of vendors is based on the types of tasks performed, the applications they can access and the level of cognitive computing offered. Each vendor claimed the ease of implementation as a differentiator, but this dimension was excluded in the current evaluation as we were unable to validate enough implementations to confirm their positioning.

The diagram below provides the key characteristics of each level:

Cognitive Computing

RPA

Macro App

Level 1 – Basic Automation

Level 2 – Structured Rules

Level 3 - Pattern based decisions

Level 4 – Multiple decision making

• Single application macro application

• Predefined connectors into other applications such as ODBC

• Sophisticated macro application

• Works across any Windows or web based application without connectors

• Workflow

• Rules-based

• Structured data

• No decision-making

• Pattern recognition learning

• Works with unstructured data

• Self-learning with human aid

•Limited decision-making based on information provided

• Multiple sources of data used to gain intelligence on a subject

• Statistical based learning

• Natural language recognition & understanding of meaning

• No "personality"

The vendors researched were classified into the four levels using the dimensions outlined. Although we identified four categories we don't believe any vendor was able to demonstrate true artificial intelligence i.e. a program that had intelligence capable of reasoning, knowledge, planning, learning, natural language processing, perception, and the ability to move and manipulate objects.[3] There are a number of key organisations such as Google and IP Soft making major inroads into creating a true AI but at this stage there is no commercial application in the marketplace

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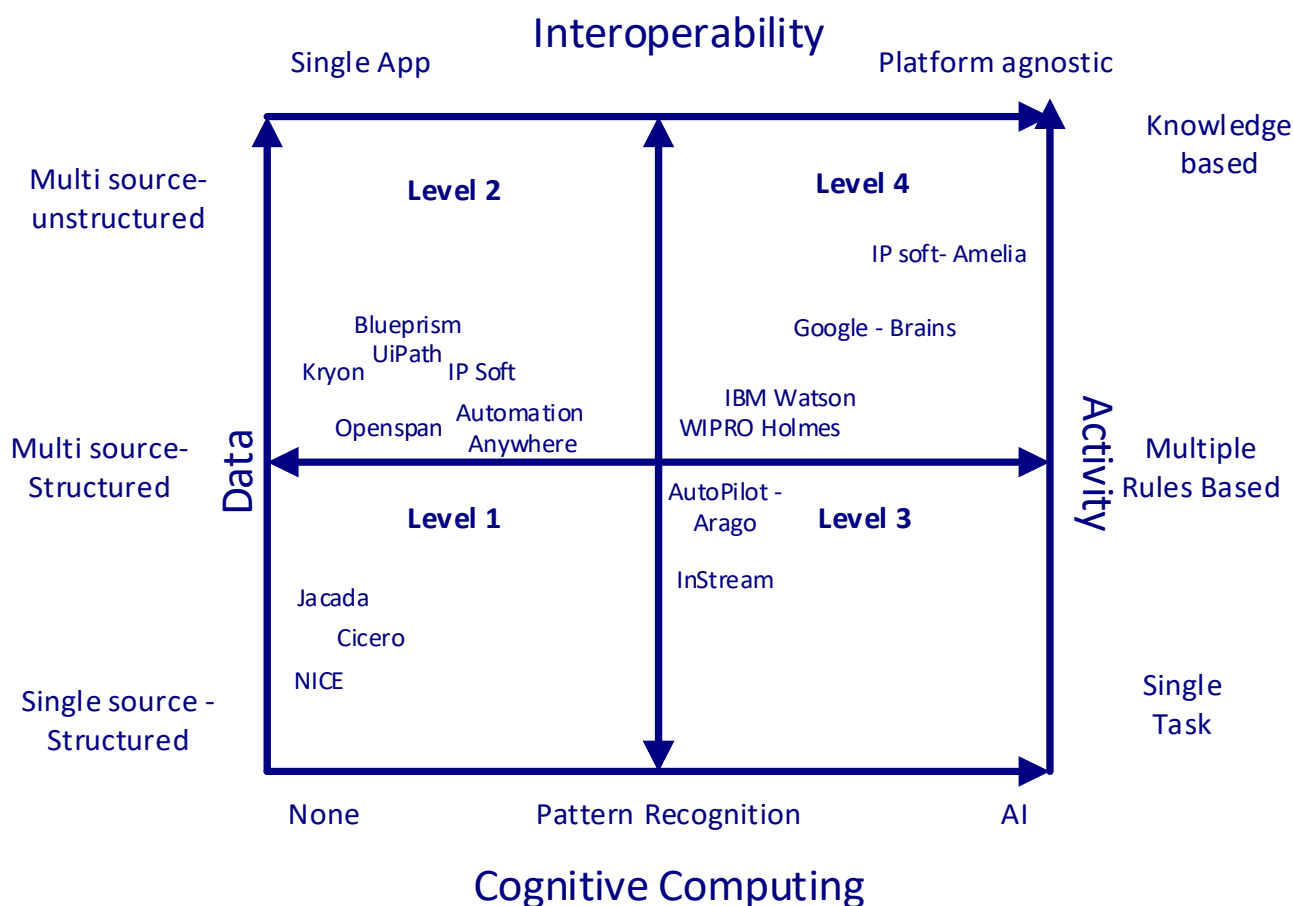[3] This list of intelligent traits is based on the topics covered by the major AI textbooks, including:

- Russell & Norvig 2003
- Luger & Stubblefield 2004
- Poole, Mackworth & Goebel 1998
- Nilsson 1998

Ultimately, true AI will become a reality and once this occurs we would classify this into a fifth category. For this research we have identified AI as mostly machine learning using fuzzy logic algorithms and statistical probability as the basis to make 'intelligent' decisions when completing a business process requiring human-like decision-making. The latest release of "Amelia" by IP Soft is the closest we have seen to a commercial application of AI able to replace front office workers in a Contact Centre.

Outlined below is the grouping of the key vendors into the four levels of based on the dimensions identified:

Interoperability

| Single App | Platform agnostic |

Knowledge based

Multi source-unstructured

Level 2

Level 4

IP soft- Amelia

Blueprism
UiPath
Kryon   IP Soft

Google - Brains

Openspan   Automation
            Anywhere

IBM Watson
WIPRO Holmes

Data

Activity

Multi source-Structured

Multiple Rules Based

AutoPilot -
Arago

Level 1

Level 3

InStream

Jacada
    Cicero
NICE

Single Task

Single source - Structured

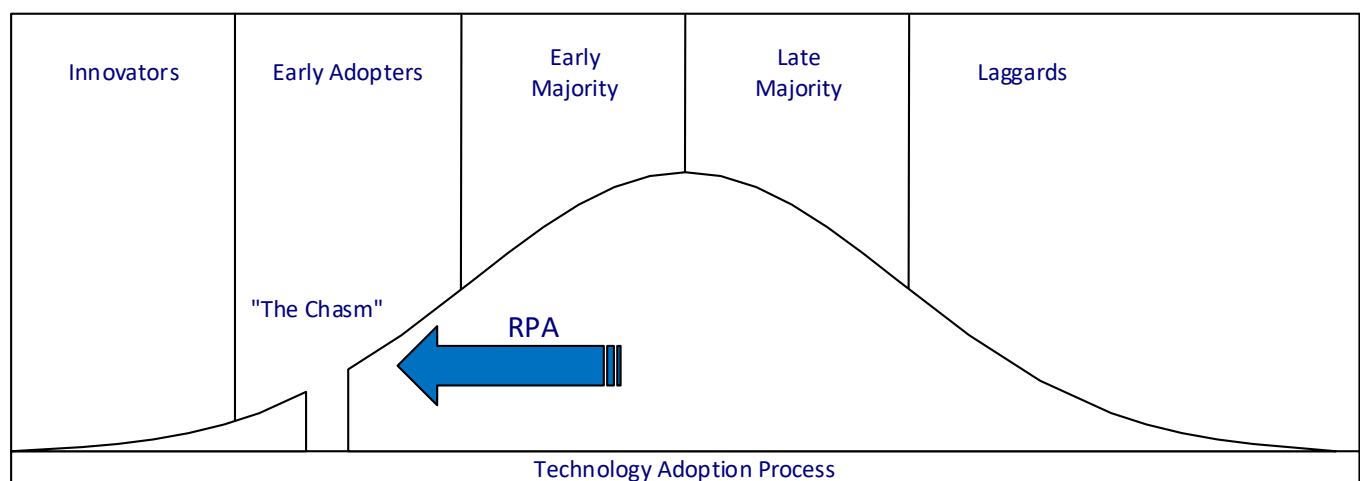| None | Pattern Recognition | AI |

Cognitive Computing

Most of the technology vendors for RPA are sitting around the level two category. This category is well aligned with the current adoption rate of a digital workforce by organisations. The momentum has increased around level two automation in countries such as the US, UK and Australia. We will provide some examples of companies and their adoption of this software later in this paper.

We anticipate that as acceptance of a digital workforce increases, so will the adoption of automation in the organisation increase. It's inevitable that we begin to see level four implementations of RPA making the evolutionary step from a "dumb" software robot to cognitive based computing. This automations will offer levels of artificial intelligence and value-add to the processes by increasing the level of analytics and predicting business outcomes in a more insightful and commercially useful manner.

Our focus in this paper will be to outline how the level two vendors of RPA software are able to deliver value to an organisation. Our aim is not to exclude the value propositions of vendors offering cognitive solutions (level 3 and 4). Our attention around level two solutions is largely based on where we believe the majority of the Western marketplace currently to be in terms of adoption of RPA in the enterprise.

Based on our research[4] we concluded that RPA is emerging out of "the chasm"[5], and in terms of adoption stages, 2016 will be the year of 'Early Majority' adoption of the technology. We expect the Early Majority will be focused on automating low-value repetitive tasks currently outsourced or conducted in-house.

| Innovators | Early Adopters | Early Majority | Late Majority | Laggards |

"The Chasm"

RPA

Technology Adoption Process

Knowledge based work will also be replaced by cognitive computing but this will be by Innovators and Early Adopters at this stage. The majority will start applying RPA in their organisations to low value tasks before they take on board replacing humans with higher value knowledge based work. We believe the opportunity to introduce "Amelia" type AI into the front office has significant benefits for the organisation and should not be overlooked when putting the case for RPA.

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[4] Research included direct contact and review of key level 2 vendors, research reports from Deloitte, KPMG, Capgemini, HfS Research, case studies from The Outsourcing Unit, London School of Economics and Political Science, & Mindfields consulting.

[5] Geoffrey A. Moore conceived the notion of "Crossing the Chasm". According to Moore, the marketer should focus on one group of customers at a time, using each group as a base for marketing to the next group. The most difficult step is making the transition between visionaries (early adopters) and pragmatists (early majority). This is the chasm that he refers to.

3. Which Processes for RPA?

Some processes will be better suited to RPA than others. The general characteristics of a process which is ready for robotic process automation would be:

- repetitive and rules based
- accesses structured data sets
- utilises applications on a Windows or Web based platform
- the process is documented and has been standardised in practice
- three or more staff are hired to complete the process
- data input is prone to human error

Level two technology providers are focusing more on back-office processes that have been typically outsourced to offshore locations partially because of the benefits of labour arbitrage and partially because they are considered of low-value. Although of low strategic value they are processes that are necessary in daily operations of the business. Typical processes currently being managed by an RPA solution[6] include:

Finance & Banking

- New account verification
- Data validation
- Customer account management
- Financial claims processing
- Report creation
- Form filling
- Change of address
- Loan application processing

Insurance

- Claims processing
- New account creation

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[6] Examples provided by Automation Anywhere (RPA vendor)

Telecommunications

- Collection & consolidate customer data from client phone systems
- Backing up information from client systems
- Uploading data
- Transferring customer data between applications
- Extracting data about competitor pricing

Healthcare

- Patient data migration and processing
- Reporting for doctors
- Medical bill processing
- Patient record storage

Retail

- Automatically updating online inventory & product information
- Importing website orders and email sales into back-end systems

Government

- Verification process
- Populating forms and assigning sub-contractors to jobs
- Integrating legacy systems with newer systems

Internal departments of organisations are also able to benefit from RPA. Some of the key processes well suited for RPA include the following:

Finance/Accounting

- Invoice processing
- Accounts payable and accounts receivables
- Reporting
- Bank reconciliation
- Fixed assets analysis
- Master data management
- Vendor and customer account creation
- ERP logging from another system

HR

- Employee on-boarding
- Leave of absence management
- Populating employee data into multiple systems
- Performance appraisal management

IT

- Creating new accounts
- Software installations and updates
- Batch processing
- Printer set-ups

The list of processes that can be automated does not always require high volume of work to justify the business case. Software based robots can be multi-skilled and can be shared in a department to undertake multiple low-value, but essential processes. The utilisation of a shared robotic resource can enable a department or a Global Shared Services centre to focus their time on higher value tasks that are more strategic in nature and able to
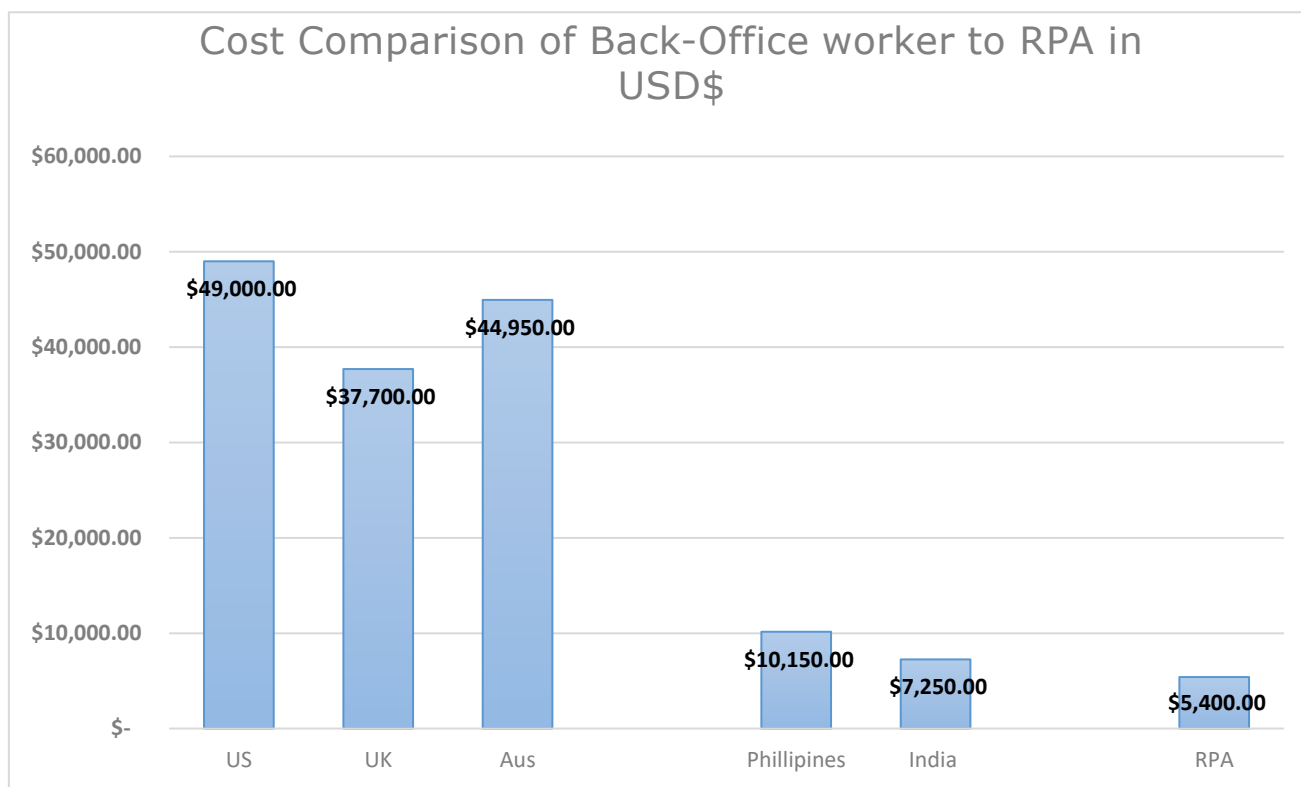
commercially benefit the organisation. For example, a Finance department could have a large team of accountants spending a large portion of their time undertaking manual data entry into multiple systems. The introduction of RPA would free up these resources to perform more knowledge based functions, such as analysis of financial records, and would benefit the organisation more than the data entry work they performed.

4. Commercial Business Case

Organisations practicing ongoing improvement are constantly looking for ways to improve aspects, or all, of their business. Business processes have undergone multiple revisions ranging from mapping, standardizing, reengineering through to outsourcing and transformation. The last main wave related to business processes has focused around the reduction of costs and improvement in outcomes by outsourcing, centralizing and/or creating Global Shared Services centres. The outcome of these initiatives has generated mixed results. Some organisations have been successful in extracting the value from such projects whilst others have had the value eroded due to a range of reasons. Offshoring back office processes to low cost countries such as India and the Philippines, to benefit from labour arbitrage, has been on the agenda for any company seeking to optimise its operations and yield a greater result for their shareholders. Over time this strategy has uncovered some risks which have led organisations to reconsider their offshoring model. Some of the key risks include:

- Higher agent errors than onshore agents
- Data theft risks
- Loss of control of the process limiting improvements
- Higher costs in supervision
- Rising labour costs eroding the cost benefits
- Business disruption due to climatic and political issues
- Fluctuating currencies impacting financial gain

RPA offers organisations the opportunity to take these processes back in-house at a lower cost than currently offered by their outsourced vendors. The cost comparison[7] of RPA versus a full-time equivalent staff is depicted below:

Cost Comparison of Back-Office worker to RPA in USD$

Location	Cost
US	$49,000.00
UK	$37,700.00
Aus	$44,950.00
Phillipines	$10,150.00
India	$7,250.00
RPA	$5,400.00

The cost of a back-office worker, in three similar markets (US/UK/Aus.), reveals that an onshore agent would cost approximately 90% more than an RPA licence. At the same time the RPA solution is approximately 50% cheaper than a Philippines based agent and 34% cheaper than an Indian offshore worker.

Our cost comparison was based on a captive operation in both the onshore and offshore locations. The costs would normally be higher by approximately 35% if a vendor was providing the services to an end client.

The cost comparison has included the following components:

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[7] Cost comparison based on *Payscale* salary comparisons across companies in the BPO sector.

- Labour on-costs of 35%
- Software on-costs of 20%

Our cost comparison is not a detailed one and is only intended for a high level comparison to give the reader a better understanding of the commercial benefits associated with RPA. A more detailed comparison should include the following costs:

- Support staff
- Attrition
- Hiring
- Training
- Vacant real estate & utilities
- Agent errors

These components need to be taken into consideration when presenting the case for RPA because unlike a human agent, the digital robot does not:

- Make the same amount of errors as a human
- Call in sick
- Work only one shift
- Need to take breaks
- Resign from work because they are "seeking career advancement"
- Have holidays
- Need refresher training
- Cause HR issues
- Need physical working space
- Need redundancy payment if no longer viable.

All these components need to be taken into consideration when presenting the commercial case for RPA. Also, it's worth highlighting that any commercial case for RPA will need to include the following components:

- Initial cost of consulting and establishing the RPA solution
- Ongoing supervision of the digital robots and retraining when processes change

The commercial business case should be enough to ensure RPA is placed squarely on the agenda of most organisations looking to further optimise costs in their operations and enhance the customer experience.

There are numerous other considerations when properly considering RPA in your organisation. Once the commercial benefits are understood and agreed the business case will need to include several other components to properly assess *how* and *if* RPA should be implemented into the organisation. RPA has the potential to transform the operations of an organisation. The impact on the organisation highlights the necessity to include specialist resources. This requirement is validated by the fact that external consultants were always used for the RPA implementations we reviewed.

5. What are the benefits from RPA?

If implemented correctly, RPA can offer wide-reaching benefits to the organisation beyond the obvious cost-saving in human headcount. On the surface it may appear that RPA is about further cost optimisation in the operations of the business. However, this is a narrow and two-dimensional view of the benefits associated with RPA. In our view, RPA has significant potential to enhance the customer experience and help an organisation increase its overall market share by delivering a superior level of service to its customers.

The relationship between RPA and customer experience are closely intertwined. Some of the key facts we know about customer experience for 'on-demand' customers is that they:

- Don't like effort when interacting with an organisation

- Don't like waiting a long time for their services or goods
- don't want false or misleading information
- Want resolutions to their problems without much effort
- Prefer self-service
- Want consistency across all channels
- Like personalisation and contextual communication

Many of the back office functions outlined as examples for RPA have an indirect and direct impact on the customer experience. For example, when highly repetitive tasks are required, humans are prone to errors. These errors could, for example, lead to a delay in a medical claim or an incorrect account name being established. Customers calling a contact centre to enquire about their account are often subjected to the same security questions multiple times as the agent is required to open multiple applications to process an enquiry. This creates frustration for the customer and takes the focus away from the agent delivering a superior customer interaction.

RPA can help elevate the customer experience by making the business process:

- More efficient
- Largely error free
- Faster than the competition can deliver
- Low effort for the customer

This enables the front-line customer-facing human to be able to focus their efforts more on emotional aspects of an interaction by ensuring the customer;

- Receives proper attention
- Is dealt with in a courteous manner
- Receives personalised responses
- Has their needs more fully identified and matched to products and services
- Is able to resolve more complaints on the first interaction (First Resolution rate).

The underlying basis for most substandard customer experiences is rooted in the poor execution of business processes. RPA needs to be identified in the organisation as a measure towards achieving process excellence. The continual improvement attributes of RPA in the business is an integral aspect in devising the business case to stakeholders.

6. Strategic Considerations

The business case for RPA needs to include a number of strategic components to ensure it presents the pre and post implementation aspects of the solution. There are a number of transformational aspects to RPA that also need to be considered.

RPA is often introduced into the organisation as a proof of concept (PoC). The primary aim of the PoC is to demonstrate that the solution works and the value it can provide to the organisation. Once the PoC is completed the larger business case will need to consider such questions as:

- Will RPA augment humans during some processes or replace them entirely?
- Should RPA be led by the IT department or a business focused department?
- What areas of the business could benefit from a digital workforce?
- Which processes are currently standardized and ready for RPA?
- Which processes need reengineering prior to applying RPA?
- How will communication be managed internally about RPA?
- Will you utilise a change management process to implement RPA into the organisation?
- What is the governance model for managing the RPA vendor?
- Will RPA be implemented in conjunction with an existing business process vendor?
- If existing processes are outsourced will RPA enable these processes to be brought back in-house?
- Who and how will the digital workforce be supervised?
- What role will humans play in executing a process largely managed by software robots?
- Will you upskill humans being replaced or make them redundant?
- Are there any union considerations if you intend to make people redundant?
- Will you reduce headcount though natural attrition instead of redundancy?
- How will you communicate to the public and shareholders your initiative?

These questions should be answered or at least considered when completing the business case. Once the business case has been completed and approved the underlying requirements for the procurement of the RPA vendor should be largely complete. This should make selection of the RPA vendor less complicated.

7. RPA as an Innovation Initiative

The virtues of innovation as a means to achieving competitive advantage in the marketplace have become one of the well accepted pillars of corporate success. Innovation has remained on the boardroom agenda of most progressive organisations. CEOs are constantly told to innovate and to do more with less.

RPA fits nicely into the boundaries of an innovation initiative that meets the desired business outcomes most favoured by a board of directors and shareholders. RPA has been identified as an enabling technology contributing to the 'Fourth Industrial Revolution'.

The Fourth Industrial Revolution is characterised by the degree of digital disruption occurring across multiple industries due to the fusion of multiple technologies. This concept was detailed in our paper titled *"Technological Tsunami to Change CX" (2015)* and was reinforced by a recent article published by the World Economic Forum in January 2016 titled *"The Fourth Industrial Revolution: what it means, how to respond"*. The author, Klaus Schwab, points to what economists Erik Brynjolfsson and Andrew McAfee have highlighted in regards to the impact on labour markets:

 "As automation substitutes for labor across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labor. On the other hand, it is also possible that the displacement of workers by technology will, in aggregate, result in a net increase in safe and rewarding jobs."[8]

The imperative to examine RPA becomes more powerful when it is understood in terms of the wider context. RPA is a significant component in the Fourth Industrial Revolution and should be carefully examined and understood, otherwise the organisation will begin to lose its competitive

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[8] http://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond

advantage because of its inability to capitalise on disruptive innovation quickly.

8. Who is Using RPA?

A number of organizations are already in varying degrees of implementation, ranging from PoC right through to multiple business processes being outsourced and headcount reductions already taking place. The most recent public announcement regarding the use of RPA was the ANZ bank in Australia. For our international readers, ANZ is one of the top four banks in Australia. The case study was published by Mindfields Consulting with permission from the ANZ. The summary of the highlights of the case study is as follows:

- 235 processes automated using RPA
- Types of processes automated include:

    o Transactions investigations
    o Tracing funds
    o Audit certificate
    o Funds disbursements
    o Address change

- Cost saving of greater than 40%
- 20% less FTEs used

Other organisations using RPA include:

- Xchanging (BPO provider)
- Dell
- Google
- Uber
- GM

- Tesco
- Whirlpool
- NASA
- Telefonica UK
- Sopra Steria UK
- Shop Direct
- Armed Forces Bank

This is a partial list of adopters of RPA. The list of enterprises using RPA is expected to grow exponentially over the next five years. Our conclusion of the near future adoption rate is based on the number of tier one consulting organisations currently promoting the value propositions of RPA to their clients.

Our conclusion is that RPA will play a significant role in organisational cost optimisation, and thought leaders will also capitalise on its potential to elevate the customer experience and strategically improve competitive positioning.

What Next?

If you are considering RPA in your organisation and would like to learn about what steps to take or want to know more about the vendors we researched then we would be happy to assist.

Optimal Corporation was founded to deliver unique sales and service Artificial Intelligence solutions. We provide organizations in the Financial Services, Telecommunications and Retail sectors with AI powered solutions Contact us at:

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