Managing the digital workforce
2017
# Contents

The digital workforce 3
Defining the digital workforce 7
Understanding the business case for the digital workforce 8
Establishing your digital workforce 10
  1. The proof of concept 11
  2. Agreeing on operational accountability 11
  3. Choosing a deployment model 12
  4. Establishing automation capabilities 13
  5. Looking out for certain areas 14
  6. Managing the digital workforce 15
Considering the implications for the human workforce 16
Contacts 20
The digital workforce

The digital workforce is a phrase that has recently been coined to describe a variety of robotic and automated solutions for driving productivity efficiencies in the workplace. Some of these technologies are in their early stages of development, while others are coming to maturity and undergoing mass adoption by businesses.

In most cases, the digital workforce will not be a physical embodiment of a digital worker. Rather a virtual robot (software) that will be either working in the background or accessed by consumers and co-workers through a command-based interface.

For businesses, the introduction of Robotics Process Automation (RPA) has allowed substantial reductions in headcount in traditionally highly manual and cost-intensive processes. WorkFusion, an intelligent automation platform, allows clients to have automation rates of up to 60% on some teams, freeing up resources to focus on value-add activities.

For customers, they may be exposed to robots via a chat function on instant messaging (IM) or through a website, however conversational automation (known as natural language processing) is currently undergoing significant development. WeChat is a leading example of successful deployment of chat bots, with a broad range of organisations using this digital capability to reach consumers.

Today’s fast-moving digital economy will reward the early movers that have already commenced their automation journey with brisk movement up the learning curve. As workers learn to interact with robots – a relationship that will become mutually beneficial if developed effectively – we will see greater stability and definition of internal governance in the new digital workforce.

The introduction of the digital workforce for most workplaces is likely to occur in a series of evolutions. These evolutions can be broken down into the following categories, differentiated by the computing complexity of the solution:

- **Evolution 1 – Robotic Process Automation (RPA)**
- **Evolution 2 – Cognitive computing**
- **Evolution 3 – Artificial intelligence**

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**The Automation Solution Spectrum**

Source: Deloitte Research
Robotic Process Automation (RPA) is the most highly adopted automation solution within businesses today as this is the most mature technology solution. The technology enables the automation of repeatable business processes, eliminating lower complexity tasks currently undertaken especially by back office teams.

This frees businesses to augment operational activities to optimise the deployment of costly physical workforces, and to automate interfaces between systems in place of developing more complex APIs.

Simple chat bots and RPA follow a set of defined processes and triggers, creating a very reliable solution but limiting the processes which can be automated using this technology. However, this does not mean they should be overlooked by businesses. We have seen RPA technologies reducing process effort more than 50% deployed within a matter of weeks, making a very compelling business case for the adoption of this technology as a business's first leap into the world of automation.
Moving beyond RPA and chat-bots is the world of cognitive computing. Cognitive computing is the simulation of human thought processes in a computerised model. We interact with cognitive computing solutions every day in our smartphones, as we use predictive text, are fed traffic and weather reports, or interact with digital assistants. Other examples of cognitive technologies include computer vision, machine learning, natural language processing, speech recognition and robotics.

Cognitive computing is set to become the technology that transforms our lives and businesses the most in the next 20 years. Deloitte Global predicts that by 2020 95% of the world’s 100 largest enterprise software companies by revenue will have integrated cognitive technologies into their products.
Artificial intelligence

‘Artificial intelligence (AI) is intelligence exhibited by machines. In computer science, an ideal ‘intelligent’ machine is a flexible rational agent that perceives its environment and takes actions that maximise its chance of success at some goal.’ (Russell & Norvig, 2003)

We are yet to reach the world of true artificial intelligence, defined as a self-aware ‘rational’ computer, and many argue that we will never reach this level of sophistication. However, the use of simple artificial intelligence for the improvement of business processes has already begun. Dai-Ichi Life Insurance, one of Japan’s largest, is set to save up to 140m Yen (1.7m AUD) per year by putting in place an artificial intelligence system that can calculate payouts to policyholders.

Whatever the outcome, it is clear that we need to begin our automation journey now to remain relevant in the future and be able to cope with new AI technology solutions to come.
Defining the digital workforce

Over the next few years, most large enterprises will start exploring how to best deploy robotics solutions into their organisations to commercialise data, simplify consumer interactions and improve customer service, and to drive wave after wave of continuous improvement and quality standards into operational and back office processes.

This mass adoption of robotics, automation, and cognitive computing raises many questions, both ethical and moral, but also in a more practical sense. If current predictions are true, the adoption of RPA alone will see a massive release of people from today’s workforce, comparable to the development during the industrial revolution. History has shown that automation tends to create more jobs than it destroys, as human skills become more critical in monitoring, decision-making, interpreting, and delivering insights to the customers. However, how society will respond to new challenges related to Automation, i.e. the creation of new worker ecosystems, will significantly characterise the developments of the next century.

Within the organisation, automation also poses a series of questions that management needs to address to ensure the business has a cohesive automation strategy, and that the use of automation is optimised and does not create technology complexity which is unmanageable. The following questions must be addressed in the early stages of the automation journey:

This paper aims to look at each of these questions from a business leader’s point of view and begin to provide options for consideration as you begin your automation journey.

- What is the business case for automation, and how does it apply to each part of our business?
- How will automation affect offshoring and BPO arrangements in place today?
- What deployment model is most appropriate?
- Who is responsible for building, and then managing, automation within our business?
- Fix first or automate? How do automation and continuous improvement come together?
- Will the automation capability sit in IT, or within the operational staff?
- How will the interface be managed between the digital and the physical workforce?
- How will our business handle the release of physical employees from today’s way of working, especially as technology and automation continue to advance over time?
Managing the digital workforce

Understanding the business case for the digital workforce

Today, many organisations are yet to begin a serious journey into automation. While early adopters have been experimenting with RPA, most have seen the technology overhead as a distraction, and have continued to employ people, both onshore and offshore, to execute repetitive and manual operations which have not been addressed by enterprise applications.

So, what has changed?
Today, RPA solutions can be deployed in a matter of weeks for a business process, rapidly transforming the pace at which automation can be adopted, and at a cost that eliminates the typical risk profile associated with large scale IT implementations.

A typical mature process can be automated for less than the average cost of a single onshore employee.

Additionally, the depth of capability required to automate is no longer beyond the reach of operational teams, with automation tools able to track and record the activities of a human user, and then turn this into an automated process through simple configuration activities. Support of the automated process is also able to be maintained by operational teams, limiting the dependence on IT for the solution.

Beyond the simplicity of the implementation, there is a range of other benefits which result from automation:

- **Focus on investigations and issue resolution and automate routine tasks.**
- **Achieve scale with a digital workforce complementing existing resources.**
- **Automate time intensive report generation and document management.**
- **Maximise and compound returns by focusing on non-automatable activities.**
- **Increase quality by automating data cleansing and validation, reducing human error.**

Staff satisfaction
Focus on investigations and issue resolution and automate routine tasks.

Process efficiency
Automate time intensive report generation and document management.

Data quality
Increase quality by automating data cleansing and validation, reducing human error.

Scale enabler
Achieve scale with a digital workforce complementing existing resources.

Continuous improvement
Maximise and compound returns by focusing on non-automatable activities.
There are some risks to be considered when embarking on your automation journey, which can, for the most part, be mitigated with effective automation governance. Key risks include:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Description</th>
<th>Suggested mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>One of the golden rules of automation is never to automate a broken process.</td>
<td>Processes and data flows need to be understood, documented and mapped to enable efficient automation.</td>
</tr>
<tr>
<td>Process understanding</td>
<td>There is a risk that organisational understanding of business processes will decline over time.</td>
<td>Develop and maintain documentation of automated processes.</td>
</tr>
<tr>
<td>Automation accountability</td>
<td>Operational accountability for business processes needs to be maintained, to avoid IT being held inappropriately accountable.</td>
<td>Accountability for processes could be maintained with current operational leaders, or centralised under a chief automation officer.</td>
</tr>
<tr>
<td>Automation standards</td>
<td>Without central standards and governance, business units are likely to begin automating on their own to different standards.</td>
<td>Establish an Automation Centre of Excellence (CoE) to oversee automation governance, liaise between the business and IT, and provide subject matter expertise.</td>
</tr>
<tr>
<td>Automation maintenance</td>
<td>There is a risk that underlying platform changes impact automation capabilities.</td>
<td>Plan automation to limit the impact of platform updates and technical changes to minimise the impact on automation. Build operational capability to update automation in response to underlying platform changes.</td>
</tr>
<tr>
<td>Workforce engagement</td>
<td>As the physical workforce is replaced and work activities change there may be a negative response from the workforce.</td>
<td>Early engagement is critical, identifying SMEs and developing training activities. The role of the employee will change – you need to equip your teams for this transition.</td>
</tr>
<tr>
<td>Public perception</td>
<td>There is a risk that the media will sensationalise the ‘rise of the robots’ as the traditional workforce is impacted.</td>
<td>There is an opportunity to use released capacity to expand your business footprint as you innovate with automation and enhance the customer experience.</td>
</tr>
</tbody>
</table>
Managing the digital workforce

Establishing your digital workforce

There are a number of ways to get started with Automation and Robotics. You could task your back office operations leader with rolling it out, or IT. One of your business leaders may decide to lead the charge and volunteer their business unit to get started, or you could engage with a BPO provider to help you begin automating outsourced processes.

Whichever approach you decide to take, there are some aspects which we consider critical to ensuring a successful deployment of automation. These are as follows:

- Start with a proof of concept and engage the leadership team
- Agree on operational accountability for automated processes
- Choose a deployment model
- Establish automation capabilities in the organisation
- Look out for certain areas
- Manage the digital workforce
The proof of concept
Starting with a Proof of Concept (PoC) enables you to work with a Partner to try automation within your business and develop a compelling case which can be used for stakeholder management with business leaders. Additionally, the PoC can be used to engage staff in creating a better and more interesting way of working.

A PoC can be undertaken quickly and with minimal investment. In a recent case we delivered a PoC for a client in four weeks for two business processes. The PoC showed the released efficiency, improved data quality, and gave relevant examples for showcasing with the business leadership to gain commitment and funding approval for moving to the next stages of the implementation.

Agreeing on operational accountability
There is no right solution for who should own automated processes within the organisation. Typically three options are considered when making this decision.

In most cases, the process remains under the control of the business leadership which owned the process before automation. This approach enables the business to maintain operational remit and continuous improvement expertise.

In some cases, companies may consider moving automated processes to automation experts, as is the case for Automation-as-a-service offerings, usually when there is minimal exception handling or continuous improvement requirements.

In rare cases, the business may look to the IT department to take accountability for the automated process, replicating the AaaS offering with in-house teams.

Whichever model you select, it is important to plan this at the outset to construct the appropriate operational support construct during the configuration of the automation, defining roles and performance management.
Managing the digital workforce

Choosing a deployment model

In our experience, businesses are following one of three approaches to structuring their Automation journey: centralised, federated (‘hub and spoke’) or decentralised.

As Automation started to kick-off, implementations have typically been led out of a single business unit, or multiple BUs with differing standards and a fragmented approach in some cases with different Automation vendors which relates to the decentralised approach.

The second and third more mature models which we are seeing clients adopt is the establishment of an Automation Lab or Automation CoE. This approach creates a governance model for Automation, setting standards and developing subject matter expertise within the business to capture Automation opportunities for the business as technologies evolve. This approach is also proven to support the acceleration of benefits capture as scarce resources are prioritised more efficiently. This concept can be set up in two different ways, either as federated – ‘hub and spoke’ or centralised model.

In the federated system, a central team is supporting the business units that drive the Automation using an agile approach and standards established by the central team.

In a centralised model, the central team is driving the Automation journey with all Automation skills held at the centre and provided to the business as a service. This achieves a maximum level of standardisation and leverages learnings across the whole organisation.

All models carry certain advantages and disadvantages (see above graphic for examples) that have to be assessed on an individual basis to choose and shape the right solution for an organisation.

As Automation has matured, we have seen Automation-as-a-Service offerings becoming popular as a variation of the above stated structural approaches, especially with BPO partners providing specialised capabilities and the introduction of transaction based charging models. The central team is replaced in this variation by an AaaS provider. AaaS providers are incentivised to configure Automation in a way that minimises operational overhead, which can be a positive in the long run. However, businesses need to recognise that the AaaS and BPO approaches can see the benefits of Automation sit with the BPO partner, rather than within your organisation.

You also miss the opportunity to build capability in your organisation, while paying for it to be developed by the BPO partner.
Establishing automation capabilities

The majority of IT departments will have an understanding of Automation and hopefully be using some form of Automation within your IT architecture. However, they are unlikely to be familiar with business-led automation, and in our experience, may be nervous about the operational implications of the business creating Automation that they may one day be asked to maintain.

Also, you will be dependent on IT to set up virtual machines and configure user profiles and system access for your robots to operate. Giving IT the opportunity to understand business led Automation and allowing them the time to adjust to a new way of working is a key requirement. They may wish to undertake vendor selection assessments, security impact assessments, and work closely to assess implications for key IT platforms and technical change management processes.

While it is important to engage IT and allow them time to adjust to a new approach to Automation, the key to maximising returns is business led Automation, and long-term we expect that the majority of Automation capabilities will sit within operational teams.

A broad range of capabilities are required to deliver sustainable benefit through RPA and more advanced Automation solutions. These capabilities can be broken down to level 1 and 2 capabilities.

Level 1 capabilities comprise:
- Opportunity Assessment
- Platform Management
- Change Management
- Development and Testing
- Operating
- Governance
- Continuous Improvement and Partner Engagement.

Graphic 2 provides an overview of the level 1 capabilities and their breakdown to more detailed level 2 capabilities. Moreover, the colour code indicates if those activities are typically managed centrally, by distributed teams, by IT or by Learning and Development within organisations.
Looking out for certain areas

There are a few golden rules that we have learnt on our Automation journey.

The first is to establish clearly the process execution path with key stakeholders. This may seem obvious, however, you may be surprised at how many ‘Band-Aid’ fixes are being used every day within the business, not to mention process variations (called shadow processes) being used to overcome barriers. To achieve accelerated Automation, these ‘Band-Aids’ and shadow processes need to be resolved before configuration of the Automation. In some cases, you may decide to adopt the ‘Band-Aid’ approach in the automated process.

Documentation needs to be available for the process. Not so much to complete the Automation itself, though it helps to speed the configuration. This is critical as supporting documentation for operational reference after the process is automated, allowing future changes to be made effectively without disrupting the process.

The change impact of the Automation also needs to be understood. One of the benefits of Automation is to enable scaling of the business without dependence on physical resources. A key impact may be the release of resource capacity, and you need to be ready to redirect these team members. It may be valuable to target business processes which release specific skills which can be redeployed more easily or to meet a critical business need.

In the long run, you will need to provide training for employees in a new way of working with Automation, and put in place mechanisms to appropriately scale the workforce to meet your needs - we cover this in more detail later in the document.

To filter and prioritise candidate business processes for Automation, we recommend establishing a set of prioritisation guidelines which can be easily applied to each process assessing their suitability.

Below we have provided some sample guidelines which we have used in Automation CoE with our clients:

- **Leadership Engagement** – Is there an engaged business owner?
- **Mature Process** – Is there an accurate level 3 process flow and set of task instructions?
- **Established Purpose** – Is there an established benefit driver for automating which aligns with the business imperative?
- **Self-funding** – Does the process involve more than 3 FTEs?
- **SME Access** – Is there sufficient access to process SMEs?
- **System Access** – Can robotics be granted access to the required systems?
- **Prioritisation** – How does this process rank when compared with other candidates?
Managing the digital workforce

Over the long term, managing the digital workforce promises to be a less complex proposition than management is used to today, with the ability to scale quickly, eliminate training for automated tasks, and enable 24x7 operations with no shift allowances needed.

Changing entrenched ways of working is never easy; however, there are some transitions which will need to be made, especially if process ownership is shifting within the business or to an AaaS partner. These can be categorised into 5 key areas:

1. Governance (process ownership)
2. Automation Delivery
3. Automation Performance Management and Continuous Improvement
4. IT Support (VM & User Account Maintenance, Security and Platform Change Management)
5. Partner Management (Risk and License Management).

Structural considerations of these key areas were covered in the previous sections and have to be selected according to the requirements of the targeted organisations and have to be aligned with the current set-up, goals and capabilities of an organisation.

At a business leadership level, Automation will change our way of working, enabling us to make business decisions previously prohibited by investment levels and capacity constraints. There are some levers available to you that you will need to factor into your decision making:

**Scope of oversight** – with a reduction in the management overhead associated with managing a digital workforce, each of your business leaders will have increased capacity to oversee and wider range of business activities.

**Efficiency** – Robots will work somewhere between 5 to 15 times faster than their physical counterparts, 24x7, enabling significant acceleration of cycle times for execution.

Understanding what this enables the organisation to achieve, and refining our ability to make use of this capability will be a key development for business leaders.

**Scaling** – Responding to demand fluctuations by quickly deploying additional machines and instances of robots will enable businesses to capture new opportunities.

**Hiring** – Before hiring any staff, business leaders need to ask whether all aspects of the role that can be automated have been automated.

**Continuous improvement** – continuous improvement efforts will be refocused on business activities that cannot be automated, introducing cognitive computing, improving the ROI for investment made in continuous improvement investments.
Considering the implications for the human workforce

There have been many articles and books written on the changing nature of the work that we do, with some claims stating that almost 40% of jobs today will no longer exist at all (Committee for Economic Development of Australia report). While there is no doubt that many roles will be made redundant by Automation, there are two key points to remember:

This has happened before

Following the agricultural and industrial revolutions, large amounts of blue-collar workers lost their jobs to more advanced technologies that conducted their work at a higher rate and a lower cost.

However, what we also saw was that the introduction of these new technologies resulted in an increase in jobs overall, as we were able to produce more for less. Ultimately this meant more goods and services available to a larger group of recipients, increases in health and wellbeing due to the improvements in clean technologies, and more leisure time, which replaced the time spent on gathering food and water for our intrinsic need for survival.

There is no evidence to suggest that the overall outcome of the Automation revolution will provide a completely different outcome in comparison to other disruptive changes in the past.

If you don’t adopt Automation, your cost base will be dramatically higher than your competitor’s

This one is self-explanatory, however is the most important short-term consideration to be made by companies. The longer companies wait to implement Automation practices, the more time their competitors will have to get ahead of the curve, and ultimately provide more attractive and cheaper products to their customers.

So, how will we work in the future?

In an article by Frey and Osbourne, the authors identified 3 areas of challenge for computerisation: Perception and Manipulation, Creative Intelligence, and Social Intelligence.

The following table outlines the variables that are likely to experience a technology ‘bottleneck’ as cognitive computing advances:
<table>
<thead>
<tr>
<th>Computerisation bottleneck</th>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception and manipulation</td>
<td>Finger dexterity</td>
<td>The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects</td>
</tr>
<tr>
<td></td>
<td>Manual dexterity</td>
<td>The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects</td>
</tr>
<tr>
<td></td>
<td>Cramped work space and awkward positions</td>
<td>How often does this job require working in cramped work spaces that require getting into awkward positions?</td>
</tr>
<tr>
<td>Creative intelligence</td>
<td>Originality</td>
<td>The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem</td>
</tr>
<tr>
<td></td>
<td>Fine arts</td>
<td>Knowledge of theory and techniques required to compose, produce, and perform works of music, dance, visual arts, drama and sculpture</td>
</tr>
<tr>
<td>Social intelligence</td>
<td>Social perceptiveness</td>
<td>Being aware of other's reactions and understanding why they react as they do</td>
</tr>
<tr>
<td></td>
<td>Negotiation</td>
<td>Bringing others together and trying to reconcile differences</td>
</tr>
<tr>
<td></td>
<td>Persuasion</td>
<td>Persuading others to change their minds or behaviour</td>
</tr>
<tr>
<td></td>
<td>Assisting and caring for others</td>
<td>Providing personal assistance, medical attention, emotional support, or other personal care to others such as co-workers, customers or patients</td>
</tr>
</tbody>
</table>
While this table provides a long-term view of the future of work, the occupations that will be impacted in the near future are those repetitive roles which are based on a set of business rules which can be documented. As natural language processing and chat bots evolve organisations will begin targeting customer facing roles. Similarly, autonomous vehicles will impact the 28% of Australians who drive as part of their job.

What is clear, is that the Automation of jobs will happen as technology evolves and that this process will take time, in some cases years. For the employee, this may feel like their job is being taken away from them bit by bit, and resentment may build up in the workforce against Automation and robotics. The long-term change and communications approach taken by the organisation needs to consider the implications of this transition, considering the impact on organisational values, future roles of employees, and the approach taken in each instance when capacity is released. Critical success factors that may be relevant to your organisation include:

- A clear change and communications strategy
- Early engagement of impacted teams
- Change management for impacted roles
- Established transition approach for released capacity
- Public relations strategy (where required)

RPA, Cognitive computing, and AI solve very different problems for the organisation. However, in all cases, this Automation will supercharge teams and the development of analysis and insights. These teams must learn to apply this analysis and communicate the significance of the insights to business leaders. They become translators of data, not data analysts. The level of sophistication, foresight, and speed will all increase.

Teams must be able to solve the problem of ‘we have so much data we don’t know what to do with it’ and to tune the Automation to provide a valuable and usable data set. The organisation must not only be capable of mining data but to understand what problems are worth solving and how insights can be applied to adjacent problems.

To enable this, organisations will need to grow their existing employee capabilities, and change the type of employee that they are looking for at recruitment. Educators need to develop more highly skilled and data literate graduates, comfortable when working in partially automated environments. In the same way that Gen Y was the first generation to grow up with ubiquitous access to computing, the next generation will grow up with Automation in the home and school, dramatically shifting their view on the art of the possible when it comes to harnessing the power of technology.
End notes


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