



From RPA to DPA: a strategic approach to automation

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RPA is hot – every organisation is implementing RPA or considering doing so. However, it's just one tool in what should be a bigger (and more strategic) business automation toolbox.

Digital Process Automation (DPA) strategies seek to utilise a range of automation technologies in a deliberate way – individually as well as in combination – in order to address the broadest range of work automation opportunities to the greatest extent possible. DPA strategies don't focus only on the end-to-end automation of individual tasks, but focus on providing the appropriate level of automation and guided support for a range of types of work.

RPA by itself is a way to start to deal with problems we created in the past – it's a backward-looking solution, if you like. A broader DPA strategy, by contrast, utilises a range of integrated and complementary tools. A DPA strategy will help you address the forward needs of your business in more fundamental ways, utilising 'outside-in' thinking to reimagine and digitise end-to-end processes so they truly meet the needs of modern customers and markets.

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Today's automation imperative

It might seem like automation in the workplace is a relatively new phenomenon – there's certainly a huge amount of talk about it in today's corporate meeting-rooms, conference halls and news media. The reality is that automation has been on a steady march through business for over 200 years: nevertheless, the past five years or so have seen a huge step-change in organisations' interest in automating aspects of their businesses, as well as the variety of technologies being promoted to help businesses automate.

Supporting a "digital outside" with a "digital inside"

Any organisation thinking about digitising aspects of its business needs to think holistically. Customers' experiences aren't only shaped by customer service teams – they're shaped by the interactions they have online; conversations with salespeople; the quality of a product; the accuracy of bills; and so on. Delivering great customer experiences depends on effective working across many teams and departments.

Design Thinking – the increasingly popular practice of designing products, services and experiences based firmly around an understanding of the needs and desires of users and customers, and then working iteratively to prototype, test and build solutions – makes this dependency clear. When you explore an 'outside-in' perspective, it soon becomes obvious that customers and users don't want their experiences to be restricted or shaped by the ways your business runs its affairs internally.

What Design Thinking exercises show us, ultimately, is that delivering on a digital transformation agenda ultimately means connecting the "digital outside" of your organisation to a "digital inside". The connective tissue is woven from "digital threads" that enable your business to seamlessly carry out and co-ordinate work, make decisions and share knowledge effectively, consistently and at scale – across teams, systems, channels, media platforms and business locations; and cutting through organisational and systems silos. Automation is at the heart of what's needed.

Legacy system swamps, wasted time and wasted opportunities

As you follow the trails of processes that underpin any modern customer journey and explore how to digitise and automate, you'll soon come across challenges relating to various aspects of your business operations – quite possibly in finance and accounting, HR, procurement, billing, sales operations, customer operations and more. Procedures that have significant manual, clerical elements will be thrown into sharp relief – they'll create walls that it's very hard to weave digital threads through. Administrative functions rarely get much strategic attention, and typically sit at the bottom of technology investment priority lists. The result is patchworks of difficult-to-use, brittle, expensive legacy systems that can only be wrangled through clerical systems work (copying and pasting data, manual data entry, and so on). This is particularly true in industries where margins are low. Historically, utilities, manufacturers and communications and media firms (among others) have found it hard to justify IT investments that would eliminate the clerical waste that operations so often endure.

However, the time and energy wasted in wrangling legacy systems with clerical operating procedures isn't limited to back-office administrative functions – there's a lot of similar waste in customer-facing functions, too. Arguably, the wasted time and work experienced in front-office environments is more of a concern, and not only because time wasted in front of the customer is more obvious to customers: it's also because employee turnover can be particularly high in customer-facing roles – figures of 30-45% annual employee turnover are not uncommon. When new employees are hired, it's crucial that they become productive as soon as possible: but clusters of legacy systems and manual processes make employee training slow and difficult – and even when employees are fully up-to-speed, the frustration and complexity of dealing with these systems saps morale as well as making it difficult to fully address customer needs. Automating clerical tasks reduces training time for new recruits, and also stands to reduce employee frustration and increase satisfaction. The business benefits further from automation, enforcing greater consistency on customer calls, which is a difficult goal to achieve.

The rise of Robotic Process Automation (RPA)

As we've just seen, digital transformation initiatives naturally create downstream requirements to automate work – particularly where there are significant gaps between the operational needs of the business and the capabilities of the IT systems in place. It's this need that is driving so much interest in Robotic Process Automation (RPA).

RPA: a very brief introduction

Robotic Process Automation (RPA) is a business and technology practice that seeks to automate 'robotic' tasks. In an RPA initiative, you configure and manage software 'robots' that act as synthetic IT application users, automating highly repeatable, highly structured, high volume clerical tasks that involve the use of existing IT systems. RPA technology provides a non-invasive alternative to coding automated task logic for simple processes in a new application or service, then creating and using specialised integration APIs or integrating the new code with existing systems by other means (for example hooking into underlying databases via triggers, hooking into application code directly, or simply screen-scraping from existing application front ends).

There are two common ways in which the core technology in RPA can be delivered:

- In **attended RPA** the robots that automate interactions with users' desktop applications execute within each user's desktop environment itself – working side-by-side with each user. Robots are used as automated assistants, carrying out often-repeated but 'standalone' clerical tasks on the user's behalf, with significantly faster speed and fewer errors.
- In **unattended RPA** robots also automate users' desktop applications but execute on a separate server or virtual machine (or multiple servers), automating interactions with applications 'behind the scenes' and carrying out their work when triggered by other software systems. Here, robots work in a lights-out mode, working without any direct input or direction from users.

A real-world solution to a real-world problem

RPA has real-world value, even though for many IT architects looking to minimise overall system complexity, it's far from an ideal solution. This is because for almost all businesses of significant size, there is a very sizeable 'long tail' of integration requirements that can't be economically addressed by IT-driven integration projects. Traditional IT-driven integration projects involving legacy systems can be difficult to justify, for many reasons (including software and labour costs, skills availability, security and operational risks, and more). Because RPA technology is non-invasive to existing systems, stand-alone RPA projects can potentially be delivered more quickly and at lower cost than traditional IT-driven integration projects – with less involvement from hard-pressed specialist enterprise IT groups. This is especially true for attended RPA, where greater deployment scale is evident today than for unattended RPA.

Today, we see two particular hotspots of RPA technology implementation adoption within enterprises. Firstly, we see significant interest in call-centres and contact-centres; and secondly, we see opportunity in back-office administration environments (particularly in finance and accounting, HR, and other supporting functions). All these business areas commonly suffer from aging IT systems, and what's more, business processes commonly contain clusters of highly-structured clerical tasks where operators frequently need to:

- Enter data into multiple systems.
- Retrieve data from one system and enter it into another.
- Reconcile data across two or more systems.
- Run system reports and act on the results in a structured way (perhaps adding a report total into a separate system, for example).

A great deal of the work involved in these tasks is automatable in theory, and with RPA it can become automated in practice – especially in cases where higher work volumes exist.

In comparison to human workers, automated software systems (including those enabled by RPA) don't need to rest, can work 24x7, and don't lose concentration. Looking specifically at back-office RPA project outcomes where unattended RPA is applied end-to-end, it's not uncommon for RPA implementations to lead to labour costs reducing 60-70%; in larger-scale attended RPA implementations in front-office scenarios, employee effectiveness can be dramatically improved. Unexpected errors will of course occur when bots are used, but in well-designed RPA systems, we find that error rates on automated tasks can be very low (<0.5%).

RPA's limitations

The non-invasive nature of RPA means it's particularly useful where you want to streamline operations that rely on clerical activities carried out using collections of legacy IT systems (where 'swivel-chair' operations is a key symptom, for example); and where you want to drive results quickly without going through the hassle of trying to re-engineer those existing legacy systems.

However, RPA **alone** is unlikely to be the best answer where:

- You want to automate the flow of work across a number of distinct tasks.
- One or more of the tasks or processes you're considering automating requires significant human discretion and domain expertise to complete.
- Task completion involves decision-making according to sophisticated, multi-step business rules.
- You want to co-ordinate the flow of data between systems and applications that already have documented APIs.
- Where data requests and responses need to complete with high performance (requiring throughput of more than a few requests per second).

RPA technology also carries significant risks when you look at the bigger picture. RPA-based automations can be fragile, and highly sensitive to business requirement or technology environment change; and when automations fail, humans need to correct the problems that occur – wiping out automation gains. What's more, an RPA-based approach to automation risks locking you into maintaining legacy systems for longer than you should; it might be tempting to keep RPA sticking-plasters in place, where a sounder approach would be to redevelop or re-procure the core system(s) being used. In addition, in many situations, even where high-level processes appear to be standardised, it's challenging to standardise operating procedures to a significant enough level of detail that would enable them to be completely automated. The result is a complex RPA implementation that takes a lot of time to define and entails significant implementation complexity (so increasing risk).

In practice, even though RPA technology might be appear at first to be the core of the solution you need, you need to consider use of RPA technology as one part of a holistic automation approach.

In the next section, we'll look at how a broader consideration of automation strategy and technologies fits into the needs of a digital transformation initiative.

DPA: Taking a strategic approach to automation

RPA is another weapon in the fight against manual administrative work and clerical waste, but if you're serious about transforming the nature of work in your organisation through automation, you need to be looking to augment RPA with other technologies – taking a broader, more strategic approach to automation that's often called *Digital Process Automation* (DPA).

DPA strategies seek to utilise a range of automation technologies in a deliberate way – individually as well as in combination – in order to address the broadest range of work automation opportunities to the greatest extent possible. DPA strategies don't focus only on the end-to-end automation of individual tasks, but focus on providing the appropriate level of automation and guided support for a range of types of work.

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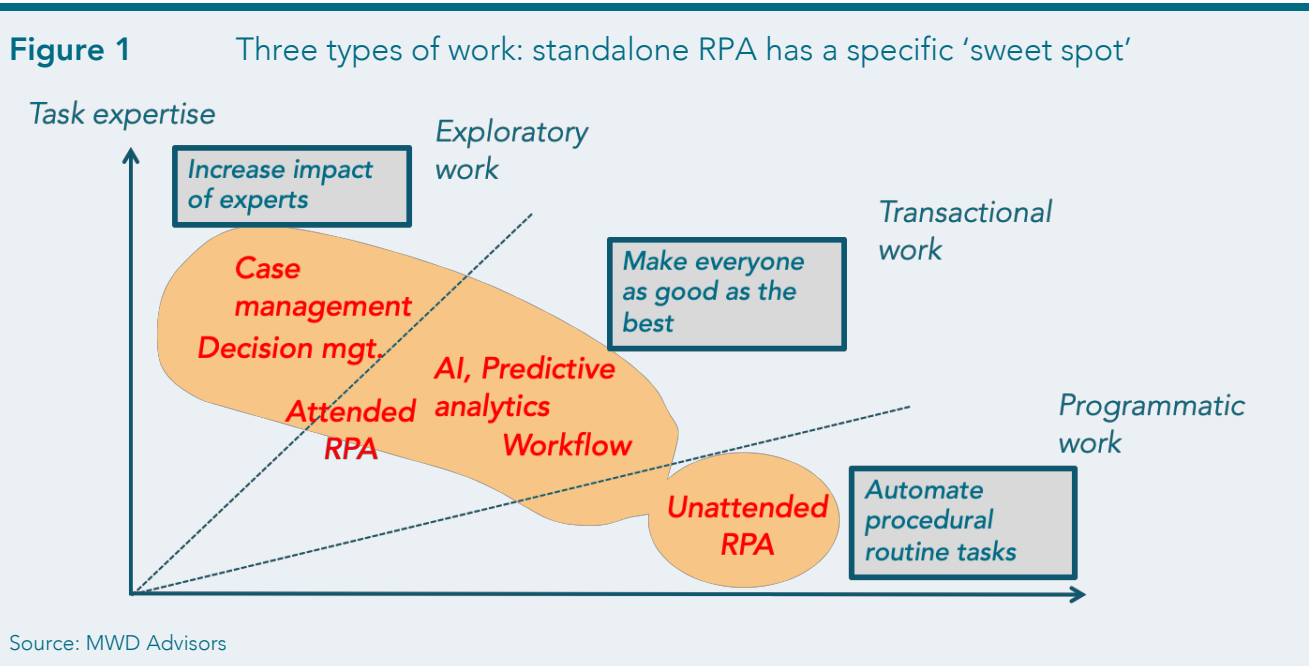
We'll dig into the key technology elements of a DPA platform in a moment, but first let's highlight why multiple technology elements are required – by looking in more detail about work and how it can be automated.

Three types of work: not all can be automated

As we've seen already, RPA has a lot of value to offer when applied appropriately. But when we look at the work that is commonly undertaken in businesses, we find three distinct kinds of work – only one of which is a natural fit for the standalone application of RPA:

- **Programmatic work.** With this kind of work, almost all features of the work in question – from tasks and decisions to flow, inputs, triggers, and resources – can be prescribed and designed in detail. This doesn't mean that the work is automated, but it does mean that in theory it's possible for the work to be almost completely automated (with people only handling any exceptions that occur). Many types of clerical back-office administration found in organisations from banks to retailers fall into this category, and it's this kind of work that is the 'natural' home for RPA as the core for an automation effort.
- **Transactional work.** With this kind of work, many of the tasks and decisions involved, and most of the flow of work, can be prescribed and designed in advance. The goal of the work is often also prescribed in quite a structured way. However human discretion and expertise is required to carry out some tasks, as well as in deciding when, how and where work needs to be progressed. A good example of a process revolving around transactional work is mortgage application processing (where the steps and decisions required are almost always definable ahead of time, but human discretion is often required to review decisions and minimise risks of fraud). RPA might play a supporting role here, but is unlikely to be the core of what you'll need if you're taking a more strategic approach.
- **Exploratory work.** With this kind of work, the goal of the work will be defined ahead of time, but the set and sequence of tasks and decisions needing to be performed, and the people or roles needing to perform them, are very unlikely to be decidable ahead of time. There may be some high-level waypoints or milestones that are common to a particular type of exploratory work (perhaps to ensure regulatory compliance, or management approval) but they provide a very loose, rather than tight, structure. In exploratory work, as the label suggests, the overall experience for both the work participants and the 'customer' of the work is that of a set of possibilities being explored rather than a recipe being followed. Common examples of processes revolving around exploratory work include complaint resolution and fraud investigation. Again, RPA might play a supporting role here, but is unlikely to be the core of what you'll need if you're taking a more strategic approach.

Figure 1 shows these three kinds of work in context, and also shows how a number of automation technologies – including RPA – play complementary roles in supporting the digitisation of your business.



As figure 1 shows, there are four primary technology types that should be considered for roles in a broader DPA strategy, alongside RPA (attended and unattended).

Workflow. In almost all situations a business process comprises more than just automatable tasks – some tasks require human discretion and decision-making. Wherever there is a business process with a definable outcome and a degree of structure, automating the distribution of work and the handovers from task to task adds a lot of value – even where individual tasks can’t themselves be automated. And even where sequences of tasks can be automated, automated systems are very unlikely to be able to complete tasks accurately 100% of the time; in these situations, having humans be able to work in a co-ordinated way to correct errors and update automation algorithms is vital.

Decision management. Where modern workflow and RPA platforms typically employ visual model-driven tools to help teams specify workflows or task robots and change them over time – rather than having them coded in a programming language – decision management platforms apply the same concepts to decisions and their implementations through business rule sets. Just as workflow and RPA platforms aim to make specifications and designs explainable and easy to maintain over time, so decision management platforms also use abstract definition approaches (some based on visual models, some based on natural languages) to help teams specify decisions and their implementations in a way that’s explainable and easy to maintain. Although it might be tempting to implement decision logic that really direct choices made by RPA robots or within workflow models using a traditional programming language, if those decisions, as is highly likely, have any kind of business relevance and impact then you should consider using a specialised decision management platform instead.

Case management. Case management technology provides a ‘container’ for exploratory work, improving co-ordination and communication between people carrying out the work, providing structure where required for regulatory or business policy reasons, and logging and tracking the work so it can be audited or analysed later to drive improvement. Within case management platforms cases are typically structured at a high level using the concepts of milestones or stages, and within those, mandatory and optional tasks may be definable – with designers being able to define conditions under which certain tasks or become available to work on. Good case management platforms should be able to embed robotic processes within end-to-end workflow management.

AI and Predictive analytics. Most decision management tools available today implement business rules that always produce a definitive result (for example: if the customer is a premium customer, have an agent call the customer back; otherwise, send an email response to the customer's request). However, particularly in the context of transactional and exploratory work, there's also a lot of value not in automating decisions with prescriptive rules; but in guiding decisions through automated *recommendations*, based on predictive statistical models. For example, a customer retention team might build a model that predicts, based on perhaps dozens of behavioural data features, how likely they are to switch providers (or 'churn'). For example, a predictive customer churn model might highlight that for a given customer with a given history, that customer is currently 81% likely to churn. A trained call centre agent can then use that information to make an informed judgement. Historically, predictive model generation and maintenance was a specialised and expensive activity. However, advances in technology and tools mean that it's now feasible to apply predictive models in real time, in the flow of work, as decisions need to be taken. Predictive models can be used not only to highlight potential situations: they can also recommend 'next best actions'; colleagues to call on for backup; or potentially relevant data and documents (perhaps contracts, guides, or policy documents) for the work at hand.

Bringing it all together

It's not enough to simply gather together a set of tools that 'fill the boxes' of workflow, RPA, case management, AI and so on. It's vital that you look at these capabilities as elements of an integrated system of automation technologies – and that you look for suppliers that can help you bring these elements together seamlessly. There are two major reasons for this:

- **The need to drive success fast, through collaborative and agile development.** 'Low-code' DPA platforms and tools enable teams to collaborate and work iteratively in sync with diverse communities of stakeholders to design and deploy solutions. This is particularly important because although it's tempting to think of work automation as being purely about technology, it's very much about business change. Working in collaboration with business teams and other stakeholders will maximise your chances of delivering the right outcomes, and doing so as quickly as possible.
- **The need to get end-to-end insight across business processes** in order to measure success and drive improvement. Any automated system – even an automated factory system – needs to provide, and respond to, feedback in order to work optimally. Getting feedback, and then using this feedback to keep automations current and working optimally, depends on being able to work with automation capabilities that provide truly useful information about their operation. Crucially, this isn't just about being able to give administrators operational insights (such as information about system load and efficiency); it's also about being able to give process and program owners business insights – in other words, insights about business outcomes that are being achieved through automation. By having access to insights about, for example, how effectively delivery queries are being resolved; or how effectively invoices are being processed; teams can make informed decisions about how to apply effort to make ongoing improvements for the best financial return.

Next steps and recommendations

Once you've begun to analyse how to use different kinds of automation technology to address opportunities in the different kinds of work you have in your business, it's vital that you think beyond this analysis and put some plans in place to drive that analysis forward into action that will have real impact. Here are four important considerations.

Collaborate and share. Just as is the case with any strategy exercise, automation strategy work will return most value to your organisation if you do it in the open. Drive your automation strategy first by taking an 'outside-in' perspective, using Design Thinking techniques to collaboratively discover and refine the features, qualities and behaviours that customers and other stakeholders truly want and need from your business, its products and its operations. Seek to share your automation patterns and technology guidance with other stakeholders as you're developing them, so the business and technology teams across your organisation that are driving projects have the opportunity to ask questions, provide feedback and see the potential for savings and risk avoidance that a consistent approach will bring.

Be deliberate about your technology operating model. With the amount of change currently taking place in the automation technology landscape, it's vital that you put structures in place to consolidate and aggregate knowledge and experience about how to design, configure, deploy and maintain work automation systems in one place where possible. Some organisations call these consolidation points 'centres of excellence', some call them something else. Whatever you call it, you should push to create and maintain a team that works to manage and maximise the knowledge of what works in your business, and make sure that knowledge is shared as widely and effectively as possible.

Don't fall in love with any particular technology too much. Hopefully, by now you realise that across the variety of automation technologies currently available and ready for enterprise use, different technologies play different automation roles across the features of different types of work. Be careful not to overstretch any particular technology, trying to use it to automate work features (or work types) where it's not suited. Be aware of what each kind of tool is best at doing, and be aware of the risks of overstepping those boundaries.

Keep things fresh, and work with partners who can help widely. Be aware that over time, the boundaries that you draw between exploratory, transactional and programmatic work are likely to shift. As this happens, more automation may be possible and profitable. As automation technologies mature and are able to more economically automate more and more human-discretion tasks (and this will surely happen), you may find that work you would initially characterise as transactional (for example) could be reclassified as programmatic and automated straight through. It's vital that you work with partners that can help you work across a range of DPA technologies and can help you make these decisions accordingly.