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Intelligent Automation: A Buyer's Guide

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Chances are, you've already heard about Robotic Process Automation (RPA) technology and are exploring the benefits it might be able to bring. If you're serious about driving automation across your business, though, you have to be prepared to think beyond RPA and Artificial Intelligence (AI). You have to explore how other technologies can elevate investments in RPA and drive more holistic automation across your organisation. This report explains why a wider 'Intelligent Automation' initiative is important, and what you need to do.

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Today's automation imperative

Although business automation is decades old, the cost of automation technologies is plummeting, their ease-of-use is improving, and their ability to deliver value quickly is skyrocketing. The automation space is changing quickly, and new opportunities to automate aspects of work are becoming addressable with every technology (and cost) improvement. Robotic Process Automation (RPA) technology is at the spearhead of the new automation movement, but as we'll see in this report, there are more technology pieces that you need to consider if you're aiming to forge a true automation strategy.

To set the scene, let's look at the four key reasons that organisations are leveraging new automation technologies and opportunities.

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

Most of the time, digital transformation efforts start by exploring how digital technologies can be used to reinvent customers' experiences, and this makes sense – any serious business transformation needs to start with customer needs. However, although these efforts are typically led by CMOs, customers' experiences aren't only shaped by marketing or sales – they're shaped by the interactions they have with others online; their experience of being 'onboarded' as customers; the quality of the products and services they're using; the accuracy of their bills; how quickly and effectively their problems are solved; and so on.

No matter how great your personalised website or mobile app are – if you can't solve people's problems effectively, deliver products quickly or bill them accurately, your 'digital transformation' effort has been wasted.

Legacy chaos

Digital transformation initiatives shine a bright light onto the effectiveness of back-office operations, and procedures that have significant manual, clerical elements are thrown into sharp relief. Back-office administrative functions are very often 'Cinderella' functions: parts of businesses that rarely get much strategic attention, and that 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, retailers, utilities and manufacturers (among others) have found it very difficult to justify the kinds of IT investments that would eliminate the clerical waste that back-office operations so often endure. However, in recent years, lighter-weight and more cost-effective automation options have made many more automation use cases easier to justify financially.

Wasted time and wasted opportunities

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. 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 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 stand to reduce employee frustration and increase satisfaction.

The push for transparency

Compliance with the new EU General Data Protection Regulation (GDPR) is (or should be) high on the agenda of every organisation holding data on EU citizens; but it's only the most recent cross-industry regulatory issue to come along. The need to act transparently on behalf of customers is becoming more and more crucial: not only to satisfy industry regulators but also to support premium brand positions.

Driving successful compliance outcomes is always as much about being able to demonstrate compliance, as it is about complying day-to-day. Manual activities are particularly challenging in this regard: it's rare that documented standard operating procedures are kept up-to-date; and demonstrating compliance with established controls is expensive and time-consuming. Any kind of 'white-box' automation – where automation of work is configured using a high-level language that non-technical specialists can understand – is a valuable weapon in this regard. It's easy for compliance personnel to see the procedures that are being followed, and quick for them to see and unpick any instances of non-compliance.

What is Intelligent Automation?

RPA is a formidable weapon in the fight against manual administrative work and clerical waste, but today's RPA technologies by themselves are restricted in their applicability. If you're serious about transforming the nature of work in your organisation through automation, you need to be looking to reach beyond RPA with additional technologies to create an *Intelligent Automation* strategy.

Intelligent Automation strategies utilise emerging AI technologies alongside established business process and robotic automation approaches to address the broadest range of work automation opportunities to the greatest extent possible – not only considering the end-to-end automation of focused tasks, but also optimal levels of automation and guided support for broader business processes.

Robotic Process Automation (RPA)

Robotic Process Automation (RPA) is a business and technology practice that deals with the configuration and management of software 'robots' that act as synthetic application users, automating highly repeatable, highly structured tasks across business software systems. It provides a non-invasive alternative to the creation and use of specialised integration APIs or programmed integration by other means (for example hooking into underlying databases via triggers or hooking into application code directly).

There are two common ways in which the core automation technology is delivered: 'attended' and 'unattended' RPA. Both these implementations of RPA have value, but it is slightly different in each case. 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. In 'unattended' RPA, robots execute on a separate server or virtual machine (or multiple of these), automating interactions with applications 'behind the scenes' and carrying out their work when triggered by other software systems.

Artificial Intelligence (AI)

In back-office administrative scenarios, RPA is particularly suited to automating processing of – and response to – formulaic service requests from inside or outside the organisation. Common examples include invoice processing, fulfilment of change-of-address requests, fulfilling billing or statement requests, and so on. Here, it's often the case that requests arrive in a variety of formats over a variety of channels – for example requests might arrive via email, fax, PDF or via a web form.

In situations where work inputs arrive in the form of documents, electronic document capture technology can digitise the data in those documents and, to some extent, identify and extract key data fields. But machine learning algorithms, paired with document capture, can be trained to identify and classify document types, identify and process natural languages, and identify and extract key data fields (like contract signatories, subjects and key clauses; or like PO numbers, invoicing addresses, totals and products, payment terms and so on).

Third-party commercial or open-source AI libraries can further enhance the flexibility of this technology by improving the accuracy of image or document classification, as well as improving the accuracy of detecting important features in the data that will be used to drive subsequent decisions (and improving the later discoverability of assets, by enriching document metadata).

Business Process Management (BPM)

RPA has a lot of value to add in automating individual tasks, but in almost all situations a business process comprises more than just automatable tasks – within almost all business processes, 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. Business processes can span customer interactions, internal employees, business partners, systems and business rules as well as robotic (RPA) actions. Modelling and automating a process holistically allows effective measurement of a process towards a business goal.

An Intelligent Automation strategy embraces the reality of humans working alongside automated systems, but also recognises that even when humans need to be part of a process (either as part of the 'happy path', or as correctors of errors), a degree of automation is likely to be very useful. These two use cases are at the core of the value that Business Process Management (BPM) technologies bring to Intelligent Automation strategies.

Crucially, BPM technologies don't just co-ordinate workflows between humans and task automations; they provide analytics and insights about end-to-end work performance. We'll explore the value of insight later.

Programmatic Integration

Where the source and target applications required to carry out programmatic work expose their own programmable, documented APIs, or where high-performance automated integration is a key requirement, a purpose-built programmatic application integration capability is likely to present a better option than RPA technology. Purpose-built integration platforms have a reputation in some quarters for being expensive to procure and complicated to use, but in recent years this reputation has become increasingly outdated. As cloud-based, subscription integration services have become more popular and more capable – and as open APIs for systems have become a lot more common – application integration tools have become a lot simpler to use (by employing 'low-code' model-driven design techniques) and a lot cheaper to procure and use.

What's more, programmatic integration capabilities aren't only valuable as discrete components of Intelligent Automation strategies, to use where RPA is not appropriate; they also play vital roles in tying together collections of RPA, AI and BPM services so they can act in concert.

Key qualities for IA technology capabilities

As we've discussed, there are four main technology pillars you need to explore as you build out an Intelligent Automation strategy. Crucially, though, just 'filling the boxes' with casually-chosen capabilities and services won't work – the capabilities you procure and build have to support four very specific qualities if you're to get true, long-term, value from Intelligent Automation.

Openness, with a backbone

The state of the art is changing fast, and this is particularly true when it comes to AI (and to a lesser extent, RPA). Technology choices that make the most sense for certain IA capabilities today might not make the most sense in 12- or 24-months' time. Being able to maintain pace with this dynamic environment is important – and to do that, it's important to think more about creating an ecosystem of technology capabilities, than about creating a rigid, static platform. With this in mind, you must look to select, build and deploy Intelligent Automation capabilities that are truly open. That is, they provide openly-accessible APIs that make them easy to access and use in multiple different contexts.

Every ecosystem has a dominant species, though, and with Intelligent Automation it's no different: your Intelligent Automation ecosystem needs a backbone. With its ability to co-ordinate and integrate services and systems as well as people, a BPM (process orchestration) platform is the natural choice.

Collaboration

It's perhaps tempting to think that Intelligent Automation is purely about technology – after all, it's about using technology to take aspects of work out of human hands and brains. This is a dangerous way to think, though. Intelligent Automation is very much about business change, for four main reasons:

- Unless your teams understand the business context for the work that you're considering automating, you can't effectively prioritise or design work automation or augmentation projects.
- Unless you work to engage the people whose roles and tasks will be affected by work automation or augmentation, you risk those people rejecting (and then subverting) the solutions you deliver.
- Unless your teams work in an agile, collaborative way that involves business stakeholders, you risk solving the wrong problems or delivering tools that present themselves in unintuitive ways.
- Unless you first explore your wider organisation for existing staff with relevant skills (for example, people with analytics or data science skills) you risk paying for new staff you don't need or hiring expensive consultants you don't need.

There is a natural consequence of this in the realm of technology, though. The importance of engaging diverse communities of stakeholders as you go about implementing an Intelligent Automation strategy means that the tools you use must maximise your ability to work collaboratively as you design and deploy solutions.

Insight

If you only think of Intelligent Automation as being about systems that automate work in operation, you're running a huge risk. *Any* automated system – even an automated factory system – needs to provide, and respond to, feedback in order to work optimally. And whereas automated factory systems tend to operate under tightly-controlled conditions, the business process environments that Intelligent Automation strategies seek to automate within change quite significantly over time: changes and upgrades to existing systems, business goals, business rules and policies, staffing levels, product launches and mergers and acquisitions conspire to make it impossible for business automation environments to remain stable.

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.

Change management and governance

It should go without saying that your platform needs to be able to scale in operation, as far as you need it to. However, when it comes to Intelligent Automation there's another dimension of scalability to consider, and that's your technology ecosystem's ability to handle large-scale programs of work.

You need to work with technologies that make it easy for teams to define reusable components to address common challenges, so automation projects can be carried out consistently and as quickly as possible. Your tools should enable teams to work with confidence to make changes quickly – even when multiple projects are underway. Your tools must also enable you to set up administrative frameworks which govern how changes can be made (and by whom).

How effective is your organisation?

We've worked with Appian to create an interactive online self-assessment tool that will show you how your current Intelligent Automation efforts stack up. Using the tool is quick and easy!

The tool measures the current effectiveness of your Intelligent Automation efforts across the four critical capabilities we talk about in this report: RPA, AI, BPM and Integration. The more your capabilities exhibit and support the qualities we've outlined in this report – openness, collaboration, insight and change management – the better your scores will be.

Take the self-assessment here: https://www.appian.com/ia-readiness/

When you complete your assessment, you'll receive a score and some next-steps guidance. Here's a sample scoring graph taken from the tool.