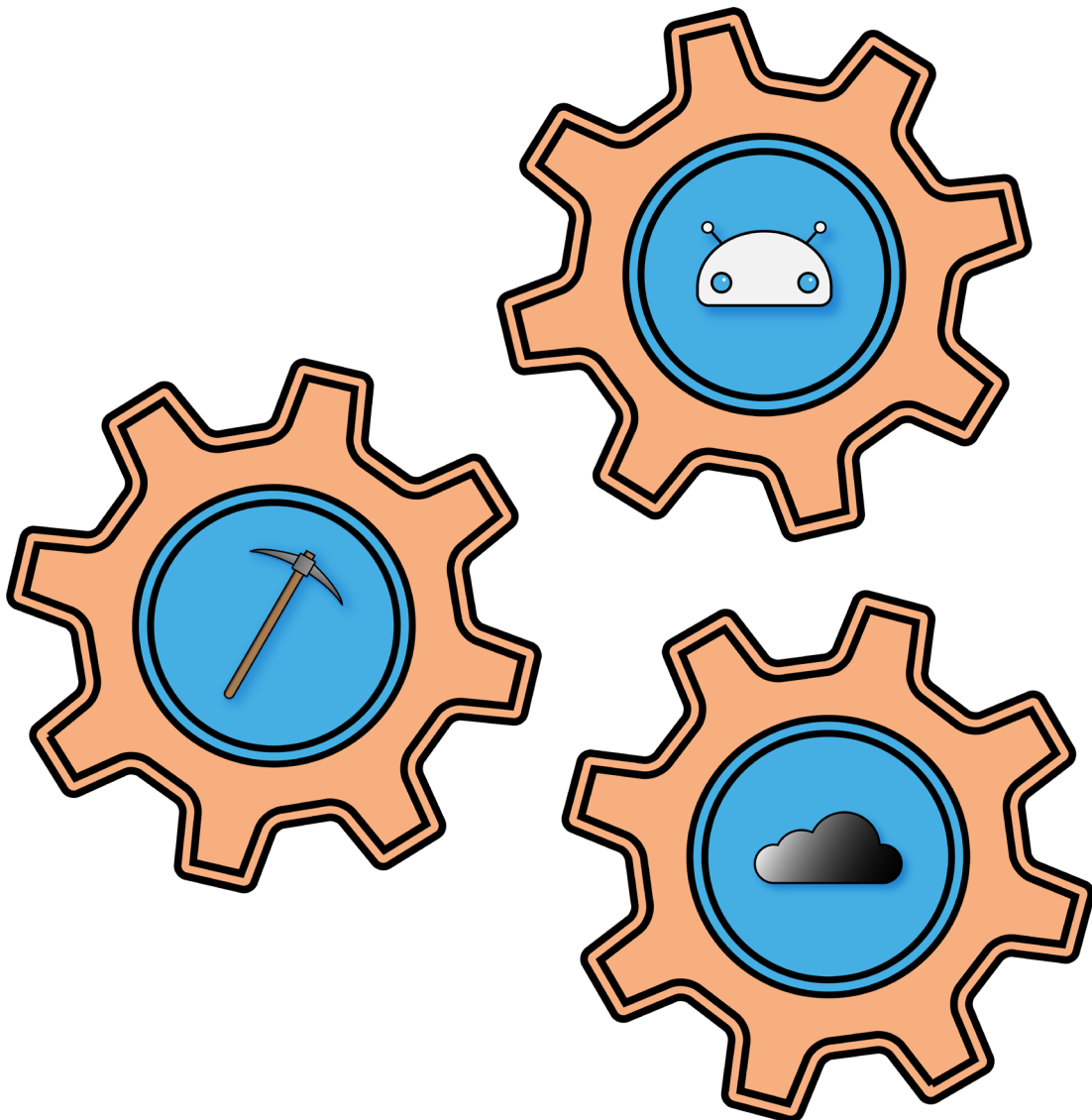


Hyperautomation

The role of testing in **digital transformations**



COVID-19 and hyperautomation

For all the misery COVID-19 has caused, there can be no doubt that in many areas of business, the virus has served as an important reminder of the need for change and innovation.

Nowhere is this more apparent than when it comes to tech. Coronavirus has merely accelerated trends that were already the subject of widespread attention.

Last October, Gartner published [its annual 'Top Strategic Technology Trends' report](#), predicting the technological practices that will prove most disruptive in 2021. As in the 2019 edition, 'Hyperautomation' found a place on the list, with Gartner lauding it as 'the key to both digital operational excellence and operational resiliency' for organisations.

So, what is hyperautomation?

Defining hyperautomation

The term 'hyperautomation' first appeared in October 2019, claiming the top spot on [Gartner's 'Top 10 Strategic Technology Trends for 2020' report](#). It is also known as 'intelligent process automation'.

Gartner originally defined it as:

//
a process in which businesses automate as many business and IT processes as possible using tools like [artificial intelligence], machine learning, event-driven software, robotic process automation [RPA], and other types of decision process and task automation tools.
//

UiPath, one of the leading RPA vendors, are a bit more exacting with their definition. They acknowledge that artificial intelligence (AI) represents the heading under which many of these other facets, including machine learning (ML), fall.¹ They include natural language processing (NLP) and optical character recognition (OCR) in their definition, and identify that although hyperautomation 'starts with [RPA] at its core', it requires [additional practices like process mining and predictive analytics](#).

In December 2019, [Gartner pointed out that](#) 'intelligent business process management suites (iBPMs), integration platform as a service (iPaaS) platforms and decision management systems' were all part of driving hyperautomation.

¹ AI is making computers operate in ways that simulate human intelligence. Companies use AI to carry out specific tasks without human instruction. ML is a subset of AI. It involves using algorithms to enable automatic improvement of systems over time.



Defining and evaluating RPA

What these definitions show is that hyperautomation is not only multifaceted, but also constitutes a full-blown digital transformation. In this light, we might understand it to be both a philosophy, and a set of technologies. Implementing hyperautomation requires a holistic approach, since it necessarily affects all areas of a business.

Whereas RPA promises to free employees up from having to perform repetitive, low-value tasks, hyperautomation is geared towards having workers spend less time cogitating about corporate strategy, or manually analysing data. In short, it aims to do for processes what RPA does for tasks.

This does not mean, however, that hyperautomation seeks to replace people. It positions itself as a people-centric trend, embodying what has been termed '[collaborative intelligence](#)'. When fully realised, hyperautomation should feature humans training bots, so that bots can go on to augment the work of those humans.

There is a strong business case for human-machine collaboration. In a survey of over 1000 companies, Accenture found a direct positive correlation between the number of human-machine collaborative principles adopted, and the performance of each company's AI initiatives.



RPA is the bedrock of hyperautomation. Gartner defines it as 'a productivity tool' that involves user-configured bots 'overlay[ing] on one or more software applications [to] mimic or emulate selected tasks within an overall business or IT process.' Such tasks may include data manipulation, data transcription, or executing a transaction; in essence, '[any high-volume, business-rules-driven, repeatable process](#)'. In some ways, RPA should really be called Robotic *Task* Automation.

There are some obvious advantages to implementing RPA:

1. Employees can devote time to higher-level processes
2. Tasks are completed more quickly
3. Tasks are completed with fewer errors

RPA is also relatively inexpensive when implemented correctly, and largely undistruptive to underlying systems. In fact, large companies who are still using legacy systems stand to benefit most from RPA, since it allows for integration even if out-of-the-box connections or APIs aren't present.

In addition, its codeless mechanics mean that, if handled properly by an internal IT team, ordinary business users can begin automating, thereby democratising automation as a practice.

The economic impact of COVID-19 has drawn even more attention to RPA. Last July, [Gartner found that](#) the increase in remote working had demonstrated the business need 'to digitize paper-based, routine human processes'. Consequently, we should expect to see increased adoption of RPA in the near future.

Defining and evaluating Process Mining

Before looking at why organisations should strive for hyperautomation, we must define the second of its core technologies: process mining.

RPA and process mining are highly complementary.

Process mining 'improves the success rate of task-level automation [...] through visualizing and understanding the process context, so that, when processes change, the automated tasks can adapt without losing their relevance.'

Like RPA, process mining monitors employees' interactions with IT systems, and captures relevant data. It then goes a step further by converting this data into an event log, before building a visualisation of the end-to-end process and generating meaningful analysis.

The chief appeal of process mining lies in the undesirability of its alternative: time-intensive '**process mapping**', where employees meet in boardrooms over the course of days and weeks, to draw up process plans and evaluate process efficiency.

The advantages of process mining are numerous. Through it, businesses can:

- Reliably analyse business-wide processes for inefficiencies
- Make recommendations based on previous analyses
- Identify tasks that should be automated
- Add value across industries
- Make compliance easy

Evaluating Hyperautomation

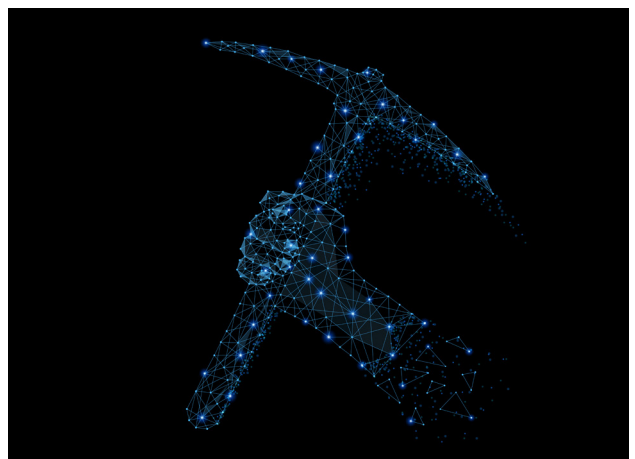
So, once you've brought together RPA and process mining, and are on the way to hyperautomation, what rewards can you expect to see?

In late 2019, Gartner predicted that by 2024, organisations will 'lower operational costs by 30% by combining hyperautomation technologies with redesigned operational processes.'

These savings could result from the fact that, unlike RPA, hyperautomation can handle both structured and unstructured data. Through hyperautomation, businesses are granted access to data previously unavailable for analysis, helping to guide their decision-making and track ROI more easily.

With hyperautomation, organisations can also easily integrate technologies between their legacy on-prem systems, and remote data systems. Indeed, Gartner stresses that quick and easy platform integration – 'plug 'n' play' capability – is essential for achieving hyperautomation.

When taken to its logical conclusion, hyperautomation can even result in a digital twin of the organisation (DTO) being created, which is helpful for modelling hypothetical scenarios and studying their impact on the business. This gives companies the gift of foresight, and helps to increase market confidence.



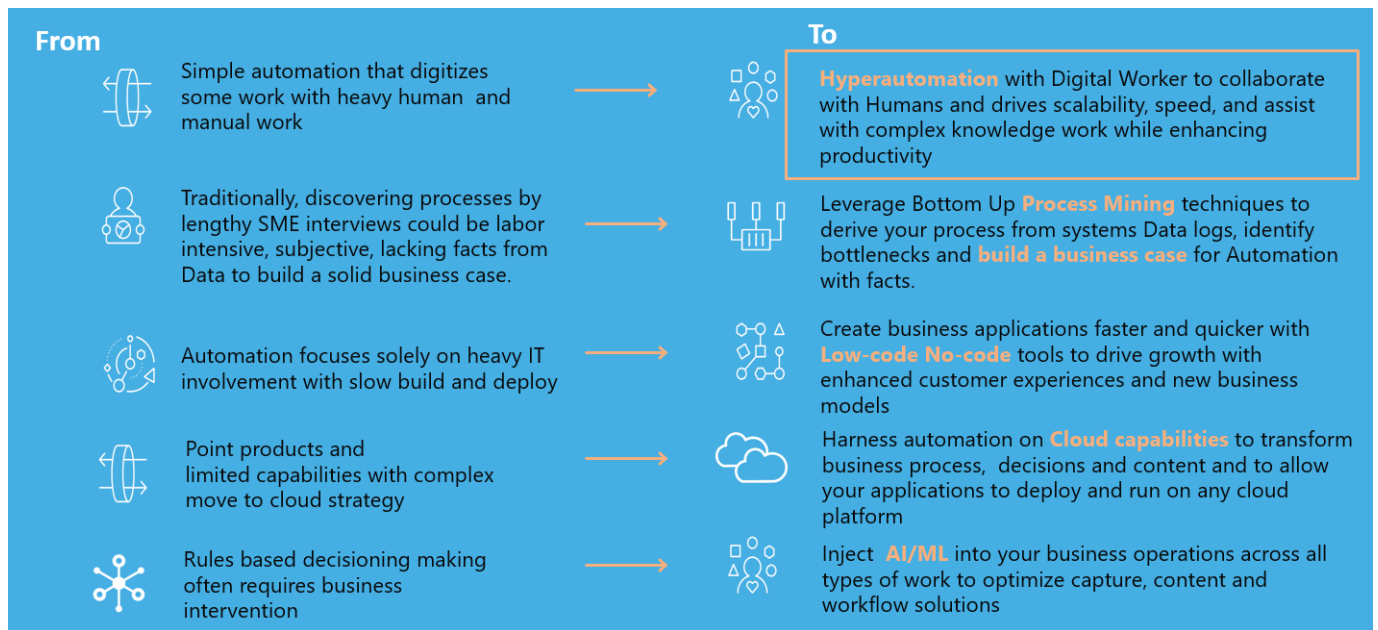
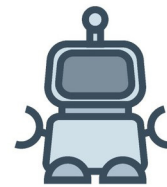


Figure 1: Automation vs Hyperautomation

Bots - Use Cases

Bots, or 'digital workers', are central to both RPA and hyperautomation. They can be used across a wide range of business areas, including:



Banking and Finance

- Reconcile accounts, post journal entries
- Process and classify incoming documents
- Perform preliminary KYC check of a prospect or customer

Insurance

- Receive images of injury to a worker, evaluate them based on parameters such as age and location to allocate reserve for claim adjudication process
- Identify exceptions, suspected fraud, over-threshold amounts
- Perform beneficiary check before releasing payments

Mortgages and Loans

- Process loan applications, verify and match loan data

Healthcare

- Analyse provider data to determine insurance network status
- Evaluate provider quality (cost-care score, social responsibility, patient feedback, certification, etc.) to ensure compliance with 'in-network' or 'out-network' policies
- Auto-schedule appointments based on patient's preference, history and clinic schedule

Human Resources

- Process onboarding, enroll new hires in payroll and benefits systems

Consumer Products, Retail and Distribution*

- Inspect customer profile to understand demographic habits, and manage inventory accordingly (home delivery, kerb-side pickup, scheduled delivery, subscriptions)

To demonstrate the tremendous utility of bots, Gartner gives the example of seeking to automate an anti-money-laundering process by implementing a fraud detection algorithm. The following steps are delineated in their December 2019 paper, [‘Move Beyond RPA to Deliver Hyperautomation’](#):

1. An iBPMS and / or distribution management system tool manages the decision-driven orchestration of the process
2. The tool triggers an RPA bot to perform data collection and other routine labour work
3. The fraud detection algorithm – built on an ML model – is run on the consolidated data to identify patterns. This process could necessitate human intervention, requiring that formal approval be provided before moving forward
4. Another RPA bot is then triggered to perform follow-up tasks, such as sending emails or updating transactional systems

Prolifics and Hyperautomation

If your organisation is looking to undergo a complete digital transformation and reach hyperautomation in the coming years, look no further than our parent company, [Prolifics](#).

Prolifics has been leading the way on hyperautomation for the past few years. It enables organisations to create their own bespoke digital assistants, or ‘hyperautomated bots’.

Hyperautomated bots differ from basic RPA bots in a few key ways:

Basic BOTs	Cognitive BOTs	Hyperautomated BOTs
<ul style="list-style-type: none">• Task Bots to complete repetitive mundane tasks• Simple Desktop or Process Automation• Highly Human Dependent. They complete a subset of tasks and pass on the control to a human	<ul style="list-style-type: none">• Bots integrate with AI services to provide enhanced outcomes.• Prescriptive Analytics with Decision Engines• They can complete a majority of all the tasks for an activity. They may also complete the activity based on complexity.	<ul style="list-style-type: none">• Bots are blended with AI services such as Vision, Deep Learning, Machine Learning etc.• Highly Deductive Analytics based on data insights• They are designed to complete the entire activity.

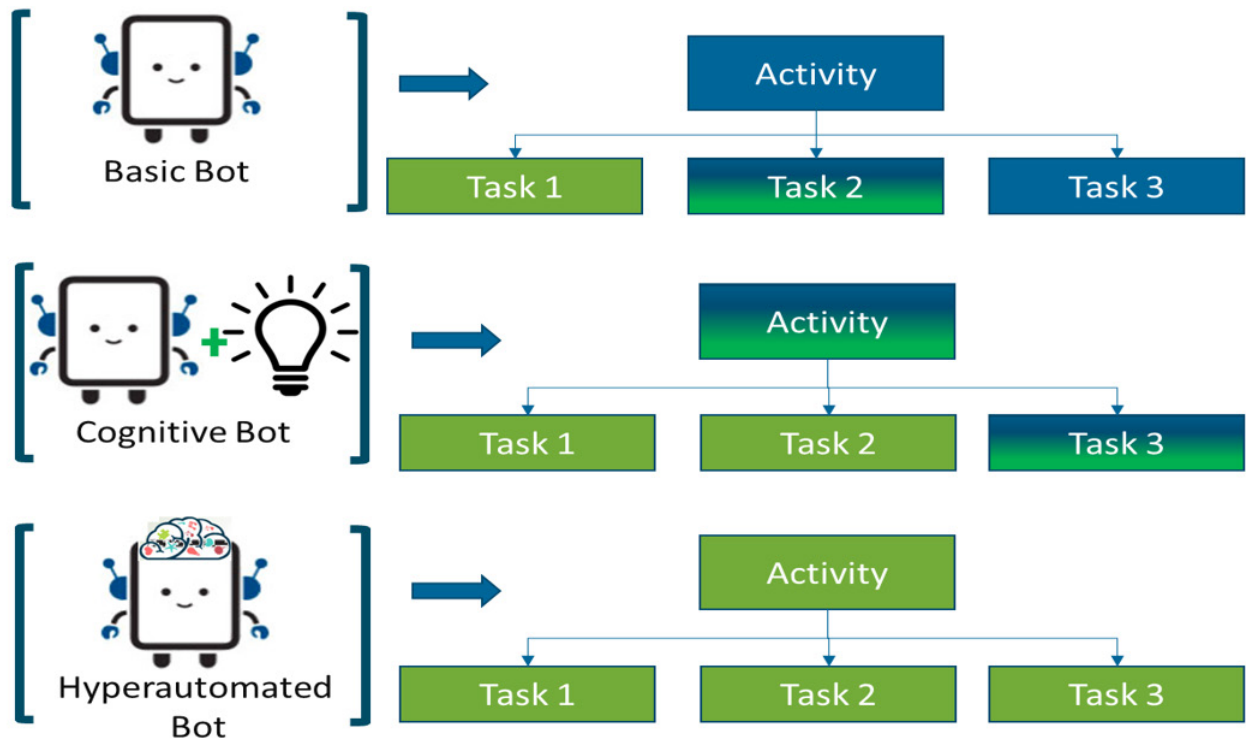


Figure 3: Demonstrating bot evolution

Two of Prolifics' most popular hyperautomated bots are called Archie and Leia.

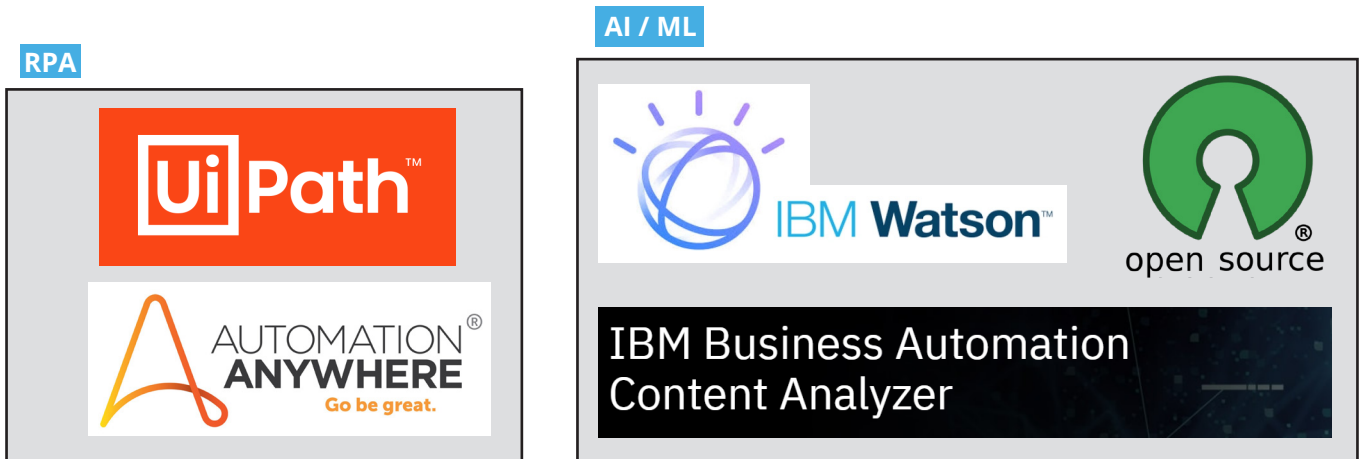
Archie is a digital PPP loan officer who can process loan applications in one minute. As a hyperautomated bot, Archie helps banks and lenders significantly improve efficiency and accuracy for loan processing.

Leia specialises in employee onboarding. From verifying PAYE forms, to enrolling new hires in the payroll or on training courses, Leia can complete the onboarding process in just two minutes.

Once COVID-19 is fully under control, many companies will be looking to re-hire people at pace. However, current onboarding processes typically require a great deal of manual data entry. New hire information for employee profiles, payroll, and benefits often go into different HR systems, slowing down the hiring process. As such, there has never been a better time to start using Leia for your business.

Remarkably, Archie and Leia aren't limited by these roles! They can help automate a wide variety of tasks, such as insurance claims processing, invoice processing, accounting, stock management and more.

Archie and Leia are based on the following sets of platforms:



Hyperautomation and Higher Education

Recently, Prolifics has been using Leia to assist schools and universities with their workloads. One such example is **Ultimate Medical Academy (UMA)**, a non-profit medical training school in Florida. Currently, Leia is helping UMA:

- Onboard new students
- Create profiles on job boards
- Schedule interviews, book transportation, and generate reminders

Other institutions currently benefiting from Leia include:

- **DeKalb County Schools (Illinois)**, where Leia is being used to onboard new teachers
- **MIT Lincoln Laboratory** and **Boston College**, for process improvement work
- **Virginia Department of Health**, for COVID-19 contact tracing

At Prolifics Testing, the dedicated software testing branch of Prolifics, we are currently working with **Tribal Group**, who provide 70% of UK universities with Strategic Information Technology Systems (SITS).

We support them with a wide variety of testing for their systems, including:

- Test Strategy
- User Acceptance Testing (UAT)
- Performance Testing

In tandem with Prolifics, we are also providing Tribal with the following services:

- Data Migration Strategy
- Data Cleansing and Extraction
- Data Validation

These services are being provided on-demand, in a blended delivery model.

We are currently talking to a number of UK universities about using Leia to support their admissions process, and the staff onboarding that this sizeable process often necessitates.

Prolifics Testing and Test Automation

According to the [World Quality Report 2019-20](#), 'easily the greatest problem, for almost half of all respondents in the [public] sector (49%), was "not enough time to test."'

When it comes to testing your IT systems, manual testing can be a laborious, time-consuming, and imperfect process. Test Automation offers a reduction in both the time and cost of test execution, as well as greater test coverage, accuracy and scope.

As a specialist testing consultancy, we possess extensive Test Automation knowledge, with experience using a range of both Open Source and proprietary tools. We've successfully implemented or reviewed Test Automation for companies of all sizes, especially in blue chip multi-nationals.

For a longer-term approach, we also offer a full Managed Service. A blended delivery model helps realise your objectives within your budget, while retaining communication channels, working hours and strong collaboration between teams.

The World Quality Report found that when they asked respondents to rate factors in terms of the impact made on increasing the company QA and testing budget, 'Increased amount of developments and releases' rated the highest.

In addition, 64% of CPRD (Consumer Products, Retail and Distribution) organisations mentioned that attempts to implement test automation were hampered by the fact that their applications change 'too much' with every release.

These problems are occasioned by the rapid rate at which agile and DevOps methodologies are currently being adopted across the business world. While this is largely a positive thing, as it allows developers and testers to work together throughout the lifecycle, it can create issues when test automation is not handled correctly.

At Prolifics Testing, our Test Automation services integrate and automate execution for each and every build, allowing you to feel confident in continuously deploying applications.

CASE STUDY

Scriptless Test Automation – McKesson

The McKesson logo is displayed in a large, bold, blue sans-serif font. The letter 'M' is stylized with a small orange horizontal bar at its base.

- Over £1.7 million in cost savings
- 97% defect removal efficiency (DRE)
- Helped McKesson meet FDA and SOX compliance

AI / ML and Testing

As testing becomes more and more a part of general IT disciplines, and the business as whole, Test Automation can and should evolve rapidly.²

We wholeheartedly concur with the World Quality Report assessment that:

“

organisations should regard [testing] less as a capability, and more as a platform. It should be seen as a broad arena shared by tools and functions that come together to fulfil a collective purpose, working intelligently from end to end – and driven by the objectives of the business.

”

That's why we've created a containerised, cloud-based Test Automation PaaS, complete with embedded AI / ML capabilities, such as self-healing scripts.

We call it Quality Fusion (QF).

Quality Fusion



Quality Fusion

Typically, organisations use many different test tools to cover a wide range of testing activities, as there is no easy or cost-effective way to bring multiple solutions together via a single, open-source testing platform. Test and QA leaders told us they wanted a solution with AI capabilities to bring together and add value to open source solutions: one that takes advantage of modern innovation and reduces dependencies on more technical resources to maintain automation packs.

In response, we created Quality Fusion, a single, open testing platform with built-in AI capabilities, that users could start using 'straight out of the box' to automate web, desktop, mobile and API tests. We wanted to help our customers achieve faster, more frequent software testing, while maintaining quality and autonomy.

² When asked to rate the importance of executive management objectives in relation to QA and testing on a scale from 1-7, where 1 is least important, and 7 most important, respondents surveyed in the World Quality Report chose 'Contribute to business growth and business outcomes' as the greatest priority (6.03), a significant change from four years ago (5.01).

Benefits of Quality Fusion

Easy to use

Quality Fusion enables codeless test automation, which means anyone can use it. It's especially useful for:

- Manual testers, BAs, and business users – no coding knowledge required
- Automation Engineers – use the ready-made automation frameworks (Java / C#)
- DevTesters – leverage the support for IDEs

In addition, Quality Fusion is Red Hat OpenShift and Ansible ready, DevOps compatible, and integrates with Jenkins. It can be used as part of your CI / CD pipeline, and promotes Shift Left, since you can run automated tests as part of each and every build.

Saves time

With Quality Fusion, you can easily perform Data Mining for automated test data creation. Its Tensor-Flow AI Engine allows you to focus test efforts more intelligently, while self-healing scripts mean reduced maintenance as applications inevitably change over time.

Reduced cost

Quality Fusion is built on open-source components, so there are no license fees or maintenance costs.

Like all our Accelerators, Quality Fusion is offered free alongside our testing services. In addition, all automation assets generated via our toolset are standalone and do not rely on our IP for continued use.

The importance of Quality Fusion

There has never been a better time to start using an advanced testing platform.

The World Quality Report found that a substantial 42% of survey respondents reported having AI projects in place on QA, while 38% had ML projects up and running. Just 4% of respondents had no plans to implement AI or ML projects. A new normal is emerging in the world of testing, and companies should ensure they're keeping pace with advancements.

The World Quality Report found that over half (59%) of financial sector respondents mentioned a lack of appropriate test environments as the most significant barrier to successfully implementing test automation. Given the sensitivity of data in this sector, this is deeply concerning.

Fortunately, Quality Fusion dramatically reduces the costs involved in generating dedicated test environments thanks to its containerised approach, which makes it possible to spin up environments at will. In fact, Quality Fusion enables you to spin multiple containers to run parallel test execution of 300 API and 500 UI scripts in just 10 minutes.

Automated Security Testing

“

To raise the game on security, we recommend that QA and test teams increase their introduction of automation in this area. It means more tests can be conducted, and faster – and our survey results show it's also felt by many to reduce risk. For similar reasons, we also recommend that more security testing be moved to cloud-based test environments. It's an approach that is fast, flexible, and iterative.’

”

World Quality Report 2019-20

At Prolifics Testing, we provide a high-quality Automated Security Testing service. Our specialist Security Testing Accelerator has been specially built to detect serious security vulnerabilities and threats that often go unnoticed.

Our accelerator is designed to detect the [Open Web Application Security Project \(OWASP\) Top Ten](#), the most critical security risks to web applications:

- Injection
- Broken authentication
- Sensitive data exposure
- XML External Entities (XXE)
- Broken access control
- Security misconfigurations
- Cross Site Scripting (XSS)
- Insecure deserialization
- Using components with known vulnerabilities
- Insufficient logging and monitoring

At the touch of a button, the Accelerator automatically scans the application, identifying any security vulnerabilities, and produces a report with remediation steps to avoid security breaches. It also alleviates the requirement for costly security experts, who often undertake lengthy and complex analysis.

With no restrictions on using the Security Testing Accelerator, your team can ensure every security vulnerability introduced when changes have been introduced to the application is detected.

Our staff security clearance process conforms to the BS7858:2012 Code of Practice for individuals employed in a security environment, and we hold Government security clearance up to Security Clearance (SC) level.



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About Prolifics Testing

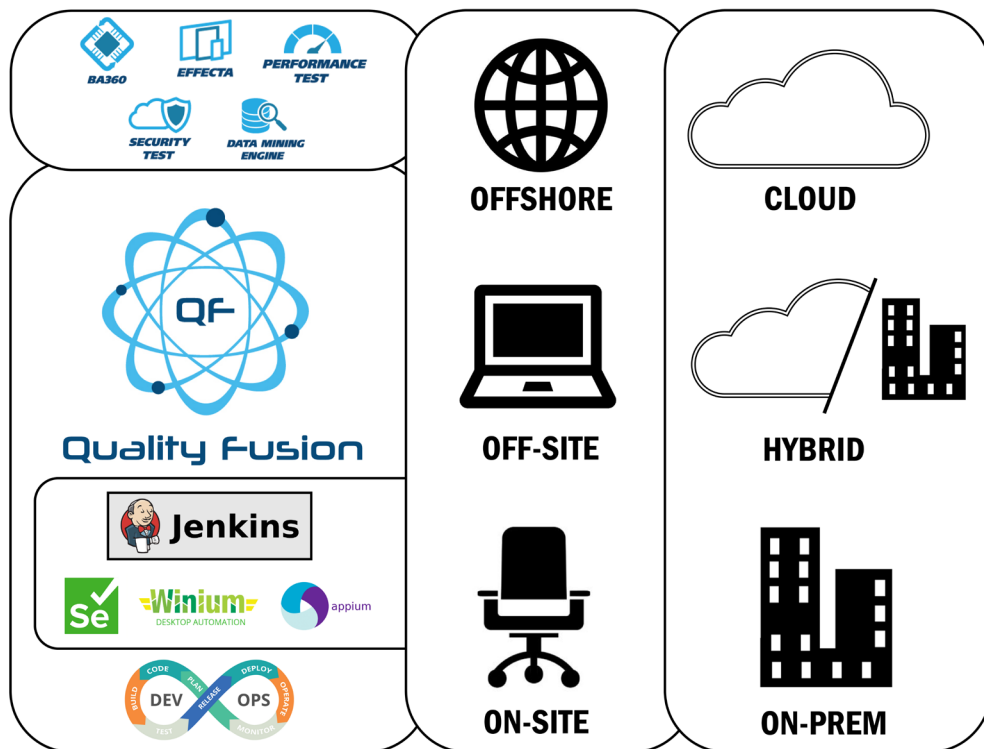
Prolifics Testing is a specialist IT consultancy with a total focus on software testing. We deliver high-quality, flexible software QA and testing services to industry giants like McKesson, Deloitte and Lloyds Banking Group.

If you'd like to find out more about any of our services, feel free to [contact us](#) via our website.



Our Services

- Managed Test Service
- Test Health Check
- Functional Testing
- User Acceptance Testing (UAT)
- System Integration Testing
- Performance Testing
 - Load Testing
 - Stress Testing
 - Performance Engineering
- Security Testing
 - SAST & DAST
 - IAST & RASP
 - DevSecOps
- Accessibility Testing
- ETL Testing
- Middleware Testing
- App Testing



About Prolifics

Prolifics Group is a global IT service management company with nearly 1000 employees across the US, Canada, India, and Germany. Prolifics provides expert on-demand consulting, engineering and managed services for all practice areas, making Prolifics a one-stop digital transformation leader. Whether it's initial advising and strategy, design and implementation, or ongoing analysis and guidance, Prolifics can help you take charge of your digital future.

