

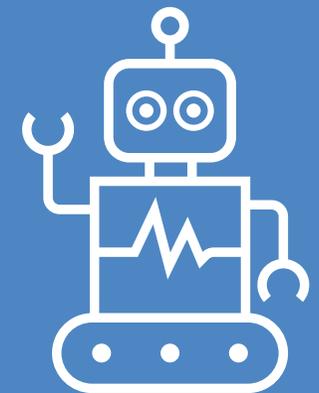
One job two solutions?

Comparing RPA and Test Automation

> itecor eBook

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Helen Bally & Yuval Keren
Vevey, Dec. 2021



INTRODUCTION

AUTOMATION TRENDS: THE PACE OF AUTOMATION IS ACCELERATING.

2020 was an exceptional year that brought changes across the board and has contributed to the overall automation trend

According to Gartner, the **pace** of automation¹ is accelerating:

- “Through 2024, enhancements in analytics and **automatic remediation capabilities** **will refocus 30% of IT operations efforts**, from support to continuous engineering..
- By 2024, organizations will lower operational costs by 30% by combining **hyperautomation** technologies with redesigned operational processes.

By automating, organizations can reduce human error and make processes more efficient by removing human interventions and delays. Automating the right processes means less effort, faster services and fewer errors.

ROBOTIC PROCESS AUTOMATION VS TEST AUTOMATION?

Test Automation has been part of IT testing practices for decades, but is experiencing massive growth due to the increase in digital programs and rapid development cycles

Robotic Process Automation (RPA) is a relative newcomer, emerging in the 2000s. One driving use case at the time was to reduce the cost of Business Process Outsourcing². The original RPA tools started with “screen scraping” and worked much like Test Automation tools. However advances in AI and ML, unstructured data processing, predictive analytics means the two toolsets have diverged over the years.

digital-first initiatives
are accelerating

¹<https://www.advsyscon.com/blog/gartner-it-automation/>

²<https://nandan.info/history-of-robotic-process-automation-rpa/>

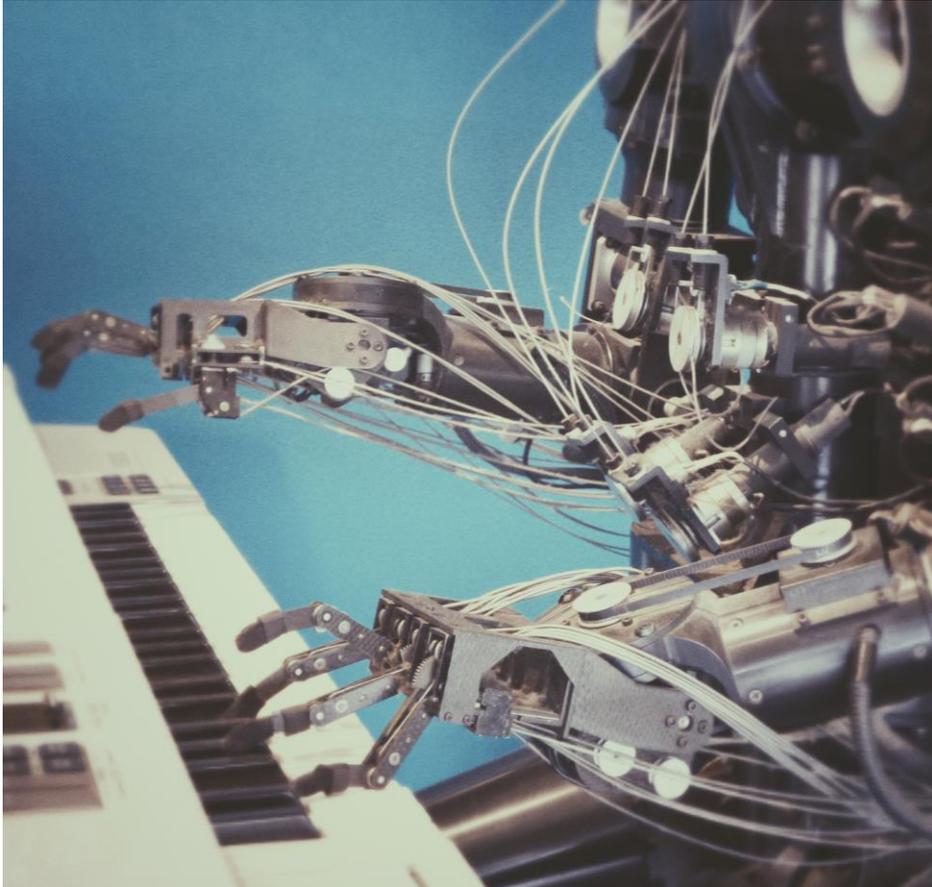


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WHY TWO AUTOMATION TOOLSETS?

RPA and Software Test Automation are both in the business of automating tasks performed on software in order to do something faster and consistently.

So why are there different Toolsets?

Many companies are legitimately asking what is the purpose of two automation toolsets. They maybe have a Test Automation tool and skills already in house and are wondering if they can re-use for RPA. Or vice-versa, they have RPA and are wondering if they use it to automate tests. Additionally, some of the major vendors are also marketing that they cover both needs.

In this booklet we try to explain at a high level what to look for in an RPA tool vs a Test Automation tool: Who owns these tools? Who uses these tools and what for? What features are important to look for in each? Firstly, we will look at a definition of each activity

WHAT IS TEST AUTOMATION?

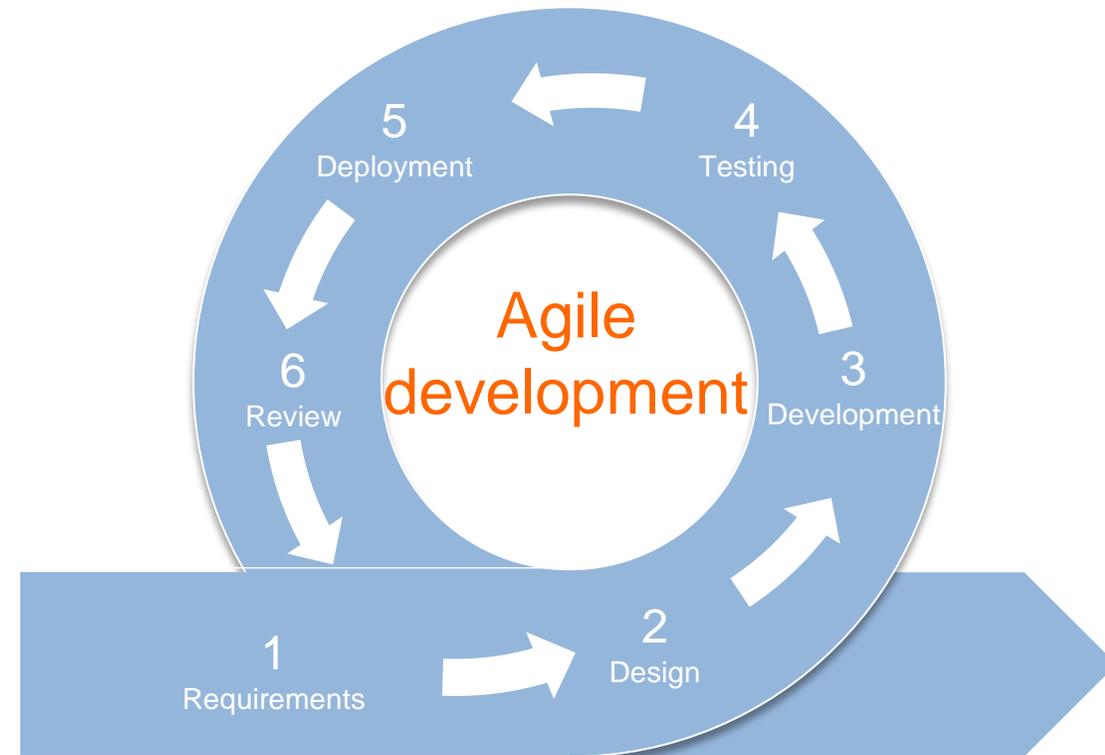
Test automation aims to verify that a piece of **software works as expected**.

It is generally used to **automate tests** as part of the application development lifecycle. These are tests would normally be performed by human testers. The term **Test Automation** covers everything from Unit and API testing through to Business Process Scenario regression testing.

The advantages of test automation are firstly that a high number of tests can be performed in a relatively short space of time. The second is that these tests can generally be repeated multiple times

The increase in Test Automation is due to a number of factors

- More digital programs
- Agile development needs rapid results, and needs them on a regular basis
- More skills and knowledge available – test engineers are now expected to have some level of automation skills
- Better tools / Opensource tools are lowering the barrier for uptake



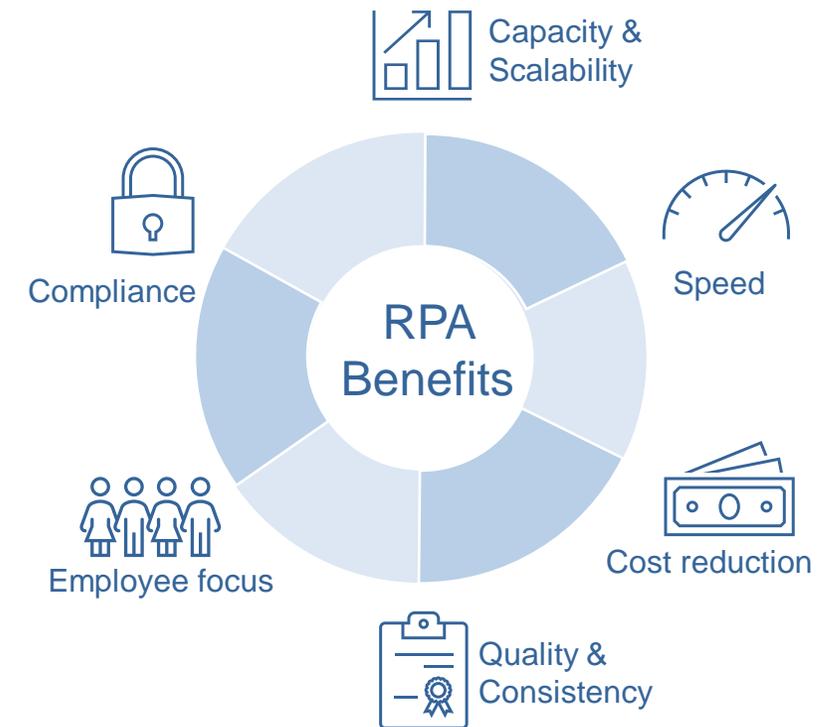
WHAT IS RPA - ROBOTIC PROCESS AUTOMATION?

RPA **automates repetitive, well-defined tasks** which are normally performed by business people.

The objectives can be to save time, increase capacity, improve accuracy although additional benefits come from liberating skilled employees from mundane activities.

RPA is part of a global Automation trend which is seeing an annual growth rate of over 40%¹

Multiple industries benefit from RPA: Banking and finance companies are using extensively due to the nature of their business which requires seamless and accurate processing of a lot of sensitive data. Many of their tasks lend themselves to automation. Insurance, Healthcare, Logistics and Utilities are all investing as well. In fact any industry with repetitive front or back office tasks can benefit from streamlining their business, increasing compliance and reducing end to end processing time.



COMPARING TEST AUTOMATION WITH RPA

1-GOVERNANCE



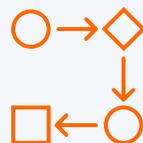
2-OBJECTIVES



3-SCOPE



4-PROCESS



We will compare Test Automation with RPA looking at

- who owns and manages the automation
- what are the objectives for automating
- what sort of things are being automated and where
 - what is the process for automation

1 - GOVERNANCE

TEST AUTOMATION

Test Automation tools are generally owned and managed with the IT organisation: either by a central Test Competency team, or by the Application development organisation or team.

These teams deal primarily in software development and delivery. There is often a limited set of people with the test automation knowledge and competencies – they build and run the tests for themselves and have the knowledge to fix issues as they arise

Test Specifications are often defined by the Application team based on User Requirements and Application Design

RPA

RPA tools server the business operations and as such are often sponsored or managed by the business unit. They are consequently available to a wide audience

The development of an RPA routine may be done by a dedicated IT team, or increasingly through citizen developers. Execution is in the hands of the business and therefore the routines need to be stable and performant. Determining what to automate is often assisted by analysis using Process Discovery and Process Mining.



2-OBJECTIVE

TEST AUTOMATION

With Test Automation, you are looking to make a decision about the **quality of your software**. Depending on where and when you run the test automation, you are often making a decision about the quality of the **build** and whether there has been some unexpected regression. You may also use test automation to assess the quality of a **release** before going to production.

In both cases you are interested in tying the failures to features and their priority in order to feed into the decision to go ahead with the build or release.

The key objective for test automation is to quickly know where an application fails in a test system and to understand the underlying feature (or business process) that caused the failure.

RPA

With RPA you are looking to automate a part of a **business activity** in order to reduce manual effort, increase speed and reliability of data entry.

RPA is well adapted to well-defined processes and applications that are stable. The biggest return on investment comes with activities that are repeatable and predictable. This is why RPA is so often introduced to a company through the Finance, HR, Procurement or Sales departments where there is a high volume of repeatable activities

The key objective of RPA is to be able to reliably execute an operational business process and to keep an audit trail of what was done or not done.

Risk driven

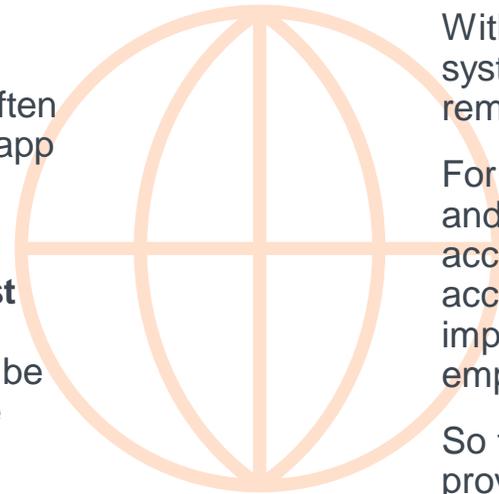
3-SCOPE

TEST AUTOMATION

Generally with test automation the activities are focused on a single application. This application is very often a web/HTML application or a mobile app where a lot of digital development is focused

The automated tests are run on a **test** system where there may be test or synthetic data. The test systems can be accessed using a test user or service account.

The automated tests need to cope with an application that is constantly evolving



RPA

With RPA you very often want to automate processes that cross multiple systems, with different GUIs. eg. MS Outlook → SAP → Sharepoint → remote Desktop → Excel → MS Outlook

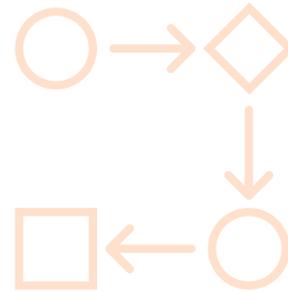
For each system you need to think about which user account is accessing and with which permission levels. A major consideration is that you are accessing **production** systems and changing production data. Controlled access, audit trails are essential considerations for an RPA implementation. When an automated robot encounters a problem, the emphasis is on ensuring the production activity is completed correctly.

So the focus on RPA is the ability to cross multiple systems, while providing an audit trail of everything that was changed in the production systems. On the plus side, the applications are rarely evolving as fast as in the case of test automation.

Value driven

4-PROCESS

TEST AUTOMATION



With test automation you have experienced test engineers or developers who are often automating a large number of tests. They have technical competencies and an insider's knowledge of the application under test. This allows them to build test frameworks to capitalise the creation of many different tests. A good test engineer will build robustness into their automated tests but will also know how to rapidly fix the automated test if it encounters failures.

Test Automation tools are often adapted for one technology (Web, API, Mobile, SAP, MSDynamics) although the higher end tools will cover a broad range of technologies.

The Test automation process often needs to be adapted to an environment where the application is under change.

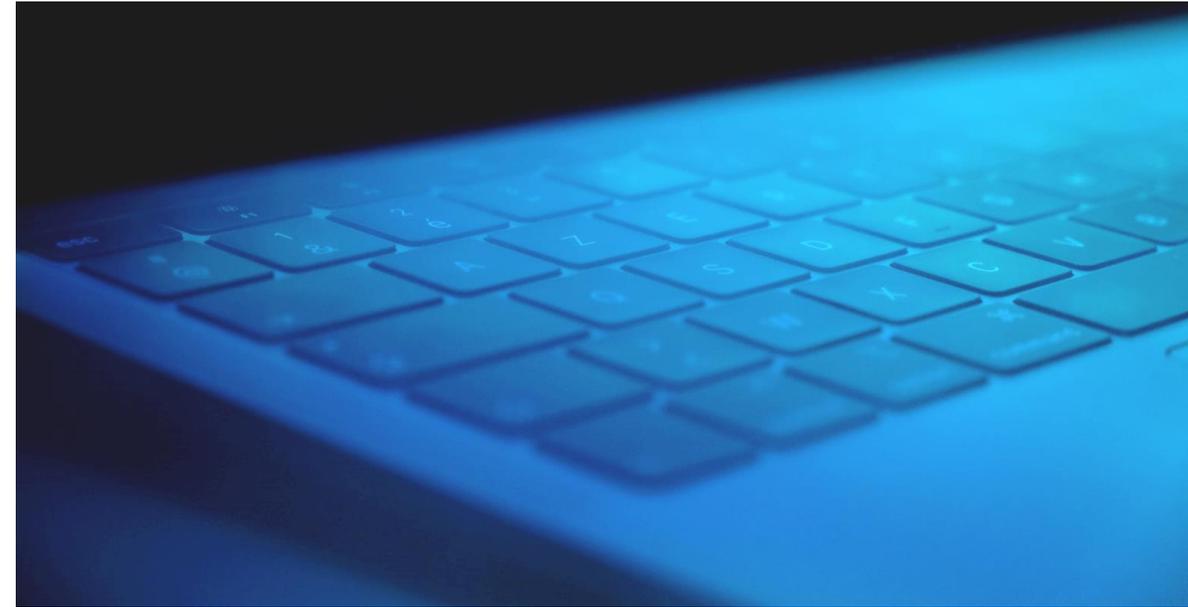


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RPA

RPA tools were originally developed from professional test automation tools. They are necessarily adapted to automate a broad range of technologies, including add-ins for MS tools (read mail, send mail). They are strong in OCR technologies which allows them to read PDFs and understand screens accessed through remote desktop for example.

People responsible for running RPA processes aren't necessarily technicians and so it needs to be easy to run an RPA robot and to understand if/when it's failed.

A LOOK AT THE TOOLS

Now that we've compared the different automation types, let's take a brief look at what to look for when evaluating the RPA or TEST AUTOMATION tools

Comparing the recent Gartner Quadrants and Forrester Wave reports – shows **zero vendor** overlap for the RPA and Test Automation suites.

This seems curious for tools that at first glance seem to accomplish the same goal of automating user actions on information systems.



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FORRESTER WAVE

Forrester Wave shows no vendor overlap

The Forrester Wave™: Continuous functional test automation suites, Q2 2020



FORRESTER

THE FORRESTER WAVE™

Robotic Process Automation
Q1 2021



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GARTNER MAGIC QUADRANTS

Gartner Magic Quadrants show no vendor overlap

Magic Quadrant for Software Test Automation Gartner 2019

Figure 1. Magic Quadrant for Software Test Automation



Source: Gartner (November 2019)

Magic Quadrant for Robotic Process Automation Gartner 2020



KEY FEATURES OF TEST AUTOMATION TOOLS

The following are some of the key features to look for when evaluating a Test Automation Tool

TECHNOLOGY INTEGRATION

- Integrated in DevOps Tool chains : integration CI/CD pipeline
- Integration Test Management Tools
- Support of Web, Mobile as well as enterprise applications (e.g. SAP, Microsoft Dynamics)
- RESTful SOAP-UI
- Defect management integration

USAGE

- Adapted to Test engineers, Test analysts, Developers
- Support of different scripting languages
- BDD
- Execution: Locally, remote, Cloud

ADDITIONAL FEATURES

- Self healing
- Framework / model based approach for development
- OCR / Text analysis
- Code coverage
- Service Virtualization
- Security Testing
- Performance Testing
- Open source



RPA – KEY FEATURES OF RPA TOOLS

The following are some of the key features to look for when evaluating an RPA tool

TECHNOLOGY INTEGRATION

- Technology Integration (e.g. Microsoft, SAP, Salesforce, Workday, Google), IoT
- Natural language processing, text analytics for document extraction.
- Speedy Image recognition
- Integration with enterprise applications
- Cloud/ PaaS/in house delivery
- Bot stores / community developed bots

USAGE

- Adapted to business users, citizen developers and developers
- Low code capabilities
- Easy to use bot design
- Attended / unattended execution
- Error handling procedures in case of failure
- Orchestration
- Real-time monitoring
- Robust security

ADDITIONAL FEATURES

- Process / Task mining for identification and prioritization of automation candidates
- OCR with machine learning
- ROI analysis
- AI content analytics and processing / decision tools
- Digital Assistants
- For some companies, low cost of entry important



CONCLUSION

At their base, RPA and Test Automation tools are both capable of creating scripts that can run on multiple different applications. All of the big vendors are investing in AI, robot stability and visual recognition.

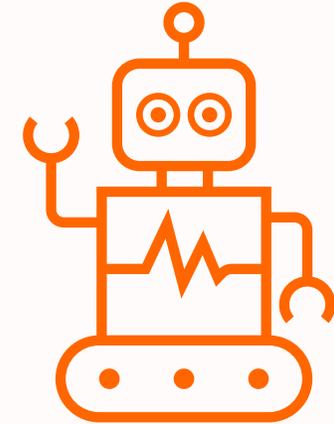
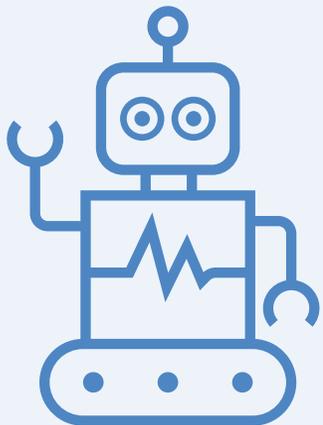
Some of the big vendors in both spaces are recognizing the opportunity and extending their offerings to cover the needs of the other. E.g. UiPath has a Test Automation Suite.

Where there is probably the most overlap are use cases where RPA tools have been used to automate business process regression testing. But of course there are plenty of examples where test automation has been used in an “RPA” way.

For the moment though, the specific needs of the two communities (Business automating operational processes vs. IT Application Development automating tests) diverge enough that you would probably want a specific tool to address the needs as soon as you have any volume.

If you are interested in discussing about any of the subjects talked about here, we'd love to hear from you. Contact us at info@itecor.com

Helen Bally, Vevey, Dec. 2021



REFERENCES AND FURTHER READING

REFERENCES

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The Forrester Wave™: Robotic Process Automation, Q1 2021

Gartner Magic Quadrant for Robotic Process Automation 2020

Gartner Magic Quadrant Functional Test Automation 2019

<https://www.wearebrain.com/blog/enterprise-automation/industries-adopting-rpa-2020/>

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<https://www.advsyscon.com/blog/gartner-it-automation/>

<https://www.advsyscon.com/blog/architectural-approach/>

<https://nandan.info/history-of-robotic-process-automation-rpa/>

<https://nandan.info/top-robotic-process-automation-rpa-tools-list/>

FURTHER READING

If you're interested in reading more, some of the following articles are interesting – most are vendor-sponsored so they are obviously going to promote a certain view!

<https://smartbear.com/blog/robotic-process-automation-is-it-same-as-test-auto/>

<https://cloudqa.io/robotic-process-automation-rpa-test-automation-myths-and-facts/>

<https://www.uipath.com/product/test-suite>

RPA CASE BEST PRACTICE - SPOTLIGHT

One of our clients managed licenses for a technology company with multiple different heterogeneous products. The license renewal process was triggered by reception of an email from the customer and from there, there was a series of repetitive tasks to be completed that crossed SAP, applications only accessible through RDP, Microsoft desktop tools.

The department was not interested in reducing headcount – but they were interested in increasing their capacity as the parent company was in an acquisition phase and so the number of licenses to manage was expected to increase.

By introducing RPA they were able to maintain their headcount, increase capacity, and focus their staff on key human-based decisions



Photo by [Marvin Meyer](#) on [Unsplash](#)

TEST AUTOMATION BEST PRACTICE SPOTLIGHT

A Test Manager in a multi-national company inherited 4000 regression test cases from an overzealous project manager. All efforts had been put into automating every combination of country+process. However as the test team never linked any of the tests to features or business processes knew what the tests were doing.

The test manager had no idea if 5% failures was good to go live or not because there was no concept of coverage and priority for the automated tests

Lesson learned: *if you don't understand what your automated test is actually testing, the pass / fail response doesn't mean a thing.*



Photo by Nathan Dunlao on [Unsplash](#)