
siticom
HOW TEST AUTOMATION CAN INFLUENCE YOUR ORGANISATION

WHY READ THIS ARTICLE?

Organisations are automating because there is an increasing need to deliver faster while maintaining quality. We need better networks, and we need them to act reliable. One of the best ways to challenge this problem is with test automation.

We even suggest increasing the level of smart test automation. However, there are no shortage of key challenges in implementing automation to address. The reality is that test automation is desirable but difficult.

Let's talk about that.

THE MASTERY OF CHANGE.

The digital transformation is constantly changing the business world. More and more business processes are digitized. This has consequences for the way companies will work in future and increases the connectivity dependency.

Your network is the essential backbone for any ambition regarding the digital transformation:

- it enables new business models or new services like the usage of IoT.
- it allows for optimization of your existing work processes.

Progressive companies invest in technologies such as disaggregation and NFV to optimise costs and scale their services agile.

One thing is for sure: you will see a resilient effect in optimisation of your employee's and/or customer's experience and satisfaction – **thanks to the network infrastructure**.

DEFINITION OF NETWORK INFRASTRUCTURE.

We understand Network Infrastructure to be all the resources in a network which enable network or internet connectivity, administration, business processes and communication. The network infrastructure comprises hardware and software, systems and devices. It enables data processing and communication between users, services and local or cloud located applications. Everything network-related, from servers to wireless routers, from IP Address to Directory Management, makes up a system's network infrastructure

siticom

A TRUE HANDSHAKE: NETWORK-EVOLUTION AND DIGITAL TRANSFORMATION.

This can only be achieved with the support of an up-to-date, secure, and stable infrastructure based on the technical and operational requirements of your organisation.

The continuous evolution of your network is comparable with the basics of software development: It needs quality assurance. Testing is the most used anchor in quality assurance. It typically compares the actual behaviour of your network with the expected.

REGRESSION AND EVOLUTION? TEST-AUTOMATION TO THE RESCUE!

Regression tests are mandatory to exclude undesirable side effects and the proof of success once changes to your network got applied.

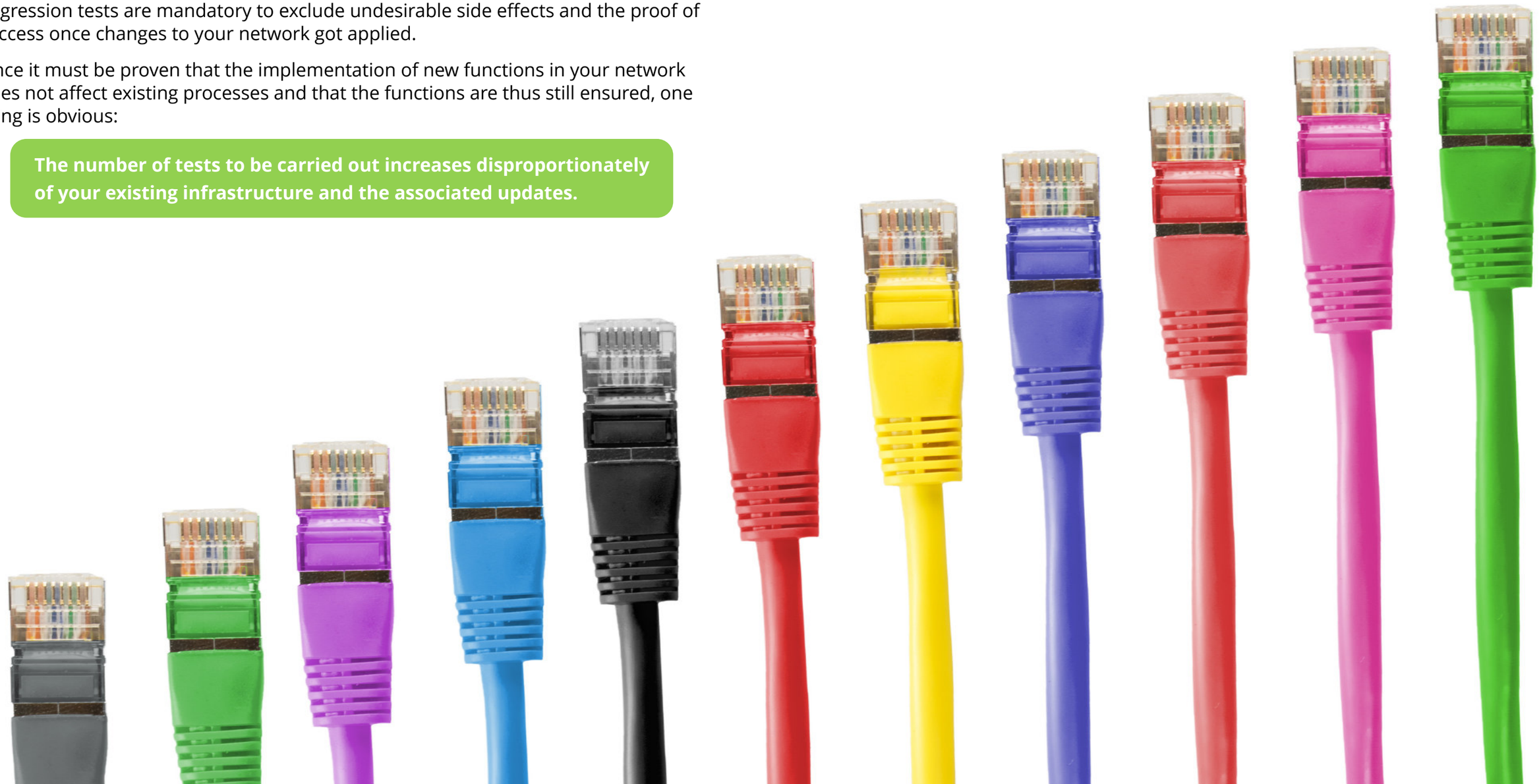
Since it must be proven that the implementation of new functions in your network does not affect existing processes and that the functions are thus still ensured, one thing is obvious:

The number of tests to be carried out increases disproportionately of your existing infrastructure and the associated updates.

Therefore release-testing can be correspondingly complex, and efforts taken comparatively high. Since tests (especially regression tests) are often very repetitive, **automated execution obviously increase the efficiency.**

The idea is born: Automated Network Testing may be the solution to solve the problems.

DEFINITION OF TEST AUTOMATION.
„The use of software to perform or support test activities, e.g., test management, test design, test execution and results checking. “
SOURCE: THE ISTQB-GLOSSARY (LINK)



KEY BENEFITS OF TEST-AUTOMATION.

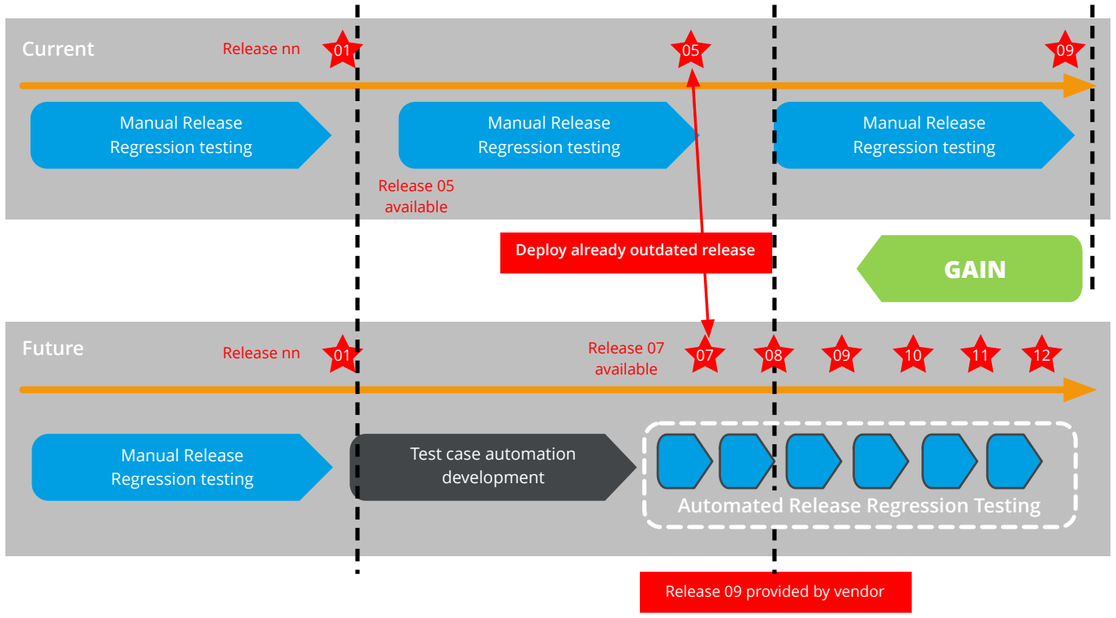
Cost.	Manual testing is resource-intensive and therefore, costly.
Time.	Manual testing cannot keep pace with certain tasks.
Accuracy.	There can be a greater chance of error with manual testing many repetitive tasks.
Trend.	Many organisations have realised benefits from automation, so there is pressure to follow suit.
Scale.	Manual testing cannot match the complex iterations of automated testing.
Adoption.	Automation should not only replicate existing manual test processes. See the opportunity in supporting new ways of working in DevOps and IoT.

POTENTIALS AND LIMITATIONS.

Test-Automation of course is not the one and only saviour to the challenges you'll be facing when evolving your network. There are limitations we want to prominently address in the first place:

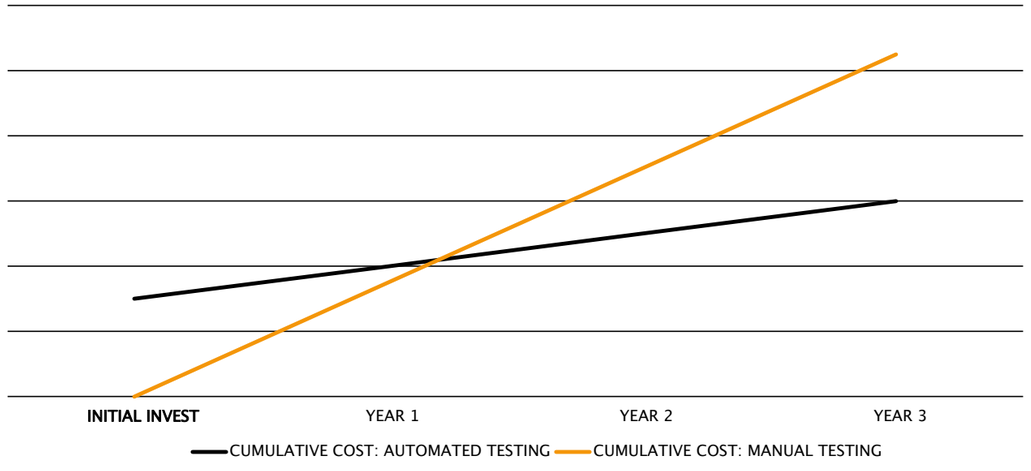
IS CHANGING TO AUTOMATED TESTS JEOPARDISING MY RELEASE MANAGEMENT?

It sure can be if executed wrong. When done right though, the automated release test will quickly pass the manual execution depending on the size of the test suites and amount of test cases.



Depending on the quantity and complexity of new features within the releases, your regression-test pool may increase with every new release, but the benefit in terms of time and effort will improve over time.

An effect that will also be harmonized in terms of costs:



WHAT SOULD BE AUTOMATED? WHAT SHOULD NOT?

Not everything can (or even should) be automated and as we stated before: automation is not the solution to all your problems.

To enable the best possible integration and acceptance, you should consider the following:

- concentrate on tests which deliver machine-readable results
- likely not all tests should or can be automated – keep an eye on efforts to automate

Also, from our experiences, manual exploratory tests should still part of a regression – even with a very high grade of possible automation. They deliver valuable results, especially in an agile development-environment, where tests are carried out as well by developers. Just consider the psychological effect that none of your developers want to find any errors from a certain level of maturity...

An overview of the potential of test automation across the various disciplines.

Test Analysis	Test Design	Test Environment	Test Execution	Test Evaluation
Potential of automation?	Potential of automation?	Potential of automation?	Potential of automation?	Potential of automation?
No	**Partially**	**Fully**	**Fully**	**Fully**
▪ Definition verdict - clarification of pass and fail criteria ▪ Derivation of the test conditions	▪ Draft test ▪ Define test environment ▪ Model based testing	▪ Setup infrastructure e.g., setup of the operating systems ▪ Check test conditions (pre-test environment) ▪ Manage test automation framework ▪ Configuration of virtual machines ▪ (Re) establishing a defined state of the test environment	▪ Capture & reply ▪ Develop test ▪ Store test results ▪ Format test output	▪ Test coverage ▪ Test criteria's ▪ Reporting ▪ Trend analyses ▪ Archive test results

The topic of Test Data Management should be considered in specific cases, too:

- Generation of test data
- Anonymization of production-related test data
- Filling and emptying of databases

IMPACTS TO YOUR ORGANISATION AND PROCESSES.

However, test automation is not only a financial investment:

Adequate processes, organisational structures and the appropriate skills need to be in place. Let us not consider the impact of agile approaches. Just focus on release testing, driven by external influences i.e., security updates, bug fixing, etc..

As an example, the current involved individuals or functions in Release Testing are:

Network SME	Release Testing
Knows all about how the network and the devices should behave	Responsible for next release
Guide/Define/Review testing suite	Manual testing

From our experience test automation adds new areas of activities and requires additional skill sets as well:

Network SME	Release Testing	Automation Development	Environment Automation
Knows all about how the network and the devices should behave	Responsible for next release	Test case automation develop SDP pipeline environment	Infrastructure as Code SDP pipeline for environment
Guide/Define/Review testing suite	PAST: manual testing FUTURE: leverage automation		

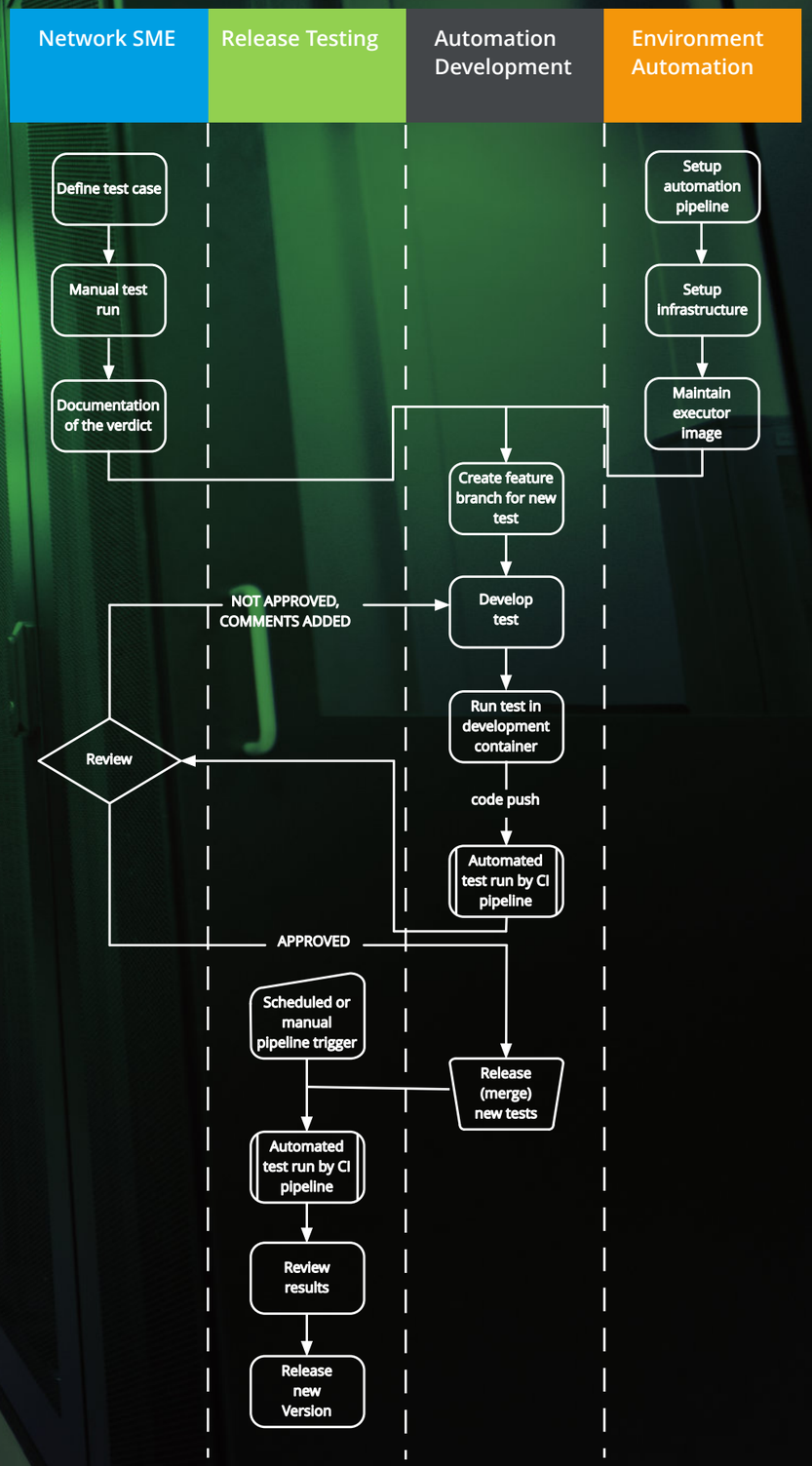
Focused effort only, less repletion — New activities

siticom

siticom

THE EVOLUTION OF YOUR TESTING PROCESSES.

When it comes to details, the new process may look like this:



OUR POSITION TO TEST-AUTOMATION.

We think, test automation is essential to the future success of release testing to your network. Besides the obvious benefits of

1. Reduction of OPEX on mid term
2. Retain knowledge in the company by “written & coded” tests
3. Securing network stability
4. Increasing test quality by eliminating manual operation
5. Speeding up the roll out of new features

it impacts your organisation in a positive matter.

LISTEN TO YOUR TALENTS!

“Manual testing” is not very attractive if it is done repeatedly. The career path of a “tester” within organisations is very limited, too. Continuously enhancing the automation will give the involved team members the opportunity to grow beyond their current expertise.

Considering, that agile approaches deliver services to customers and internal departments more and more common, additional benefits will arise from the test-automation and add a very positive social aspect, too.

siticom

CONTACT

OLIVER PREIßLER
SALES DIRECTOR

+49 171 3323699
oliver.preissler@siticom.de

ABOUT SITICOM

siticom is a technology innovation company founded in 2010 with a focus on the digital transformation of infrastructure and networks of tomorrow. siticom's portfolio is geared towards the complex technological challenges of the future. The solutions and services range from technical and strategic advice to engineering services for planning and realizing network infrastructures in communication networks and corporate networks. Thanks to a highly innovative, flexible grid of system partners, siticom is able to implement high-quality solutions at short notice. The combination of consulting, design and architecture bundled with the assumption of system and implementation responsibility as well as test-automation distinguishes siticom as an independent system integrator.

For more information, please visit: **https://siticom.online**
Or Email us **info@siticom.de**

siticom