

9 ways to drive business agility with quality assurance in the 2020s



(expleo)

About Expleo

Expleo is a trusted partner for end-to-end, integrated engineering, quality services and management consulting for digital transformation. We help businesses harness unrelenting technological change to successfully deliver innovations that will help them gain a competitive advantage and improve the everyday lives of people around the globe. We operate in 30 countries.



9 ways to drive business agility with quality assurance in the 2020s

The deep disruption of the COVID-19 pandemic has emphasised the critical need for business agility, across all sectors. The world is now leaning even harder on technology, whether in our professional or home lives. Those manufacturers, developers and suppliers that have maintained delivery as usual have gained immediate competitive advantage over those less ready to respond. Reliability is more precious than ever before.

During the 2010s, nearly all companies started a move towards greater levels of business agility. However, few have managed to move beyond the rudimentary levels of continuous agile delivery. The 2020s needs to be the decade of realisation and reward. This report explores how testing and quality are key to accelerating the transformation to business agility over the next 10 years.



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Time to go again

A lot of good progress happened in the 2010s. Remember the long, expensive waterfall-based delivery of the last century, with six months spent on requirements, another six doing the design, a year building and then six more months doing the testing. Delivery now happens much more often, much more cost effectively, and much more confidently. However many organisations still think of agility as a delivery model, of agile transition as the shift from one way of working to another.

The key to unleashing the delivery potential of the new decade is the organisational realisation that true agility is a mindset, not a delivery model. It requires a change of culture.

Of course, not every organisation should necessarily aspire to releasing new code with the frequency of Amazon or Google – but every company should be looking to normalise agility as soon as possible and make incremental progress with increasing levels of agility.

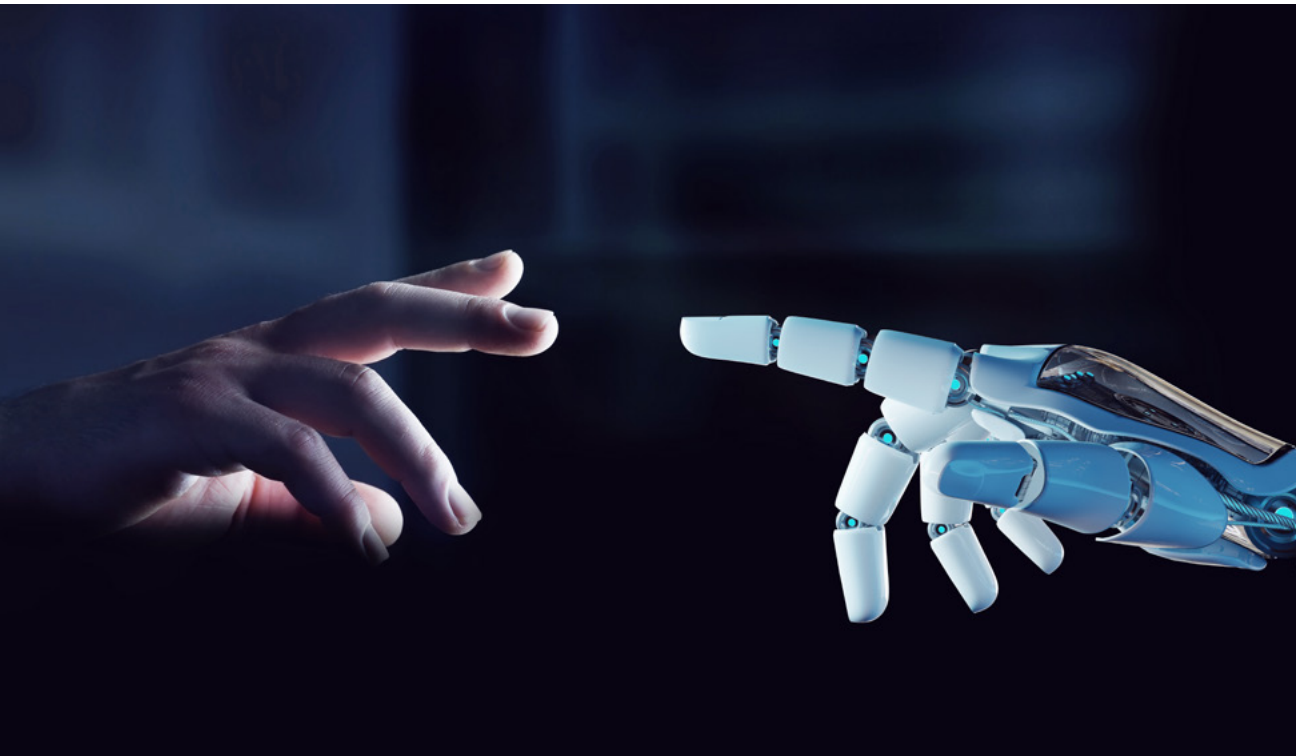
This normalisation and increased delivery maturity is dependent upon achieving ‘done’ – a measure of the quality that is acceptable to the delivery team. What is the impact on the business when things go wrong? What is the tolerance to defects and delays? The truth is that a lot of organisations don’t define their risk appetite when it comes to testing. They tend to test in the way that they have always done. This suggests an immature quality conscience – the thread of quality is not sufficiently sewn through the delivery process.

An alert quality conscience helps a business to *pre-risk* undesirable events such as production defects, drops in revenue or reputational damage. CTOs and heads of quality can avoid running those risks by investing time and money in maintaining a mature testing approach in the first place. Test assets need to be considered as an important part of a production system and continuously maintained if high levels of agility are to be achieved. It is a false economy to try to retrofit quality into a product – it should be built the right way from the start, and that means with testing assets that enable continuous change.



The first step is understanding that Agile is not a set model, it is a journey according to principles, and that journey needs regular reviews to ensure that it is going in the right direction. Nearly all companies profess a level of agility, yet a very low percentage achieve truly consistent agile.

The 2010s are behind us. As businesses and society look to move on from the COVID disruption, it’s time to roll up our sleeves and go again. Here are 9 ways that testing and quality can help to accelerate business agility in the next decade.



#1 Automating the quality shadow

Testing, quality and automation are often viewed as sitting 'outside' of a production system. They are optional extras which can be ramped up and down as required. However this approach is very rarely cost effective and hinders the development of increasing levels of business agility. To enable fast and accurate change to a system the testing assets need to be built and maintained as an intrinsic part of the production system.

This should include test scripts, test data, test environments, automation, defect trends, quality trends, predictive analytics and mature estimation tools. These should all 'shadow' the production system.

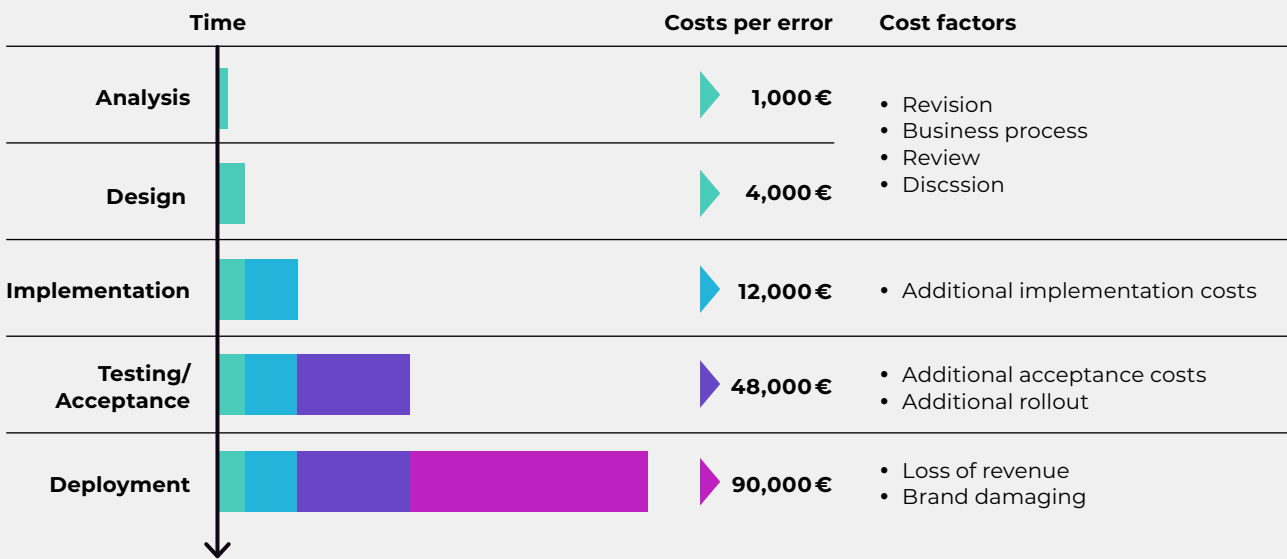
A quality shadow – sometimes called a quality twin – helps the business to change direction and deliver change with speed, confidence and cost-effectiveness.

The more that these testing assets are automated, then the more efficient the systems will run.

Few organisations really invest in maintaining their quality shadow, relying instead on a project model. They ramp up a team, produce some assets for testing, do some testing, then ramp down the team until the next project. So, they invest lots of money in creating new assets instead of maintaining the previous ones. With test assets seen as a core part of a production system the maintenance costs will be minimised.

Defect correction cost factors

The earlier an error is detected, the lower the cost of its corrections



#2 Quality engineering

Quality Engineering (QE) will prove critical for achieving business agility in the 2020s. Pure Quality Assurance (QA) is already insufficient, with manual testing increasingly replaced by early automation within agile and DevOps environments. After all, manual testing doesn't improve quality in itself – it simply reveals the quality status.

One of the key benefits of QE is that companies can design and build quality early into a solution, making it more testable at the most critical moments. Validation of requirements is a good example. Up to 70% of defects exist in the requirements and design stages. Fixing them there is many times more cost effective than reworking or regression testing down the line.

The role of the tester is inevitably becoming more technical. However, there is a current lack of people with the QE technical skillsets, such as

building automation frameworks, doing performance testing, understanding architectures, working with environments and data. Training is therefore important when it comes to growing QE capacity and strengthening the quality conscience, so it's wise for professional testers to develop both disciplines – traditional QA and the more advanced QE – to maintain a state of continuous quality.

QE challenges the traditional time-quality-cost triangle that states one can't be improved without making sacrifices on the other two.

When businesses test the right things at the right moments – and target the highest risk areas – they can reduce the number of defects that pass up from one phase of production to the next. Improved quality will then save both time and cost.

#3 User acceptance testing is dead... long live confidence!

Delivering change into production, such as a new system or a system update, requires confidence along the three levels of the delivery life cycle:

- 1) the development team or supplier,
- 2) the independent testing function, and
- 3) the users or business.

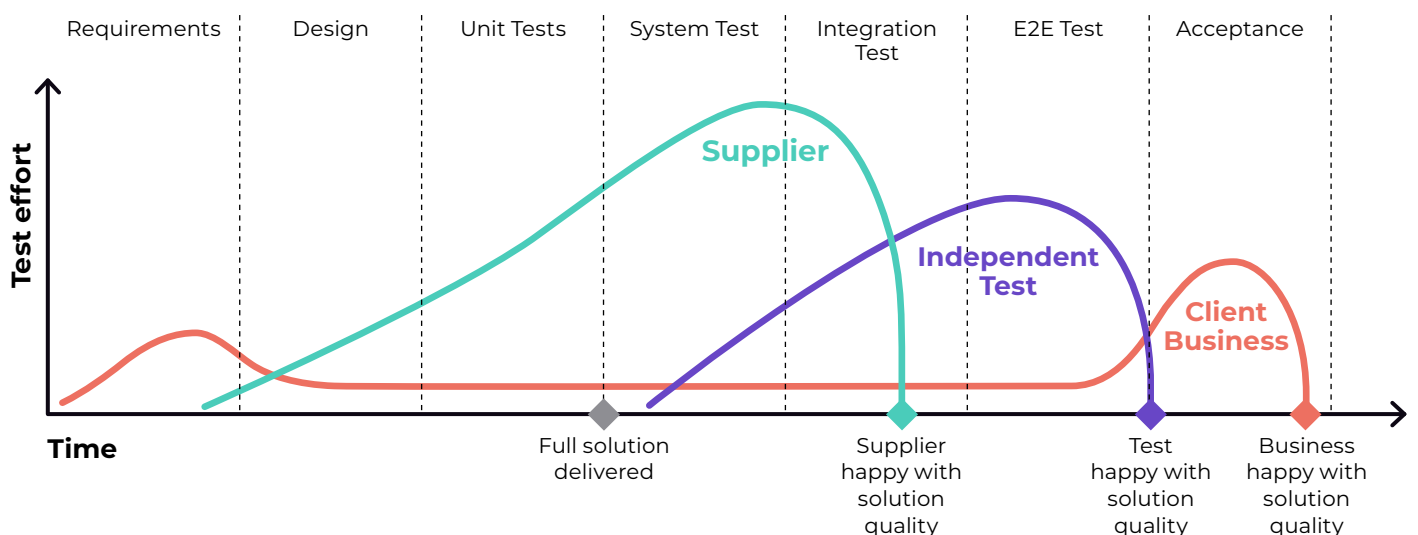
However, growing confidence in the first two levels provides a large part of the third, given users and the business have visibility of what's being delivered early on and inherit confidence built up from the other two levels.

Conversely, just doing User Acceptance Testing (UAT) at the end of the delivery cycle will often find the wrong kind of defects at the most expensive part of the delivery lifecycle. What kind of defects are acceptable within UAT that shouldn't have been found earlier on?

By waiting for UAT, the business risks turning a three-week test phase into a six-month struggle, ending with dissatisfied users and a blown budget, as well as knock-on implications for preparation of environments and resources.

An incremental growth in confidence, with user acceptance achieved through good business engagement, will reduce the number of unpleasant surprises at the tail-end of the life cycle.

This coordinated approach also avoids the 'us' and 'them' friction between developers and testers, which can cause stress during tight release timeframes.



#4 Organisational quality

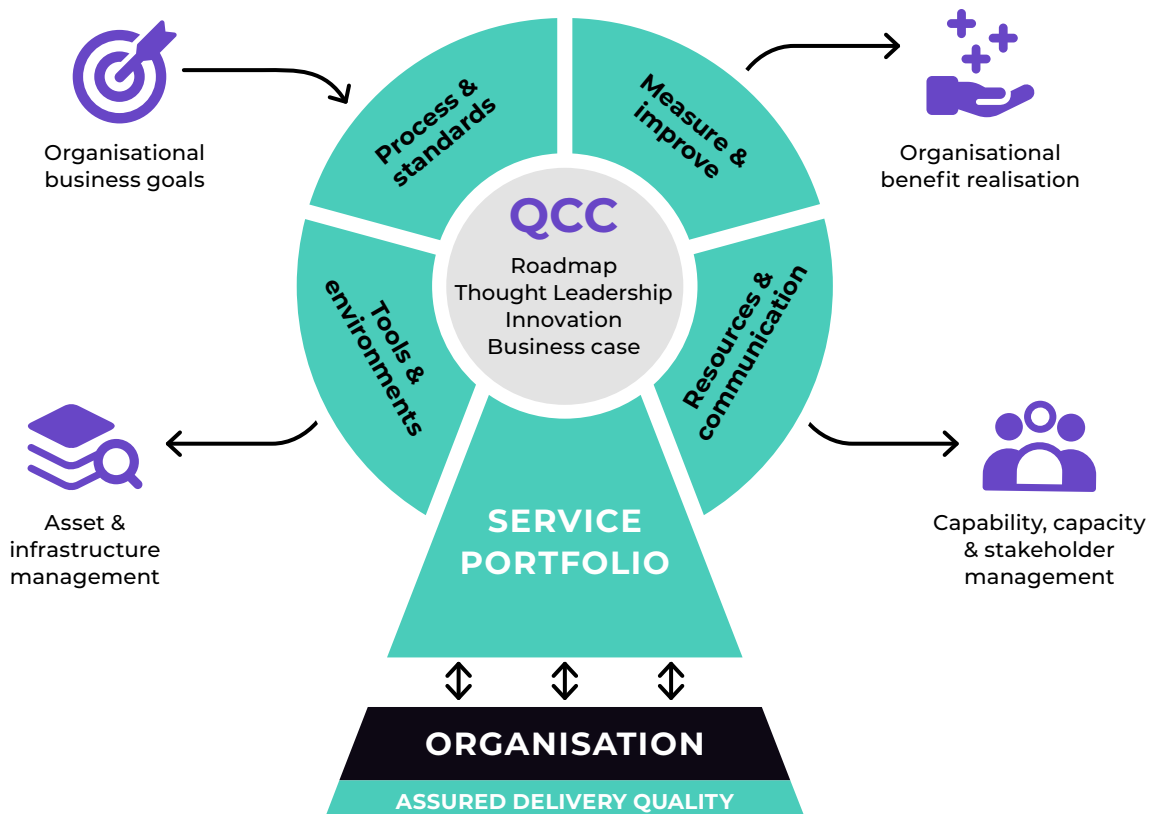
The Test Centre of Excellence (TCoE) was a major casualty of the last decade, never quite achieving the perceived advantages of centralisation. Gartner predicted that 50% of customers would dismantle TCoEs by 2020, as they shifted to competency centres, agile methodologies and DevOps to provide business agility. Many organisations have done the dismantling, but they are yet to do the shifting.

The small central nervous system houses the core functions such as processes, standards, tools, environments, improvement, metrics, reporting, innovation and so on. The resources are then distributed around the projects on the wheel. Part of the problem with TCoEs was that teams lost their preferred resources back to the central pool. Now, they can continue to work where they're working, but with a direct link back into the centre of the wheel.

How can the new generation of agile-friendly quality competency centres improve maturity at in the coming years? The wheel-and-hub model is proving successful at Expleo.

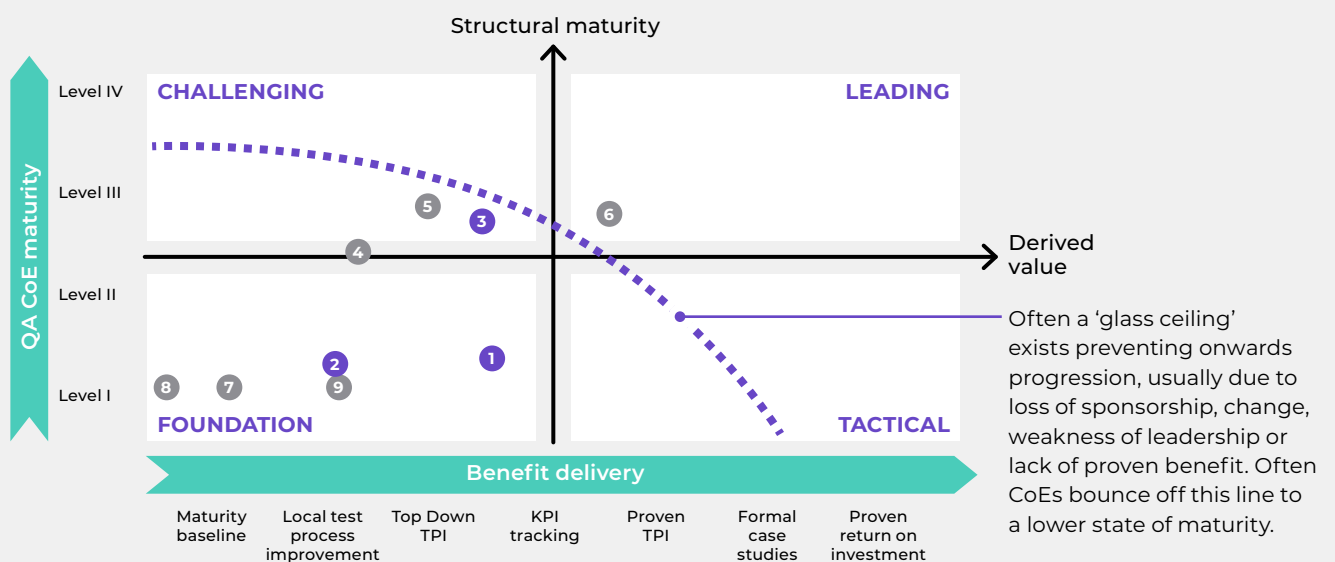
Here are some of the benefits of this approach:

- More informed decisions and higher consistency
- Lessons learned can be distributed company-wide
- Greater visibility of areas of quality engagement
- Measurement against an industry standard





Expleo quadrant for QCCs



Smash through the glass ceiling

At Expleo, we recently compiled a Magic Quadrant to measure the maturity of a testing function and the benefit that's given to an organisation as a result. While organisations could move up incrementally from the bottom-left corner towards the top right-hand corner, they would then stall for no clear reason. But why? We worked out that companies often have three or five-year cycles when the quality policy is mapped onto business directives. Just as momentum is gathering, a new perspective or dynamic takes over, and the financial, political or management investment into the testing function slips away.

This presents the goal of a testing *nirvana* – a state of quality *enlightenment* perhaps – where organisations have the maturity to burst through the glass ceiling and stay there, despite the fluctuations of personnel and business performance. It's ambitious, but a very worthy aspiration at the same time.



#5 Reporting & predictive analysis

As a generalisation, testers and quality professionals need to get better at reporting complex information in a way that the rest of the business can easily understand. This is especially true around dashboarding and analysis. There are plenty of tools on the market that will simplify complex information to enable effective decision making. However, without the right data or models in the first place, the results can prove misleading.

Once accurate data is in place the next step is real-time predictive analysis. Providing the current status is no longer sufficient. If a company is delivering a product that is sub-optimal or struggling to run enough tests in time, then it needs to shift up a gear.

Predictive analysis can help deduce what the future will look like when following certain interventions, such as a specific level of investment.

Testers and quality experts need to play a greater role in this decision-making process, as they can reveal context insights that might otherwise pass beneath the radar.

Ideally, these decisions should be made while the going is good, rather than waiting for clear signs of system fatigue. Constant incremental enhancement, informed by sound analysis, can elicit a smoother trajectory. This impulse to improve test processes needs to become second nature – like a nagging urge to be different from before.

#6 Cross-fertilisation

In the same way that QAs can learn new tricks to become QEs, they can also pick up new skills and assets from other job families such as business analysis (BA) and project management. This adds real value to the business, and it's good news for individuals too, as they can differentiate themselves in the open market.

For example, the ability of a QA to analyse and articulate the company's requirements can make a useful difference to the success of a system change or new release. Likewise, if testing disciplines are grafted into the BA process, the result is a more structured way of testing requirements, so that quality is validated and reviewed early on, rather than retrofitted at the end. Good planning will ensure automation happens when necessary,

and position the right people at the right time. This coordination can deliver significant value as defects are found early on as part of the shift left culture. It can also prevent defect multiplication, the tendency of a defect in a requirement to produce three in a design, and then 10 in code.

Over the next 10 years, being a good enough QA will no longer be good enough. QAs will need to show more rounded skills, with the incentive of better career development opportunities.

Risk management is another interesting avenue, as this aptitude comes naturally to most senior testers. Understanding risk is what testers do all the time.



#7 Embrace embedded quality

The worlds of engineering and technology are colliding at speed. The lines between machines and computers have long since blurred, but with the rapid sophistication of technologies such as Internet of Things, Artificial Intelligence, Near-Field Communication and Blockchain, they are now one and the same. A whole new industry of Engineering Research & Development (ER&D) has emerged to push new boundaries in automotive, aerospace and defence, which is drawing in service industries such as finance, utilities, media, gaming and more.

By the end of the decade, it's not too difficult to imagine an autonomous, electric vehicle that can decide to recharge at a service station and pay

automatically with an embedded car chip, while the family works, watches on-demand videos or plays games in the back.

Testing embedded software needs to become a normal testing function for test professionals, just like testing a website is now normalised.

The market is responding by insisting that these two disciplines are combined. QAs and testers therefore need to be ahead of the game in how they develop and maintain frameworks that support multi-language, global solutions.

Have you normalised your test process?

There are three fundamental questions that an organisation can answer to measure the level of control it has over testing and quality.

- 1 How effective is our testing?**
That's measured in the number and impact of production defects, such as reputation loss, support costs, regression testing, retesting etc.
- 2 How efficient is our testing?**
Being effective is no good if production takes too long and costs too much. Can it be measured? The measurement of efficiency might consider measures such as: How much does it cost to run a test or find a defect? How much does it cost to maintain or update environments?
- 3 What are we doing to improve it?**
This is perhaps the most important question. What is the ongoing improvement plan that shows a baseline of effectiveness and efficiency, alongside the measures that will make future production faster, quicker, cheaper, etc?

To take a step up in maturity, organisations need to challenge themselves to answer those questions.





#8 Business and IT Quality Leadership

Traditionally, change starts with the CEO and COO, who then send a wish list to the CTO or CQO, demanding the technical advances they need to run the business. But does this master-servant relationship really work?

A blockage often occurs when the business leaders fail to understand or take an interest in the IT, meaning they don't play an active role in the delivery life cycle or change. Meanwhile, the tech teams are not party to the strategic direction of the business, and so march to a different beat. It is surely more effective when both the business and IT see themselves as partners in change: collaborating rather than commanding.

The good news is that the siloes are breaking down.

The next 10 years promises better-informed boardrooms, with more multi-disciplined leaders. Greater levels of business involvement will result in more targeted delivery and identification of change.

This close working needs to embody and direct the quality conscience within an organisation.

Is this the age of the Chief Change Officer? or the Chief Quality Officer? – the all-rounder with a roving role and the skills to rotate from business to technology and quality.

#9 Quality resilience from trust

The COVID-19 pandemic has forced all companies to consider their resilience as a business in the face of unexpected crisis. Some industries are struggling because they can't operate in a sustainable way when a lot of their resources are working from home.

This pandemic shows both signs of a *black swan* event: almost impossible to predict and so impactful that business will never be the same again. The billion-dollar question is therefore:

How can the industry improve testing and quality in a way that prepares organisations for the next global disruption?

Perhaps the solution isn't just technical. Building trust between suppliers and clients is vital for making the right decisions in times of huge uncertainty. The way relationships are built in the future will change, whereby suppliers become delivery or quality partners (QPs) instead of just providers of resources. QPs would take greater responsibility for delivery, including the performance of other contractors.





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Ivan is the Head of Quality Management for Expleo UK, and has worked in testing and quality management for over 20 years, supporting customers in a range of industries and in many countries throughout Europe and North America. He has a passion for helping organisations to achieve greater levels of business agility through effective and efficient quality management disciplines and structures. Ivan combines theoretical knowledge – teaching testing and quality management, with proven disciplines and practices, and is often found speaking at international conferences on quality management.

Expleo: Think bold, act reliable

Organisations in technology-intensive sectors must keep changing to operate successfully in today's disrupted world. Agility and speed are more business critical than ever before. Expleo provides the reliability and accountability that ensure our clients' decisions achieve quality outcomes. We help clients' teams to create, test, and scale digital solutions and operationalise at pace. And once they're on the right trajectory, we can ensure they progress and improve continuously. Our vision is to help clients gain sustainable competitive advantage with a constant flow of customer value.

Our services include:



DevOps: continuous software development, delivery and integration

DevOps, with its potential to combine automation with cultural change and business value, offers the right approach to efficiently build, test and bring software to market. In addition, DevOps allows users to operate new software effectively, and then take lessons learnt into the next round of development. At Expleo, we are so confident in our DevOps approach that we use the same technologies, methodologies and philosophies in our own business, as we do on behalf of clients. We're proud to provide our clients with some of the world's most talented developers, testers, analysts and change managers.

[Find out more](#)

Quality engineering: a driver for change and advantage

Quality engineering has become business critical for building the next-generation solutions that will meet the needs of complex and highly integrated technology. Expleo helps clients to adapt to the new landscape of software delivery. Our quality engineering services provide cost effective, efficient and proven solutions that are continuously improved to support evolving market demands. Our focus on development quality establishes a shift left process culture that reduces time-to-market and increases customer confidence. Clients receive an end solution that is underpinned by a solid architecture, which has been tested and independently assured.

[Find out more](#)

Quality testing: innovation at the core of continuous quality

In today's disrupted industries, there is no let up for technology-intensive businesses. Those that stand still, quickly fall behind. Equally, those agile businesses that put constant change – and continuous quality management at the heart of their operations will keep their services and products where customers appreciate them most. At Expleo, we believe that effective testing will provide the backbone for any end to end quality management solution. We support our clients' continuous quality with a core set of proven testing processes and underlying tools.

[Find out more](#)

Quality management: keeping projects on track

In today's increasingly agile environment, robust quality management helps organisations to increase the flow of value while ensuring quality outputs from high-performing teams. As a strategic quality partner, we help clients to create a continuous quality environment in which to engineer, maintain and improve all aspects of their products, systems and processes. We help clients to define their quality management processes, standards and methods, and ensure eligibility for certification. We also help to establish 'Quality Competency Centres' that ensure quality improvements underpin all their quality and testing activities.

[Find out more](#)

Test automation: using AI and machine learning to manage the load

The unrelenting rate of change, speed of modern release cycles and wide variety of operating platforms have created a surge in the number of test cases that can prove overwhelming – and ultimately a source of risk. Expleo helps clients to prioritise testing for business resilience. The need for skilled people who can turn ideas into working systems is the greatest barrier to implementing test automation. We therefore help our clients with their skills gap, providing experienced teams with both the technical and change management capabilities to move forward in this specialist field.

[Find out more](#)

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