Strategy • Delivery • Certainty

The Evolution of Risk

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Risk as an integral part of digital delivery and business performance

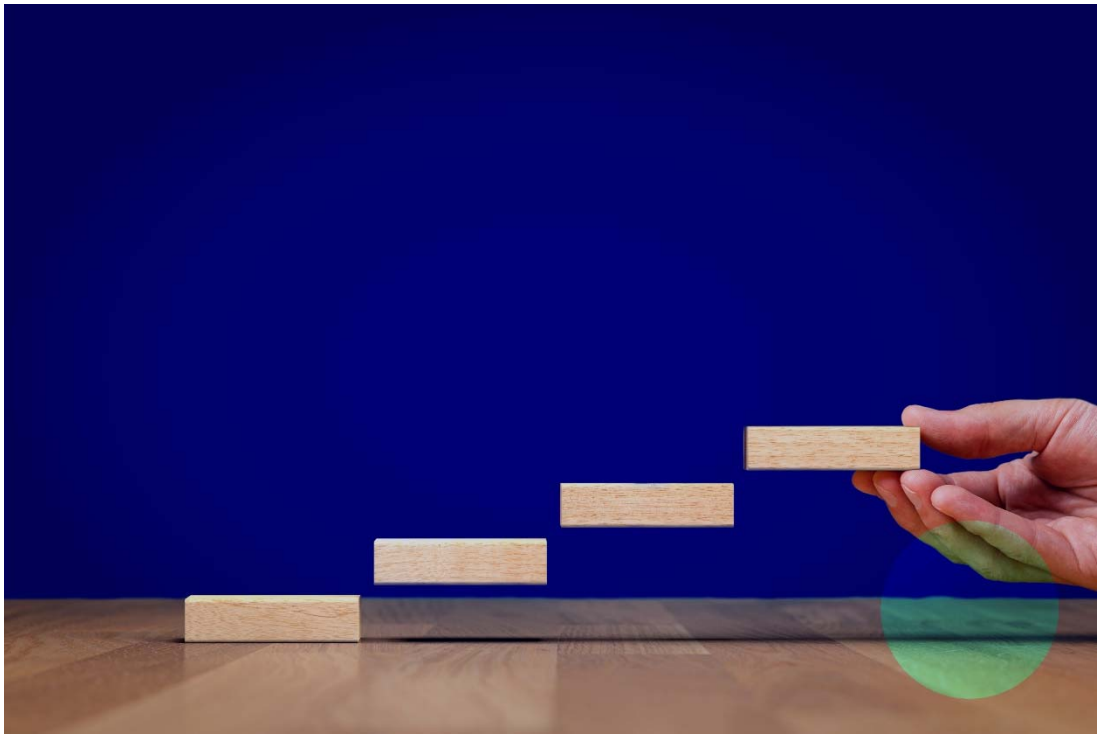
Poor quality of digital products was estimated to have cost US companies $2.8 trillion in 2018, according to a report by Consortium for IT Software Quality (CISQ). This is an equivalent of the UK's total GDP output for the same year. The fact that the impact of insufficient software quality assurance (in the US alone) equals the GDP output of the sixth largest economy in the world highlights the extent of the issue.

Digital and business leaders are under growing pressure to deliver technology and business change at speed and within budget, while maintaining quality and building customer loyalty. They need to create ever more advanced and engaging customer and employee experiences.

> *The first people to be affected when software goes wrong are your employees and customers.*

Strong quality assurance (QA) of software delivery is also directly related to business performance. High performing organisations are able to bring a new idea into production in minutes. They also recover from production issues in minutes and report an average failure rate of less than 10% (failure of new digital releases or change projects).

The delivery models designed to implement digital change at speed have matured, with agile and DevOps being the dominant methodologies. But risk assessment, risk mitigation frameworks and related QA processes and know-how have not kept pace, resulting in lower quality, delayed projects, uncertain delivery and spiralling costs.



This whitepaper explores the anatomy of risk in modern digital delivery, the importance of managing end-to-end organisational risk while still realising the benefits of agile team delivery, and, crucially, the power of an enterprise-wide **Test and QA Practice.** Such a practice embeds and engineers for quality rather than just testing for it. It also provides near real-time **risk intelligence (RQ)** that enables informed business decision-making, ultimately giving you control of delivering quality solutions at speed, with the confidence that the risks that matter to your business are mitigated

The anatomy of risk

Risk is an inherent part of change. The challenge for businesses looking to implement change in an agile way is to identify all possible risks, assess them and potentially eradicate them.

What are the most common risks associated with digital delivery organisations need to consider? We can broadly split them into three categories:

1. Business risk:

Business risk normally lies within the digital products and projects an organisation intends to deliver and, if left unmitigated, will have a material impact on the business. Business risk may lead to loss of revenue, have an adverse effect on brand value or reputation, or reduce productivity and Time to Market.

2. Technical risk:

Technical risk lies broadly within the technology platforms an organisation uses to deliver its business, including data, software, hardware, system integrations and maintenance work. Over time, the risks associated with any type of technology will become apparent, but new techniques and tools are more likely to introduce unknown risks that may lead to downtime or project delays.

3. Operational risk:

Operational risk resides within operational processes used by an organisation. Digitalisation and process automation can reduce human operational risk but at the same time, if not managed carefully, can magnify cybersecurity risk.

End-to-end risk: Striking a balance between team autonomy and corporate governance

Lean and efficient digital delivery at speed is driven by autonomous, self-managing agile/DevOps teams. But with the ownership for testing and quality assurance of digital delivery — and effectively risk ownership – being devolved and embedded into agile teams, risk is no longer managed and mitigated at the enterprise level.

This might lead to end-to-end enterprise-wide risk not being clearly understood, engineered in and tested for. This is an issue that can be further exacerbated by enterprise-wide change involving a number of cross-platform dependencies.

Organisations need to address end-to-end organisational risk with a governance model that strikes a critical balance between autonomous risk management by agile teams and risk mitigation at the level of enterprise-wide services. This **'federalised governance model'** can be implemented by following these core principles:

Education

Agile teams are continuously educated on the risks of their products and projects as well as enterprise-level risks

Process design

Development of a clearly defined baseline assurance process that is followed by all agile teams and includes pre-defined escalation paths

Fostering trust

Continuous building of trust across all organisational levels that empowers autonomous, self-managing agile teams

Mitigating risk through design: Test and QA Practice

With organisations running increasingly complex ecosystems of delivery channels, platforms and digital routes to market, the risks of failure are growing exponentially. The earlier a risk is identified during the design and development process, the easier and more cost-efficient it is to mitigate it. For example, fixing a bug costs on average £10 in design phase and £10,000 in production phase.

Design of resilient systems with built-in assurance is critical to ensuring quality, containing risk early in the process and reducing any negative impact on customers or the business. A high quality, enterprise-wide Test and QA Practice needs to be embedded at the outset of requirements gathering and sustained across all elements of a delivery process.

Agile Testing of Quality Attributes (adapted from Crispin and Gregory)

Agile testing provides a lens for assessing risk in your development process by assessing the **quality attributes** of your systems that should be evaluated within your Test and QA Practice. An example of these quality attributes are:

Testability – is the measure of how easy it is to create tests for a system and its associated components, increasing the ability to find and isolate bugs in an effective way

Efficiency – is the ability of a system to complete its tasks within a limited set of resources. Resource limits would typically include: Memory, Disk Space, CPU usage, Network bandwidth and Power consumption

Modifiability – is the ability of the system to accommodate the addition, change and removal of features, with minimal impact on the rest of the system.

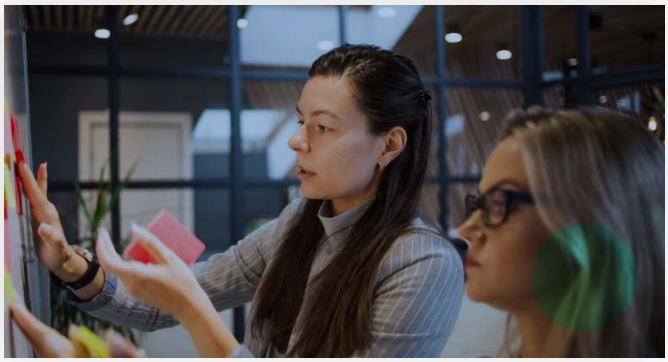
Extensibility – is the ability to extend a system with a minimum amount of effort and without any impact on existing system functions

What's your RQ?

In a world where quality of delivery at speed can create a significant competitive advantage for organisations, it is critical to create quality assurance and governance processes that reduce time to value and accelerate business growth. At the level of business decision-making, sound quality assurance and governance processes enable a risk intelligent approach to digital delivery where risk is continuously assessed and acted upon.

Determining an acceptable level of risk – your **'risk appetite'** – creates a benchmark that helps guide decision-making. Every organisation will determine its own unique risk appetite but, typically, highly regulated industries such as financial services or healthcare will have a low risk appetite when it comes to digital delivery. For example, in financial services, the availability of digital services is normally expected to be 99.99%.

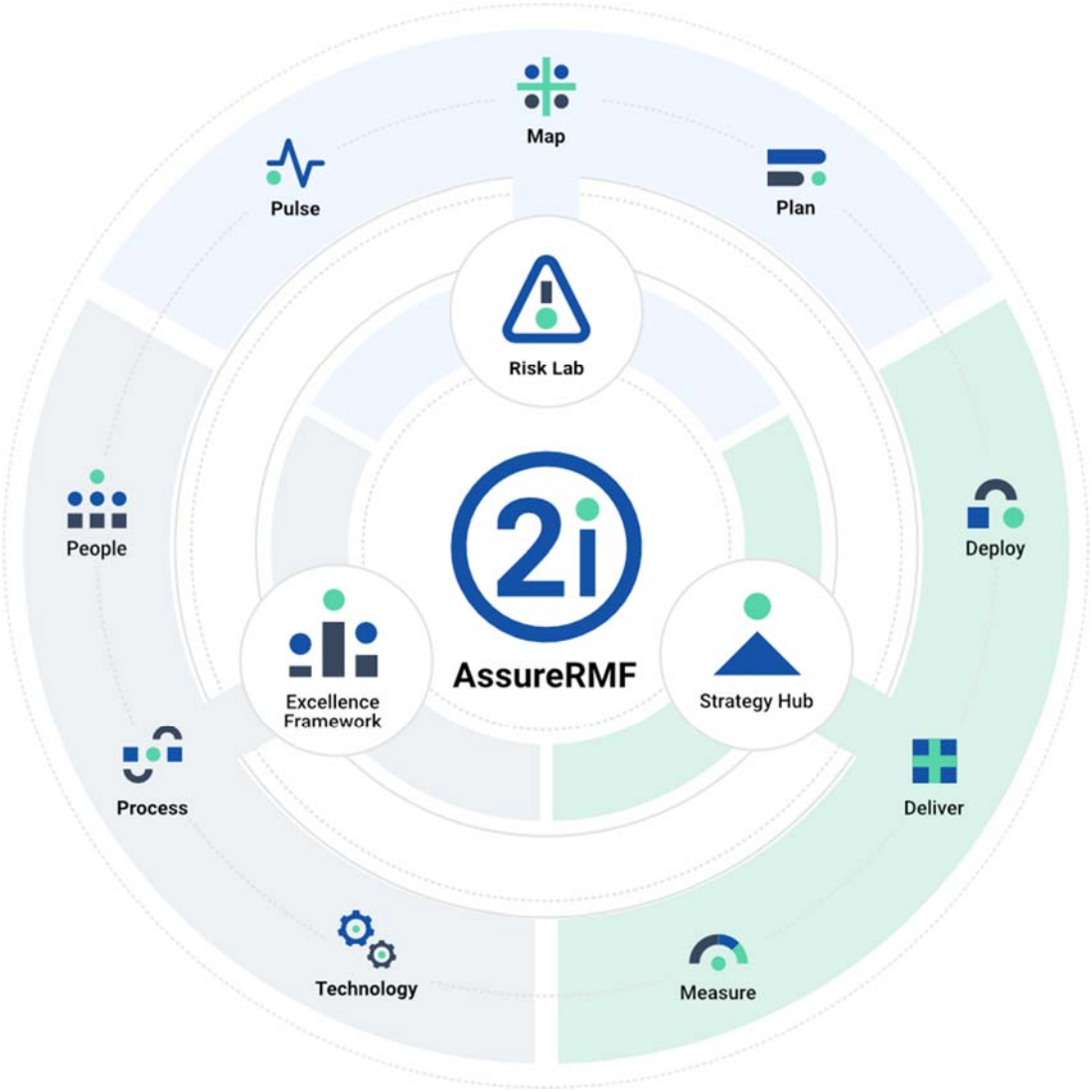
An enterprise-wide Testing and QA Practice is an enabler of informed business decision-making by providing near real-time **risk intelligence (RQ)** that encapsulates an assessment of all known risks and their relevance to the business.



Digital leaders are unlikely to want to carry risk that exceeds their organisation's risk appetite but armed with real-time risk intelligence they can safely drive innovation and quality at speed.

In a crowded market where speed over perfection wins, risk intelligence is every digital leader's secret weapon.

2i's bespoke model for de-risking your delivery



Designed by 2i's expert consultants, AssureRMF is a proven phased model that de-risks and accelerates the delivery of your business and technology solutions. AssureRMF provides certainty of delivery and drives business outcomes through the following three stages:

AssureRMF

Risk Lab

Pulse

Takes the pulse of your delivery and analyses your operating model.

Map

Produces a SWOT analysis of your assurance and test capability to meet the demand across your product delivery.

Plan

Proposes roadmap options and helps project leaders create a prioritised action plan.

Strategy Hub

Deploy

2i experts work with you to launch improvement initiatives across your delivery model.

Deliver

Our team is embedded into your organisation to deliver the project with specialist skills and expertise, continuously highlighting and maintaining prioritised business outcomes.

Measure

Robust metrics ensure regular monitoring of delivery efficiency and benefits realisation..

Excellence Framework

People

Ensures that a continuous learning and improvement culture is embedded across all teams.

Process

We automate inefficient and repetitive processes and implement test practices that best deliver to your quality objectives and risk appetite.

Technology

Our industry leading knowledge of open source, proprietary tools and technology solutions is utilised in support of your business ambition.

Top 5 takeaways for business and digital leaders

Next steps to accelerate and de-risk your digital delivery:

1. Develop a risk assessment framework: Carefully scope out and evaluate all potential and known risks of your digital delivery. Risks commonly fall into one of the three categories: business risk, technical risk and operational risk.

2. Mitigate end-to-end risk with self-managing agile teams: Agile teams need to be empowered to manage risk related to individual platforms and projects as well as enterprise-wide risk that can involve a number of cross-platform dependencies. By putting in place a 'federalised governance model' with relevant training and processes, agile teams can take the lead on driving end-to-end enterprise-level risk mitigation.

3. Establish a Test and QA Practice: A Test and QA Practice provides built-in assurance across all elements of a delivery process. By implementing risk frameworks early on during the design and development process, the practice enables a fast and cost-efficient mitigation, thereby accelerating time to value.

4. Implement testing to evaluate the quality attributes of your products: Quality attributes affect the runtime behaviour and user experience of your products. Testing gives you the feedback that ensures you are delivering great products for your users.

5. Make decisions based on sound risk intelligence: Digital leaders should base their decision-making on up-to-date, near real-time risk intelligence that assesses all known risks and benchmarks them against their organisation's risk appetite.

2i: Your risk intelligence partner

We provide business and digital leaders with certainty of delivery through our specialist expertise and our bespoke risk mitigation framework – AssureRMF.

Get in touch

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