



Software Testing – Market and Insights Report

Created by UK Research and Benchmarking

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Executive Summary



Daryl Elfield

Partner,
Quality Engineering & Testing

Welcome to our first Software Testing Market Insights report. Here we'll share the latest insights on the software testing market, key trends and recent industry developments, including the latest news on software testing failures and recent mergers and acquisitions

To paraphrase Mark Twain, reports of the death of the software testing industry have been greatly exaggerated. As you'll see from this report, the industry continues to experience healthy growth, even in the UK, where the annual growth rate has exceeded the overall growth rate of the entire UK tech sector. Almost 5% of all permanent jobs listed in the UK are now for software testers or quality engineers – a 100% increase on 2022

What's driving this demand? At the highest level, companies and institutions across all sectors are continuing to invest massively in digital transformation – cloud migration, IoT, GenAI. All of these technologies present new delivery and quality risks which can often only be mitigated by testing

We hope you enjoy the report – and welcome any feedback for future editions!



02

Software Testing Market Overview



Overview

A growing number of applications related to artificial intelligence (AI), machine learning (ML), and other emerging technologies are driving the market for software testing globally and across UK and Europe

Global Software Testing Market

£37b

Global software testing market in 2022

5%

CAGR 2023-2032

£45.6b

Global test automation market projected in 2028

18.5%

CAGR 2022-2028



Segment Information

- Application testing accounted for approximately **55%** of the global software testing market in 2022, and is expected to reach over **£40 billion by 2032**
- Software testing services for the BFSI sector accounted for more than 25% in 2022, and is expected to reach over **£16 billion by 2032**



Market Drivers

- Increased availability of DevOps solutions
- Increasing adoption of Agile development
- Increasing digitalisation across developing economies
- Growing demand for mobile and web-based applications, and emerging technologies such as AI, ML and more
- Growing focus on autonomous technology



Challenges

- High upfront investment and data security concerns
- Lack of skilled professionals

Software Testing Market in the UK

£1.1b

UK software testing market in 2023

4.2%

CAGR 2018-2023

Key Takeaways

- The market for software testing services in the UK has increased faster than the overall technology sector. Over the past 5 years, the market in the UK has increased faster than the overall economy
- Financial services sectors, including banks and various financial institutions, are the largest source of revenue for software testing companies
- Media and telecommunication sectors like television, satellite networks and radio etc. have flourished, since media companies are increasingly turning to web and mobile applications as major sources of distribution
- As media companies are trying to build their respective web and mobile applications, demand and importance of reliable and accurate software testing services has increased significantly

Overview on Testing Jobs



Matt Pickin

Director,
Quality Engineering & Testing



"While the demand for traditional Test Managers and Analysts remains, the Quality Assurance (QA) landscape is evolving. The market increasingly seeks QA professionals who can provide domain expertise, whether through industry-specific knowledge (e.g., payments, utilities), technology-specific knowledge (e.g., ERP, Cloud), or expertise in DevOps and Agile practices

Furthermore, the market requires Quality Engineers who can orchestrate quality activities across Agile and DevOps teams, automating quality and test activities end-to-end. Quality experts must expand their skillsets beyond testing and engineering to encompass subject matter business expertise. This evolution reflects the growing need for QA professionals to play a more strategic role in ensuring quality throughout the software development lifecycle"



Quality Engineering

- Automation
- Non-Functional
- AI/Machine Learning
- DevOps/Agile



Domain Expertise

- Industry specific
- Technology Specific e.g. ERP
- Cloud



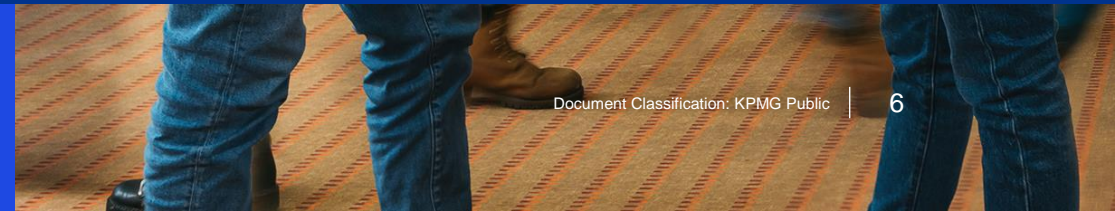
Test Managers & Analysts

- Test Management
- Test Strategy
- Progress report and optimisation
- Defect Analysis



Test Consultants

- Test Transformation
- Test Assessments and Reviews
- Test Optimisation



03

Key Trends








Key Trends









Some key trends in the software testing industry are the use of AI and ML, codeless testing tools, big data and IoT. Some key trends in sectors like automotive industry and consumer products, retail and distribution are quality engineering and automation

Key trends in software testing industry

	Agile and DevOps that require teamwork, automation, and streamlining of the software development lifecycle (SDLC) is a popular trend
	QAOps , a term derived by combining DevOps and quality assurance (QA) aims to improve the software quality and efficiency by using tools like Calsoft Inc.'s QAOps services
	Software testing is in high demand due to big data and IoT , which require various types of testing to ensure quality, performance, and security
	Cybersecurity threats boosted the need for security testing to protect software from hackers. KPMG provides various security testing services through Digital Signals Insights Platform and Cyber Threat Intelligence Platform
	Growing environmental concerns has increased the need for environmental testing and sustainability . The testers evaluate the overall environmental impact of software, marking a significant shift in testing parameters

	AI is enabling software testing with ML , which reduces human involvement and errors
	Scriptless automation testing , a method of testing software without writing scripts, using tools like Cigniti's iNSta, is another key trend
	Regression testing checks if software features still work after code changes and can be automated using RPA tools like UiPath. KPMG offers a ' Powered ' Automation framework under its Quality Engineering and Testing Practice to enable clients to achieve rapid business change with reduced delivery risk
	Codeless testing tools use AI and visual modelling to create test cases without coding. This saves time by avoiding repetitive tests and include tools like TOSCA, test AI, Ranorex, etc. KPMG also provides codeless testing tools as a part of their Powered Enterprise Automation Testing
	GenAI -driven testing reduces the testing lifecycle by automating repetitive operations and executing tests at a faster pace and large scale. GenAI excels at pattern recognition and data analysis, resulting in more accurate detection of flaws and possible concerns

Sector Trends

	Quality engineering is essential for the automotive industry , as it faces growing challenges and needs to ensure customer satisfaction		Energy, utilities, natural resources, and chemicals uses intelligent systems, digital twins, AR/VR, and metaverse to enhance safety and efficiency
	In consumer products, retail and distribution Quality automation is gaining popularity in big transformation projects		Healthcare and life sciences underwent change, with more investment in new QE technologies and Agile and DevOps models
	Financial services sector is embracing integrated QE as a part of development and is enhancing its testing processes with test automation and data		IT, OT, and ET convergence is reshaping the manufacturing industry and QA is essential in every stage of manufacturing
	TMT businesses are prioritising non-functional testing for system resilience. They want to cope with unforeseen events like the pandemic		Cloud migration and Agile transformation are the key trends in the public sector , with trust, security, data, and test automation as quality drivers

Spotlight on Quality Engineering Transformation

According to the World Quality Report published by Capgemini, QA should not only be embedded across DevOps teams to ensure quality throughout the SDLC, but the quality assurance function also needs to transform from pure testing to actual quality engineering

The survey highlighted six pillars essential for the transformation of quality assurance to quality engineering:

1. Orchestrates quality activities across Agile teams. QA should be embedded in feature teams, and there should be a quality function or quality support team across DevOps teams
2. Automate quality and test activities end-to-end. This includes planning, design, execution, and continuous quality monitoring
3. Use smarter quality technologies to make better decisions early in the process
4. Pay more attention to test infrastructure and test data provisioning
5. Define, track, and monitor the right set of quality indicators
6. Increase the technological and domain skills of quality teams. Quality experts need to develop their skills from testing and engineering to subject matter business expertise

Source: [World Quality Report](#), accessed on 20 November 2023

In addition to the six pillars, the survey highlighted two new areas that could potentially impact quality engineering



Sustainable IT

The quality of applications is directly related to sustainable IT

- Environmental consciousness is currently a strategic imperative for organisations
- Quality teams are required to understand the sustainability dimensions of applications and how to measure and monitor them efficiently



Value Stream Management

- Value stream management is a practice aimed at managing, controlling, and visualising the value of software development and delivery activities
- Visualisation tools have the potential to help quality teams elevate themselves from pure technical validation to assuring value outcomes for business processes
- Most organisations are either in the initial stages of implementing value stream management or have not considered implementing the same

Generative AI and Software Testing

Generative AI can transform software testing by automating tasks involved in testing. As a result, it improves the quality of software, and reduces the risk of software failures



Source: [TechBeacon](#), [Testlio](#), all accessed on 20 November 2023



Benefits

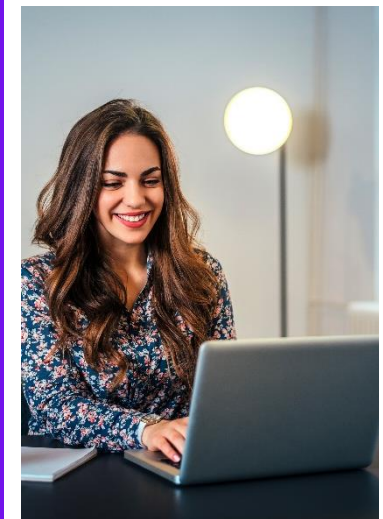
- **Increased efficiency:** Generative AI can automate many of the manual tasks involved in software testing, such as test case generation, test data generation, and code review. This can free up human testers to focus on more complex tasks, such as exploratory testing and defect analysis
- **Improved quality:** Generative AI can help to improve the quality of software by identifying potential defects early in the development process. This can help to prevent defects from reaching production, which can save time and money
- **Reduced risk:** Generative AI can help to reduce the risk of software failures by ensuring that the software is thoroughly tested before it is released. This can help to protect businesses from the financial and reputational damage that can result from software failures



Challenges

- **Data requirements:** Generative AI models require large amount of data to train. This can be a challenge for software testing teams that do not have access to large datasets
- **Model accuracy:** Generative AI models can be inaccurate, which can lead to false positives or false negatives. This can be a problem for software testing teams that need accurate results of their tests
- **Interpretability:** Generative AI models can be difficult to interpret, which can make it difficult to understand why a model generated a particular output. This can be a problem for software testing teams that need to understand why a test failed

In addition to the benefits and challenges mentioned it is also important to note that generative AI is still a relatively new technology. As such, there is still a lot of R&D that needs to be done in order to fully realise the potential of generative AI in software testing. However, the early results are promising, and generative AI has the potential to significantly improve the software testing process





Ryan Sandilands

Senior Manager,
Quality Engineering & Testing



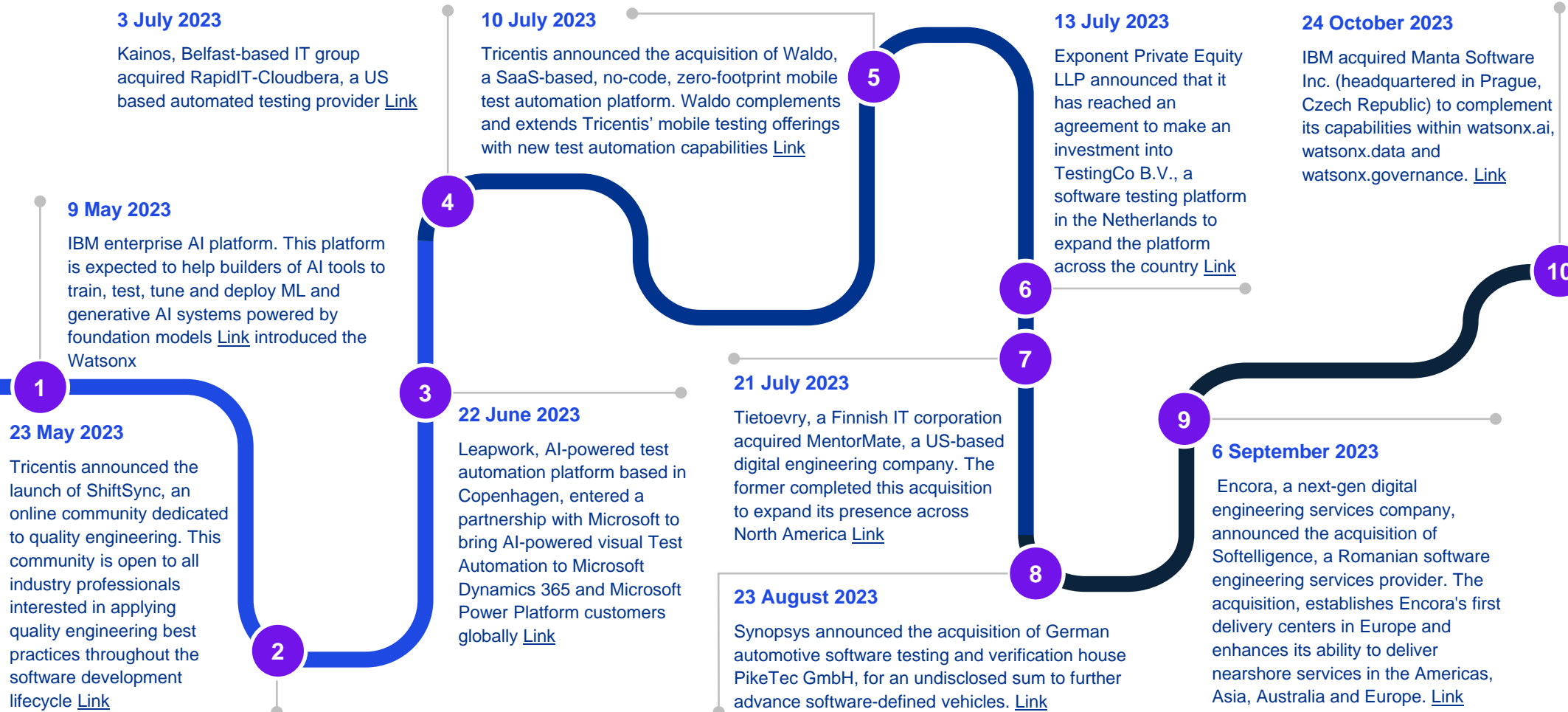
“The list of capabilities expected from Quality Engineering teams is growing; the testing of infrastructure and security mechanisms, once the remit of specialised teams, are becoming increasingly more mainstream skills.”

04

Software Testing Industry News

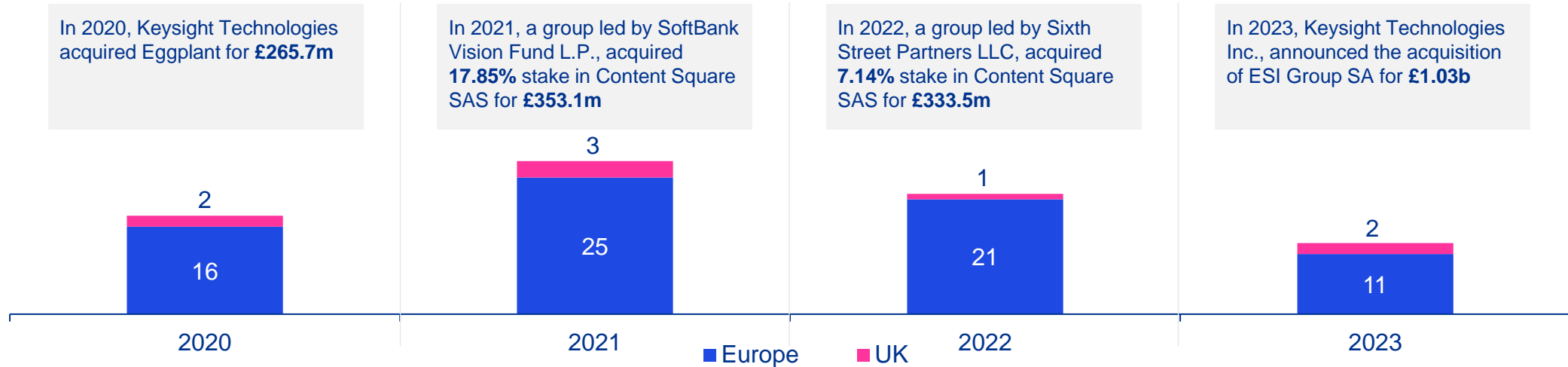
- Recent Industry developments
- Mergers & Acquisitions Overview
- High Profile Failures

Recent Industry developments



Mergers & Acquisitions Overview

M&A deals in recently are majorly related testing companies focusing on improving its existing testing services by adding newer software technologies and tools



Key Takeaways

- Majority of the deals revolve around software testing companies acquiring other software development and testing companies across Europe and UK. The deals are related to different types of software testing including security testing, games testing, medical software testing, test automation and more
- Some deals involved testing companies acquiring other companies for their proprietary technologies, tools, and platforms to enhance their existing portfolio. For instance, in May 2022, AB Tasty SAS, a France based SaaS solution provider for marketers acquired EPOQ GmbH, a Germany-based computer technology provider to improve its A/B testing and website optimisation services
- In 2023, some of the deals involves angel investors and venture capital firm acquiring software companies engaged in developing a cloud-based platform that tests websites using a community of testers and companies engaged in biomarker testing

Note: The deals considered are all related to the target company being in UK or Europe. Also, the deals with highest value in the last five years have been called out in the slide. Furthermore, kindly access the embedded excel to view all the deals in the last 5 years
 Source: Mergermarket accessed on 26 July 2023; [LLX Group acquired TSG Training Ltd](#), accessed on 25 November 2023

Recent software failures

There have been a handful of incidences of software failure that have resulted in chaos, delays and operational difficulties for governments and businesses

4 April 2023

The customers of Virgin Media across the UK experienced widespread internet, telephone and TV outages. According to Downtechnology, approximately 50,000 people had reported problems with their services on the day of the outage [Link](#)

25 May 2023

British Airways faced IT issues which led to flight cancellations, affecting at least 50 flights [Link](#)

27 May 2023

The UK Border Force IT system failure caused delays in processing arrivals at airports and ports across the UK. The system failure prevented the use of electronic gates by passengers arriving in the UK [Link](#)



30 May 2023

Capita, a large supplier to the UK government, with contracts ranging from London's congestion charge system to recruiting soldiers for the army, experienced critical IT system failure. About 90 organisations reported breaches of personal information held by the company after a cyber-attack [Link](#)

20 July 2023

A chain ferry that connects East Cowes and Cowes on the Isle of Wight was out of service after a software glitch. Engineers had been unable to fix the problem, which delayed the expected resumption of the service. [Link](#)

8 October 2023

A software failure caused an island-wide gas shutdown in Jersey, affecting about 4,500 customers. The gas plant at La Collette turned off automatically to protect the network, and the back-up systems also failed due to a rogue code. [Link](#)

5 September 2023

UK Electoral Commission failed the Cyber Essentials test in multiple areas including the use of outdated and vulnerable devices and software, before it suffered a cyberattack in which hackers gained access to registers that contained the names and addresses of voters. [Link](#)

28 August 2023

UK airports faced massive disruption due to a technical issue with air traffic control that affected hundreds of flights. The problem caused chaos for travellers during a national holiday and was estimated to take days to clear the backlog of passengers. The cause of the technical issue was unclear, but a software failure or a cyberattack was speculated [Link](#)



Keith Klain

Director,
Quality Engineering & Testing



“As our lives become increasingly interconnected and dependent on pervasive technology, understanding the quality of those systems, and their impact on people’s lives, has never been more important.”

05

KPMG'S Quality Engineering & Testing Services



KPMG Quality Engineering and Testing Services

Accelerate Business Transformation

What do we do?

We believe successful business outcomes are either **constrained** or **accelerated** by your approach to testing and quality management.

Our service lines are designed to **accelerate** your business transformation.

We provide better insights on quality and integration through testing **smart**, testing **often**, and testing **less**.



[Visit our website](#)

How do we do?

Our key Service Lines:



Quality Engineering

- Provide automation advisory and delivery services and implement automated testing techniques.
- Design, implement test tooling for early CI-DC / DevOps delivery.
- Facilitate non-functional requirement validation for system performance.



Test Transformation

- Review testing capability, processes, activities and outputs.
- Identify risks and opportunities to help our clients get better at testing.
- Collaborate with clients to deliver improvements & transform their testing capability.



Test Delivery

- Drive early defect detection.
- Utilise variety of test management tools for comprehensive test design & execution.
- Ensure WACG-compliant digital accessibility testing.
- Award winning Test Management.

Why use KPMG?

01

Our cross-sector expertise

We bring the whole of KPMG to an engagement, leveraging deep industry expertise across multiple sectors to enhance the technical skills of our testing specialists.

02

Our investment in innovation

We believe in the value of innovation over large off-shore body shops. As a result, we have created a series of high value propositions that help our clients to accelerate business change.

03

Our award winning team

Named *Leading Software Testing Vendor* in 2022 and winners at **The European Software Testing Awards** 2017, 2018, 2020-23.



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Appendix



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Competitive Intelligence

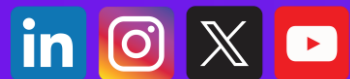
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Recent Developments

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