
INFUSE
With UK universities being tested more than ever before, this paper explores the often undervalued but critical role of expert test automation in supporting agility, efficiency, and a seamless student experience.
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Foreword

In the sixteen years that Infuse has been proudly supporting UK universities, the sector has experienced unprecedented technological change, accelerated in recent times by AI, that is demanding agility at a pace that legacy infrastructure was never built to support. And through all of it, the expectation that the technology simply works — invisibly, reliably, every time.

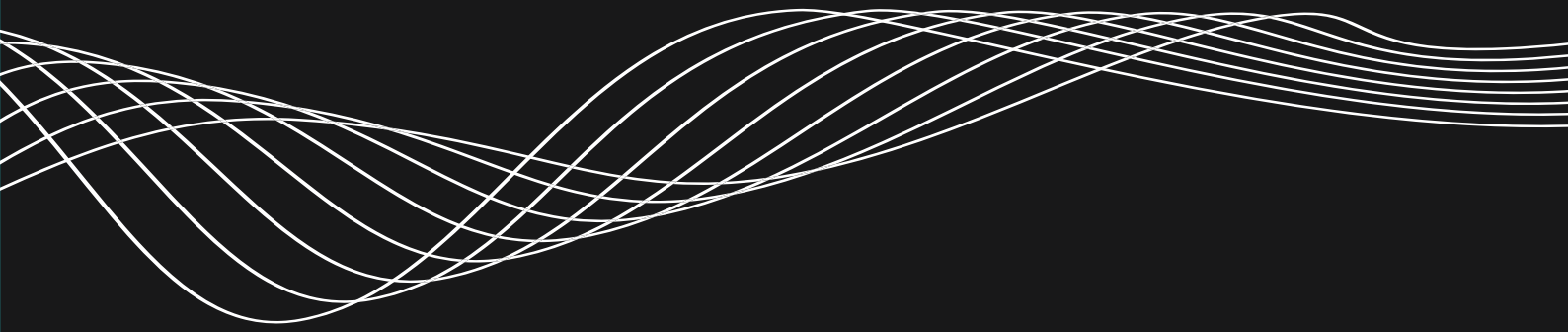
This paper was born out of a desire to capture something we hear consistently in our conversations with senior leaders across the sector: universities are thinking and talking about testing in a different way. Testing is no longer being framed as a technical discipline — an investment to be defended when budgets tighten. It is increasingly being understood as a strategic enabler: the foundation on which trust is built, and transformation is delivered.

This shift is significant.

The insights in this paper come not from us, but from leaders in our community who are living this challenge. I am enormously grateful to each of them for their candour, their expertise, and their time. Their voices speak with an authority that no vendor perspective could replicate. What you will find in the pages that follow is not a sales narrative. It is an honest account of where the sector is, where it needs to go, and what expert test automation makes possible when it is valued and invested in.
I hope this paper is the catalyst for the conversations the sector needs to have.



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successfully ride this wave

Authoring this paper would not have been possible without senior leaders from the Infuse Community offering up their time to provide expert insights. Team Infuse is hugely grateful for the contributions from senior leaders from:

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partnership, which drives efficiency and agility

why university leaders now believe

It will come as little surprise to learn that the IT leaders we spoke to emphasised the mission-critical role of test automation in reducing cost pressures, supporting transformation, and elevating reliability and efficiency. Yet, our conversations with senior leaders from the UK higher education community revealed something more: the role expert test automation plays beyond the technology — the human element.

In a digital-first world, where the role of AI is growing, our discussions revealed a view that university leaders run the risk of focusing too much on the technology powering academic operations, overlooking the fact that the strategy and processes the technology is designed to support are driven by humans, with myriad university stakeholders working to serve an increasingly diverse student population.

Jon Ward, Director of Digital Solutions at King's College London, believes test automation plays a powerful role in building trust and forming the foundations for internal collaboration:

"The reality is that universities need to exploit every opportunity to bolster agility. Expert test automation is about more than the tech. It helps IT establish credibility with other business stakeholders, elevating trust and partnership, which drives efficiency and agility across functional boundaries. While we all understand the role test automation has to play in the speed of technology adoption, IT leaders need to understand that it is also the catalyst for building critical internal relationships and trust in people and process."

Krish Pilicudale, CIO at the University of Huddersfield, agrees, believing that an expert and pragmatic approach to test automation holds the key to overcoming the current challenges:



backdrop, pragmatic and sector-specific testing

Krish Pilicudale, CIO, University of Huddersfield

university leaders are now talking about

For much of the past decade, conversations about test automation in higher education have been conducted almost entirely in technical language — defect rates, test coverage, regression cycles. Important considerations in the testing space, without question. But not the language of the stakeholders who ultimately control the budgets on which testing investment depends.

That is changing. The leaders we spoke to are increasingly fluent in a different register—one that connects the quality of technology directly to the outcomes institutions are held accountable for: student retention, financial sustainability, staff productivity, and competitive positioning. The shift is subtle but significant. Testing is no longer being defended as a technical necessity. It is being advocated for as a strategic investment.

Jon Ward at King's puts it plainly:

> **The credibility that consistent, expert testing has built with King's senior business stakeholders has changed how the institution talks about IT investment together. Testing has given IT a seat at the table — not because the technology improved, but because the trust it created changed the dynamic. It's not just about the systems working. It's about what working systems make possible. That's the conversation we're having now.**

The most powerful reframe, as Jenny Rae at Imperial argues, is to stop defending testing as a cost and start presenting it as insurance. The question is not whether to invest in testing — it is whether to invest in prevention or in remediation. Many UK universities are already paying the price of under-investment; they simply can't see it, buried in overrunning project budgets, emergency fixes, and rework that consumes the resources the institution can least afford to lose. The data is unambiguous, with research suggesting defects that reach production cost anywhere between fifteen and thirty times more to resolve than those caught early. Testing is not a line item to be defended. It is insurance with a calculable premium — and the institutions that treat it as such are not simply managing risk more effectively, they are making a rational, evidence-based argument to their institution's senior leaders.

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the transition from testing as a cost centre to

Our discussions showed that internal conversations about the role and value of testing are changing. When systems work reliably, when releases happen smoothly, and when stakeholders stop fearing the next upgrade announcement, the relationship between IT and the rest of the institution changes, and the ability to embed testing in wider institutional strategy becomes infinitely easier. Jenny Rae, CIO at Imperial, describes the change in perception wonderfully:

> **The institutional view on testing is changing here at Imperial and across the sector. Historically, it has always been framed in terms of preventing failure. Now, it's about enabling ambition.**

Across the sector, the institutions that have invested in testing are not simply running more reliable systems. They operate differently. Their IT teams are respected strategic partners. Their transformation programmes deliver. Their business stakeholders are advocates rather than sceptics. The argument for investment in testing is not, at its core, a technical one. It is an argument about whether an institution is prepared to invest in testing as a strategic enabler. **Jon Ward at King's College London talks about how much the internal perception of the value of test automation has changed at the institution:**

> **Senior business users at King's are now actively championing test automation. This is a fundamental reversal of the usual dynamic. It is not IT defending its practices to a sceptical business — it is the business advocating for IT practices and talking about the value of test automation. This is a big success story.**

When asked about testing as a strategic enabler, leaders at Solent University were keen to highlight the value of testing in the long- and short-term, drawing attention to the critical role expert testing plays in bolstering institutional agility by acting as an immediate project accelerant.



test oversight offers value beyond future

scalability and efficiency gains — it acts as



doesn't exist — it is that it has too often been

how university leaders are

Making the case for securing continued investment in test automation has not been without its challenges for forward-thinking leaders. The value of test automation is not always transparent — the crisis that didn't happen, the deployment that went live without incident, the system that processed thousands of enrolments without error. While robust testing is synonymous with positive outcomes, it can make ROI attribution difficult.

Jenny Rae, CIO at Imperial College London, is direct on this point, stating that it's not that the ROI case for testing doesn't exist — it is that it has too often been made in the wrong language, to the wrong audience, with the wrong frame of reference:

> **Testing isn't just your IT team's concern. There's a much wider story of why we test. University leaders need to make the case for testing based on productivity and the student experience. Make the numbers real. Make the consequences of not doing it equally real. Sit down and say: Our student experience is going to be really poor if we don't get this right.**

Jenny is quick to point out that this is not a call for oversimplification, but rather a call for honesty about what is actually at stake — and a recognition that institutions must understand why testing matters. **Jenny's expert view underscores the need for views on the fundamental value of testing to change:**

> **If testing is viewed as technical 'quality control', it will always be vulnerable when budgets tighten. In contrast, if testing is viewed as the foundation on which trust and digital transformation capabilities are built, it becomes an institutional must-have, supercharging agility and accelerating change.**

how test automation is helping universities

The leaders we spoke to were unanimous: the investment case for test automation will be won or lost on the ability to frame it around productivity, efficiency, and the student experience. The most compelling cases will be those supported by data. Here's what that looks like in practice, drawn from Infuse's work with King's College London.



7.46

Test automation delivered a cumulative effort saving of **4,255 person-days** across six applications, translating to an equivalent of **7.46 FTEs**. *

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4,953 manual testing days were completed in just 698 automated testing days, representing a **seven-fold improvement in efficiency**. *

1918

The total number of automated tests across the six applications, showing the scale of the testing project. *

* The numbers and efficiency gains represented are based on insights between July 2023 and September 2025 (a period of two years and two months).

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Expert sector-specific test automation will

Jon Ward, Director of Digital Solutions

KING'S College LONDON

the role of testing in helping universities meet

Ask a typical student what they think about the IT systems at their university and the likelihood is you'll be met with apathy and indifference. Not because those systems don't matter — they matter hugely — but because when testing is done well, technology becomes invisible. It simply works. Errors don't reach production. Disruptions don't cascade into the admissions portal, the student finance system, or the learning management system. The student submits their work, accesses their timetable, and receives their results — and these events don't register as technological achievements, nor should they.

This invisibility is, paradoxically, the highest measure of success for a robust testing approach. Earlier in this paper, we discussed how this represents one of the great challenges of making the case for investment in testing. You cannot easily calculate the cost of a crisis that didn't happen. You cannot measure the impact of the trust that wasn't broken or the reputational damage that didn't materialise. However, the institutions that have not invested in testing know exactly what the absence of that investment feels like — and what it costs. **Jon Ward, King's College London, powerfully sums up the expectations of today's tech-savvy student, and the inherent risk of universities getting it wrong:**



The institutions setting the standard have made a deliberate investment in testing, driven by the realisation that the student experience must be underpinned by technology that works reliably and invisibly. Jon Ward at King's captures what success looks like in practice — not headlines, but silence. "The fact that we don't get noise about IT in the student survey — that is the measure of success." When systems work as expected, students can focus on what they came to university to do. That, ultimately, is what expert testing supports. A view supported by Krish Pilicudale, CIO at the University of Huddersfield:



in which the Huddersfield testing capability

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University of Huddersfield

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just being comfortable where we are. It’s

[redacted]

what universities need when it comes to

No conversation about the future of digital operations in higher education would be complete without acknowledging the growing presence of artificial intelligence, and the fact that testing's relationship with AI is more complex than is often understood. **Jon Ward at King's reflects on the challenge:**

> **King's is already working with Infuse on the challenge of testing AI-enabled systems and chatbots — a challenge that is qualitatively different from testing conventional software. Conventional software is deterministic; AI systems are not. They generate responses that are probabilistic, contextually sensitive, and sometimes wrong in ways that are very difficult to anticipate. Testing them requires a fundamentally different approach. There is an innovative strand to Infuse's work. It's helping keep us on our toes, not just being comfortable where we are. It's about pushing on to the next step, and it's exactly what we need from a testing partner.**

The challenge Jon describes is one that the entire sector will need to confront: as universities adopt AI-powered tools for student support, academic guidance, and operational efficiency, the question of how to test those tools — how to verify that they are giving students accurate, appropriate, and safe responses — will increasingly become a question that is much about risk as it is about technology. **Mike Smith at Imperial raises an equally important dimension:**

> **As code generation tools become more capable and more widely adopted, the testing challenge changes. You can now generate code very quickly — but the quality and reliability of that code still needs to be verified rigorously. If anything, the speed at which AI-assisted development can produce software makes robust testing more important, not less. Speed without quality is simply an exercise in failing faster.**

Our view here at Infuse is that the institutions that are building genuine testing capability now — embedding it in their teams' ways of working, developing the frameworks and the culture that make quality a continuous process rather than a final check — will be significantly better positioned to navigate the AI-enabled future than those that are not.

what universities are looking for from

We asked the leaders we spoke with to shine a spotlight on what they see as being critical when considering a partner in the testing space. Here is what they had to say:

Imperial demands expertise, flexibility, and transparency. It expects a test partner to have the sector knowledge to confidently question, challenge, and propose solutions, aligned with the University's ambitions.

The University of Huddersfield sought a partner with a collaborative, one-team ethos to help colleagues take ownership and move the University along the testing maturity curve at pace.

For King's, a testing partner must have earned credibility across multiple institutions, across multiple years, bringing something that no pitch deck can replicate — a trusted reputation of delivery.

All the leaders we spoke to reinforced the importance of end-to-end testing capability, preferring to build a long-term relationship with a trusted testing partner.

University of Huddersfield

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> If you want a partner who will challenge, get to the heart of the problem faster, and get the job done, sector expertise is critical.

a summary of the key

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1. **The language surrounding testing has changed** — and that matters. The sector is moving from technical justification to strategic advocacy. Testing is no longer defended in terms of defect rates; it is being championed in terms of student outcomes, institutional trust, and competitive agility.

2. **Testing is insurance, not overhead**. The cost of under-investment in testing is real — it is simply hidden in overrunning projects, emergency fixes, and rework. Framing testing as risk mitigation with a calculable return is the most powerful tool leaders have when making the investment case.

3. **Testing maturity is a competitive differentiator.** Institutions that have invested in testing operate differently — they move with greater agility and their transformation programmes deliver.

4. **AI makes testing more important, not less**. As AI-assisted development accelerates the speed of software production, and as universities deploy AI-powered tools for students, the rigour of testing becomes more critical. Speed without quality is simply an exercise in failing faster.

5. **Sector expertise is non-negotiable in a test partner.** The leaders we spoke to were unanimous: a trusted testing partner must bring deep domain knowledge of the HE sector, a proven track record across multiple institutions, and the confidence to challenge.



we are the experts in higher education software testing

Since 2010, our unrivalled sector expertise and end-to-end testing capability have been helping UK universities go faster and further for less, elevating quality, agility and the student experience. With skills rarely found in a single supplier, we bring something no sales pitch deck can replicate — a trusted, proven reputation for delivering results for the UK higher education sector.



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