INFUSE

Applying the Higher Education Reference Model (HERM) in Universities

Challenges, Constraints, and Pathways to Sustainable Adoption.



Abstract

The Higher Education Reference Model (HERM) provides universities with a structured framework for aligning business capabilities, processes, data, and technology with institutional strategy.

Despite its promise as a decision-support and transformation enabler, the practical application of HERM within universities presents significant challenges.

Drawing upon sector insights and implementation experience, this paper explores the structural, cultural, and operational barriers to HERM adoption across its lifecycle.

It further examines how these challenges intersect with broader sector pressures, including digital transformation, legacy system complexity, and rising expectations for reliable, student-centric services.

The paper argues that HERM implementation is not a technical exercise but a long-term organisational capability requiring sustained investment, governance integration, and cultural change.



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1. Introduction

Universities are operating in an environment characterised by increasing financial pressure, rising student expectations, and rapid technological change. Institutional leaders must balance operational resilience with the need to innovate, often within complex and decentralised organisational structures. In this context, HERM offers a structured approach to achieving alignment between strategy, operations, and technology.

However, HERM is frequently misunderstood as a static model or documentation exercise, rather than what it fundamentally represents: a continuous decision-support capability embedded within institutional governance and transformation processes.

The implementation of HERM therefore presents challenges not only of interpretation, but of organisational change. These challenges are amplified in universities, where autonomy, diversity of practices, and historical system complexity create additional barriers to standardisation and alignment.

2. HERM as an Organisational Capability

HERM should be conceptualised not as a deliverable, but as an evolving institutional capability with four defining characteristics:

- A change programme, not just a model
- A decision-support framework, not static documentation
- A long-term capability, not a one-off initiative
- A continuous improvement process, embedded in operations

This reframing is critical. Many implementation challenges arise from a mismatch between expectations (a model to be "rolled out") and reality (a capability that must be cultivated and sustained).

A shift-left testing approach embeds verification and validation activities early within the software development lifecycle, directly at the point of requirements definition, architecture, and design, rather than deferring them to downstream QA phases. This enables teams to validate critical artefacts such as service contracts (APIs), data models, integration patterns, and non-functional requirements (performance, security, scalability) before implementation is complete. Techniques such as contract testing, static analysis, automated unit and integration testing, and continuous testing within CI/CD pipelines ensure that defects—particularly those related to system interfaces and data integrity—are detected at the point of introduction. From a systems engineering perspective, this reduces defect propagation across distributed architectures, minimises costly rework, and improves overall system stability. In complex, multi-platform environments—such as those created during mergers or large-scale transformations—shift-left practices are essential to maintain control over interdependencies, enforce architectural standards, and ensure that integration points remain reliable as systems evolve.

3. Lifecycle of HERM Implementation and Associated Challenges

3.1 Initiation and Awareness: Overcoming Scepticism and Ambiguity

At the outset, institutions often struggle to articulate the purpose and value of HERM. The framework is typically introduced as an abstract concept, disconnected from immediate operational concerns.

Key challenges include:

- Cultural resistance and scepticism
- Limited enterprise architecture maturity
- Unclear or inconsistent executive sponsorship

Academic and professional staff may perceive HERM as:

- Overly technical
- Driven by central IT functions
- Detached from teaching, research, and student outcomes

This perception reflects a broader challenge identified across the sector: technical initiatives often fail to resonate when framed in technical language alone. As seen in parallel conversations around testing and digital transformation, universities respond more effectively when initiatives are linked to institutional outcomes such as student experience, efficiency, and risk mitigation.

Without a clear narrative that connects HERM to these outcomes, early engagement remains limited. Symptoms may include poor attendance at briefings, difficulty securing resources, and confusion about HERM's purpose.

The UCISA Enterprise Architecture (EA) user community's work on the HERM cookbooks represents a significant step toward standardising architectural practice across the UK higher education sector. These cookbooks provide practical, reusable guidance that translates abstract enterprise architecture principles into actionable patterns, templates, and use cases tailored to university environments.

By aligning institutional architectures around common domains—such as student systems, research capability, and corporate services—the HERM cookbooks enable greater consistency, interoperability, and strategic alignment across institutions. Critically, they also support collaboration and shared understanding between IT, academic, and operational stakeholders, helping universities move from fragmented, locally optimised solutions toward coherent, system-wide architectural models that can better support large-scale transformation, integration, and increasingly federated governance structures.

3.2 Localisation and Design: Translating a Generic Model into Institutional Reality

HERM is intentionally generic. Its strength lies in providing a common vocabulary and structure across institutions. However, this generality creates a significant challenge when applying it to the highly specific contexts of individual universities.

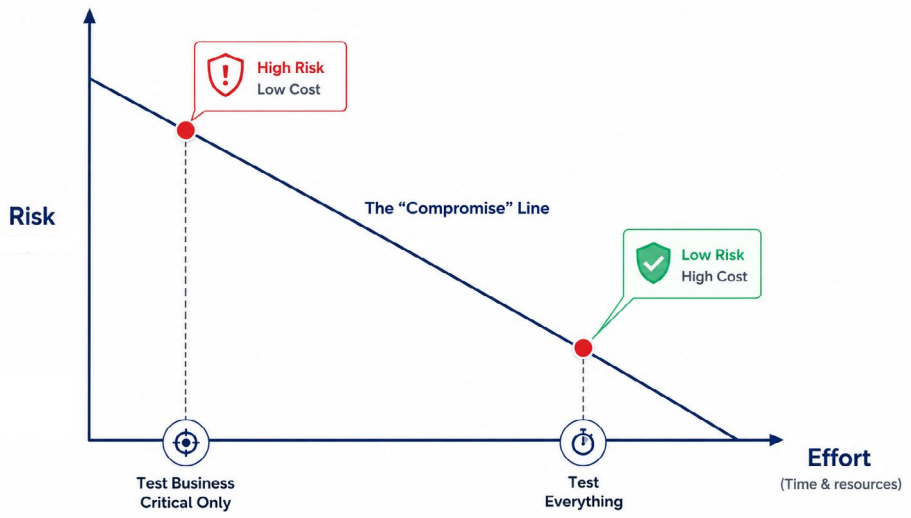
Key challenges include:
- Translating generic capabilities into local structures
- Resolving inconsistent data definitions
- Addressing skills gaps in modelling and interpretation

Universities frequently encounter disputes over terminology—for example, differing definitions of "course," "programme," or "module." These differences are not merely semantic; they reflect deeply embedded organisational practices and governance arrangements.

Additionally, legacy system landscapes complicate efforts to align data and processes. Many institutions operate highly customised environments developed over decades, making standardisation difficult without significant redesign.

This mirrors wider sector challenges in digital transformation, where legacy infrastructure limits agility and creates barriers to consistency and integration. The result is often prolonged design phases, fragmentation into localised interpretations of HERM, and delays in achieving consensus.

The "testing compromise line" refers to the inevitable boundary within delivery programmes where competing pressures—time, cost, scope, and quality—force difficult decisions about how much testing is sufficient versus feasible. In theory, organisations aim for comprehensive test coverage across functional, integration, and non-functional domains; in practice, deadlines, resource constraints, and delivery pressure often push teams to accept calculated risk by reducing scope, deferring lower-priority tests, or relying on partial automation. The position of this compromise line is critical: set too low, and organisations risk releasing unstable systems with hidden defects; set too high, and delivery slows, impacting agility and business outcomes. In complex environments—such as mergers or large-scale system integrations—the challenge is amplified, as interdependencies increase and unknown failure modes emerge. Effective testing strategies shift this compromise line through automation, shift-left practices, and risk-based prioritisation, enabling organisations to maximise quality without sacrificing delivery velocity, and ensuring that compromise is controlled, transparent, and aligned to business risk rather than driven purely by time pressure.



3.3 Adoption and Embedding: From Concept to Practice

The transition from design to practical application represents one of the most difficult stages in HERM implementation.

Key challenges include:

- Intensified cultural resistance

- Failure to embed HERM within governance processes

- Change fatigue among staff

At this stage, HERM begins to influence:

- Investment decisions

- Business case development

- Portfolio prioritisation

Resistance may increase when HERM:

- Challenges existing power structures

- Highlights duplication or inefficiency

- Introduces perceived complexity into decision-making

A recurring issue is the disconnect between architecture functions and decision-making bodies. Architects may actively use HERM, while governance forums continue to rely on established practices. Projects may bypass architectural frameworks under the justification of urgency.

This reflects a broader institutional challenge: t**he gap between technical capability and organisational trust**. As demonstrated in the domain of testing, IT-led initiatives gain traction only when they build credibility with stakeholders and demonstrate tangible value beyond technical outcomes.

3.4 Operationalisation and Integration: Embedding HERM in Institutional Processes

For HERM to deliver value, it must be embedded in day-to-day governance and decision-making processes.

Key challenges include:

- Integration with planning, funding, and governance cycles

- Managing complex application and data landscapes

- Maintaining accurate and up-to-date architectural artefacts

Many universities underestimate the effort required to operationalise HERM. Without consistent usage, architectural artefacts quickly become outdated, reducing trust in the model.

Common symptoms include:

- Late-stage architectural reviews that fail to influence outcomes

- Inconsistent application across departments

- Fragmentation between strategic and operational decision-making

At the same time, institutions are under increasing pressure to deliver reliable, seamless digital services, particularly in student-facing systems. Failures in these systems can have significant reputational and financial consequences.

This creates a tension: the need for rapid delivery versus the structured governance that HERM requires.

3.5 Sustainment and Evolution: Maintaining Momentum

HERM is not static. Its ongoing value depends on continuous maintenance and alignment with institutional strategy.

Key challenges include:

- Loss of momentum over time

- Staff turnover and capability erosion

- Weak alignment with evolving strategy

- Declining engagement and reuse

Without sustained investment, HERM risks becoming "shelfware"—a reference model that is no longer used or trusted.

This challenge is exacerbated by the broader higher education context, where competing priorities and resource constraints make long-term initiatives difficult to sustain.

Stage	Cultural	Data & Definitions	Governance	Technology	Sustainability
Initiation	🔴	🟡	🔴	🟢	🟢
Localisation	🟡	🔴	🟡	🟡	🟢
Adoption	🔴	🟡	🔴	🟡	🟡
Operationalisation	🟡	🔴	🔴	🔴	🟡
Sustainment	🟡	🟡	🟡	🟡	🔴

Table1: HERM Challenges Heatmap

4. Structural Barriers to HERM Adoption in Universities

4.1 Organisational Complexity and Autonomy

Universities are inherently decentralised, with faculties and departments operating semi-independently. This limits the effectiveness of standardised models and complicates governance alignment.

4.2 Legacy Systems and Technical Debt

Highly customised legacy systems reduce flexibility and increase the effort required to align processes and data. These systems often lack the interoperability required to support enterprise-wide modelling.

4.3 Competing Priorities and Resource Constraints

Institutions must balance transformation initiatives with operational demands, limiting the capacity to invest in architecture capabilities.

4.4 Cultural Resistance to Standardisation

Academic environments often prioritise autonomy and diversity of practice, making standardisation efforts inherently challenging.

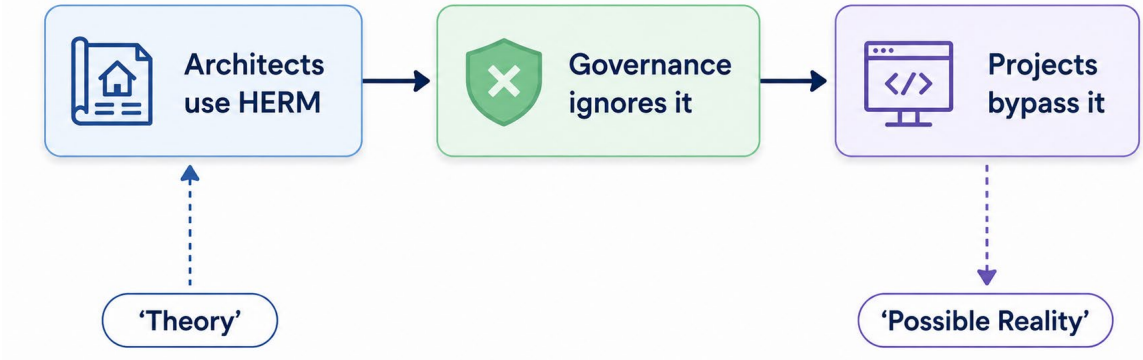


Diagram 1: The possible adoption gap

Within the HERM, shared services are not simply a cost-efficiency mechanism—they are a foundational architectural affordance that enables standardisation, scalability, and interoperability across institutional boundaries. By defining common capability domains (such as finance, HR, student administration, and research management), HERM provides a structured blueprint for identifying where services can be consolidated and delivered centrally, while still supporting local delivery and institutional identity. This enables organisations within federated or system-based models to move away from duplicated, siloed systems toward platform-based service provision, where shared capabilities are consistently governed, reusable, and integrated by design. Crucially, HERM-aligned shared services enhance data consistency, reduce integration complexity, and provide a stable architectural backbone that supports cross-campus processes and governance at scale—making them a critical enabler for the transition from independent institutions to coherent university systems.

5. The Role of Trust, Narrative, and Value Articulation

A consistent theme across both HERM implementation and broader digital transformation initiatives is the importance of narrative and trust.

Technical frameworks fail to gain traction when:

- Their value is not clearly articulated
- They are perceived as overhead rather than enablers
- They are not aligned with institutional priorities

Sector experience demonstrates that initiatives gain support when framed in terms of:

- Student experience
- Institutional resilience
- Efficiency and productivity
- Risk mitigation

This is particularly relevant for HERM. The framework must be positioned not as an architectural tool, but as a mechanism for improving decision-making and delivering institutional outcomes.

6. Intersections with Digital Transformation and Testing

HERM implementation does not occur in isolation. It intersects with broader digital transformation efforts, including testing, system modernisation, and adoption of emerging technologies.

The Infuse research highlights several relevant insights:

- Universities are shifting from viewing technical disciplines as cost centres to strategic enablers

- Reliable systems underpin trust, agility, and transformation success

- Investment decisions are increasingly framed in terms of outcomes rather than technical metrics

These insights reinforce the argument that HERM must be integrated into a wider transformation narrative. It should support, rather than compete with, initiatives aimed at improving system reliability, data quality, and user experience.

7. Recommendations for Effective HERM

Based on the challenges identified, several recommendations emerge:

7.1 Establish Clear Executive Sponsorship

Visible and sustained leadership support is critical to overcoming cultural resistance and ensuring alignment with institutional strategy.

7.2 Frame HERM in Terms of Outcomes

Link HERM explicitly to student experience, efficiency, and risk mitigation to build engagement and support.

7.3 Integrate HERM into Governance Processes

Ensure that HERM is embedded in business case development, investment decisions, and portfolio management.

7.4 Invest in Skills and Capability Development

Develop internal expertise in enterprise architecture, modelling, and data management.

7.5 Prioritise Pragmatism Over Perfection

Accept that localisation is necessary and focus on practical application rather than theoretical completeness.

7.6 Maintain Continuous Alignment with Strategy

Regularly update HERM artefacts to reflect changes in institutional priorities and external conditions.

8. Conclusion

The application of HERM within universities presents a complex set of challenges spanning cultural, structural, and operational dimensions. These challenges are not unique to HERM but reflect broader characteristics of the higher education sector.

Successful implementation requires a fundamental shift in perspective: from viewing HERM as a technical framework to recognising it as a **strategic organisational capability**. This capability must be actively cultivated through leadership, governance integration, and sustained investment.

Ultimately, the value of HERM lies in its ability to support better decision-making in an increasingly complex and uncertain environment.

Universities that succeed in embedding this capability will be better positioned to navigate the challenges of digital transformation, deliver reliable and seamless services, and meet the evolving expectations of students and stakeholders.

About Infuse

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