

# Transformation Framework for Transitioning Traditional Universities to Online Open Education

Arnaldo Santos<sup>1,2</sup>, Leonel Morgado<sup>1,2</sup>, Henrique São Mamede<sup>1,2</sup>, Giorgos Koulaouzidis<sup>3</sup>, Maria Ilcheva<sup>4</sup>, Chris Kuijpers<sup>5</sup>, Teresa Guasch<sup>6</sup>, Magnús Árni Skjöld Magnússon<sup>7</sup>, Adamantini Peratikou<sup>8</sup>, Ilona Plaksenkova<sup>9</sup>, Annabell Bills<sup>10</sup>, Dimitris Kalles<sup>3</sup>, Francis Brouns<sup>5</sup>, Inés Gil-Jaurena<sup>11</sup>

<sup>1</sup>. Department of Science and Technology, Universidade Aberta, Lisbon, Portugal

<sup>2</sup>. INESC TEC, Porto, Portugal,

<sup>3</sup>. Hellenic Open University,

<sup>4</sup>. University of Veliko Tarnovo,

<sup>5</sup>. Open Universiteit,

<sup>6</sup>. Universitat Oberta de Catalunya,

<sup>7</sup>. Bifröst University,

<sup>8</sup>. Open University of Cyprus,

<sup>9</sup>. Daugavpils University,

<sup>10</sup>. FernUniversität in Hagen,

<sup>11</sup>. Universidad Nacional de Educación a Distancia (UNED)

## Abstract

We present a nine-dimension institutional framework that guides traditional universities in transitioning to high-quality hybrid and online provision. Building on EADTU's E-xcellence manual, we bring to the fore enterprise architecture/interoperability, service digitisation, change-and-incentive systems, and governance/decision rights, by combining expert individual and panel contributions. We then operationalise this into a facilitation-ready checklist (Areas, Sub-areas, Topics, and Diagnostic questions), and add an institution-level maturity model to support prioritisation and roadmap design. We report on qualitative field validation through three one-week expert engagements (March-April 2025), which combined leadership briefings, semi-structured interviews, artifact reviews, and synthesis reports. The framework proved usable for cross-unit dialogue, was diagnostically sensitive to system-level blockers (interoperability and operations, digitization of academic/administrative services, change management, and incentives), and was action-generative, informing roadmaps for 12-24 months. We propose testable propositions linking governance/platform readiness to pedagogy, services, and outcomes. The full checklist and facilitation materials are released in an open repository to enable institutional self-assessment and comparative research.

## Keywords

*Digital Transformation; Universities; Online Open Education; e-learning; Learning Organization; Learning Management, maturity model, interoperability, quality assurance, higher education*

## 1. Introduction

Across Europe and beyond, many higher education institutions (HEIs) that have historically delivered face-to-face teaching now face strategic pressure to offer high-quality online and hybrid provision on a large scale. The main drivers include widening participation, lifelong learning needs, internationalization, and resilience to disruption, demanding institutional capabilities that extend well beyond emergency remote teaching (Bates & Sangrà, 2011; Hill & Garrett, 2023). Yet transitioning a university into a sustainable provider of online open education is a multidimensional change program: it requires an explicit digital vision and governance, robust platforms and IT operations, pedagogical redesign, staff capacity building, student support, quality assurance, and alignment with the broader institutional context (Kear et al., 2016; Felix, 2024). This transformation is increasingly recognised as a strategic priority within the European Higher Education Area, where digital readiness, inclusion, and lifelong learning are key enablers of institutional resilience and competitiveness (European Commission, 2020).

Existing guides and checklists tend to be partial, being strong in pedagogy or quality assurance but weaker in enterprise-level strategy, governance, and IT integration, leaving leaders without a coherent operational blueprint that orchestrates these dimensions (Kear et al., 2016; Hill & Garrett, 2023). Building on this practical need, we propose and examine a comprehensive framework that structures institutional transition from campus-based into hybrid institutions with open and distance learning models. We present evidence from pilot institutional engagements to assess their applicability and utility.

The EADTU E-xcellence manual already exists as an established foundational benchmarking approach for e-learning quality (Kear et al., 2016). However, our preliminary analysis and field work found gaps on operation details and transformation concerns in three areas that are critical for global institution transformation: (i) strategy and governance (e.g., portfolio and funding models), (ii) enterprise technology/IT operations (e.g., platform selection, interoperability, capacity and availability management, security), and (iii) operationalization via actionable checklists that integrate pedagogy with business processes and student services (Bates & Sangrà, 2011; Felix, 2024; Hill & Garrett, 2023).

Related work in connected learning and organizational transitions addresses aspects of pedagogy and community building (Baker & Kassimer, 2021), whereas corporate and VET-oriented frameworks focus on trainer upskilling and content workflows (Costa et al., 2022; Santos et al., 2022). However, none of these strands by themselves provides a single, institution-wide instrument that simultaneously (a) spans strategy-to-operations and (b) is deployable as a facilitated self-assessment and planning tool across university functions.

This paper aims to design and operate a university-level framework that covers these gaps, guiding the transition from face-to-face provision to online open education, consolidating state-of-the-art guidance into an operational checklist organized across nine institutional dimensions (strategy and digital vision; governance and structures; platforms and tools; IT resources and support; pedagogical innovation; faculty/staff development; student support; quality assurance; institutional context). We address the following research questions (RQs):

- *RQ1. What organizational capabilities and decision structures are necessary to support a sustainable transition to online open education at a university scale?*
- *RQ2. How can evidence-based criteria be organized into a practical instrument that enables cross-functional self-assessment and planning?*
- *RQ3. To what extent does the proposed framework surface diagnostic insights (strengths, gaps, priorities) and catalyze actionable road mapping during real institutional engagements?*

This study makes four main contributions:

- Integrative framework - We consolidate dispersed guidance into a single, nine-dimensional framework that explicitly links strategic intent, governance, platform/IT readiness, pedagogy, staff development, student services, and quality assurance, addressing well-documented fragmentation in existing instruments (Kear et al., 2016; Bates & Sangrà, 2011; Hill & Garrett, 2023).
- Operational instrument - We provide a facilitation-ready checklist (areas / sub-areas / topics / diagnostic questions with sources) that universities can use for structured dialogue, self-assessment, and action planning across units (Felix, 2024; Hill & Garrett, 2023).
- Practice validation - Through pilot visits at several HEIs, we demonstrate the framework's practical applicability, showing how it reveals organizational bottlenecks and informs prioritized roadmaps for online transition (Baker & Kassimer, 2021).
- Bridging quality and operations - We integrate quality-assurance perspectives (EADTU) with enterprise strategy and IT operations considerations (platform integration, capacity and availability management, security), providing leaders with a coherent, end-to-end transformation guide (Kear et al., 2016; Bates & Sangrà, 2011; Hill & Garrett, 2023).

To gauge practical applicability, we conducted three expert site visits (March-April 2025) structured by the checklist, generating early snapshots that led to ongoing activities to consolidate them and identify prioritized actions. Section 4 reports this qualitative validation based on expert, evidence-anchored judgments.

## 2. Background Research

### a. Institutional transformation to online and open education

Universities transitioning from campus-based provision to online and open education face a comprehensive institutional change that encompasses strategy, governance, digital infrastructure, pedagogy, staffing, student services, and quality assurance (QA). Classic quality handbooks (e.g., EADTU's E-xcellence) codified many course/program-level criteria but were not designed as enterprise transformation guides (Kear et al., 2016). Subsequent practitioner frameworks emphasize strategy and master-planning for online learning (Hill & Garrett, 2023) and management of technology for institutional change (Bates & Sangrà, 2011), while recent university strategy literature highlights the need to (re)align priorities, decision rights, and investment portfolios to support digital goals (Felix, 2024). In parallel, European policy frameworks such as the *Digital Education Action Plan (2021–2027)* and the *EHEA Rome Communiqué (2020)* explicitly call for digitally competent, inclusive, and resilient higher education systems. These initiatives underscore that institutional digital transformation is not only an operational necessity but also a strategic mandate for quality, equity, and sustainability across Europe (European Commission, 2020; EHEA, 2020).

The Standards and Guidelines for Quality Assurance in the European Higher Education Area add a system-level quality backdrop for internal and external QA (ENQA, 2015). Yet, across these strands, a fragmentation problem remains: guidance is often strong but partial, focusing on pedagogy/QA or on strategy/IT, without an operational instrument that orchestrates all dimensions across central services and faculties. This gap motivates the development of an integrative framework that can be deployed as a cross-functional checklist to diagnose readiness and inform road-mapping.

### 2.2 Quality assurance and governance at scale

At scale, online provision necessitates a tight coupling between quality frameworks (including curriculum design, assessment integrity, and student support) and organizational governance (encompassing roles, processes, change control, risk management, and data protection). E-xcellence remains a key benchmark for

e-learning quality at the program/department level (Kear et al., 2016), and the “Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)” report provides a sector-wide reference for quality assurance (QA) systems (ENQA, 2015). However, institutions frequently need operational translation of these high-level principles into: (i) governance structures (steering committees, QA boards), (ii) portfolio/funding models that sustain online programs, and (iii) service-level management (capacity, availability, security, interoperability) for platforms: areas where the literature is comparatively thin and practice guidance dispersed (Bates & Sangrà, 2011; Hill & Garrett, 2023). An actionable, institution-wide checklist that ties ESG/E-xcellence quality requirements to governance, processes, and IT controls can help bridge the policy-to-operations gap.

### **2.3 Digital platforms, interoperability, and operations**

Beyond mere LMS selection, enterprise-grade online education relies on a service architecture that integrates a range of other services, including identity and access management, content repositories, assessment/academic integrity systems, analytics, and student information systems, among others—ideally with open standards for interoperability and data portability. The management literature on digital transformation in HE underscores that platform choices must be aligned with governance and resourcing, not treated as isolated IT projects (Bates & Sangrà, 2011; Hill & Garrett, 2023). Quality handbooks and the ESG speak to reliability and fitness for purpose; however, institutions still require operational playbooks for capacity/availability management, data protection, incident/change management, and vendor assurance, especially when services are hybrid/cloud-based (ENQA, 2015; Kear et al., 2016). Our framework consolidates these operational concerns into a single instrument: a checklist of items that IT, QA, and academic leadership can jointly assess.

### **2.4 Pedagogical redesign and staff capacity building**

A successful transition requires pedagogical redesign (from content-centric to activity/interaction-centric models), robust faculty development in online teaching, and assessment strategies that are fit for purpose. Reviews of online program strategies emphasize the importance of structured instructional design support and professional development pathways as critical enablers (Bates & Sangrà, 2011; Hill & Garrett, 2023). Research on connected/online learning further emphasizes the importance of social presence, inclusive practices, and student engagement as core quality drivers (Baker & Kassimer, 2021).

Nevertheless, these pedagogical models must be embedded within an institutional system that guarantees consistency, support, and monitoring, again highlighting the need for a coherent, multidimensional framework rather than isolated pedagogical checklists.

### **2.5 Student services, inclusion, and success**

In online learning, student success hinges on proactive academic advising, counseling, accessibility, universal design for learning, and equitable access to technology/support. While E-xcellence and the ESG acknowledge these requirements (Kear et al., 2016; ENQA, 2015), universities would benefit from operational diagnostics that test whether services are resourced, measurable (through SLAs/KPIs), and integrated with learning analytics to provide early alerts. Such dimensions are frequently highlighted in institutional case work but under-specified in generic guidance (Bates & Sangrà, 2011; Hill & Garrett, 2023).

## 2.6 Synthesis and positioning

Across the most relevant sources, two insights are recurrent: (1) successful online transitions are institutional, not merely at the program-level, and (2) quality and governance must be co-designed with technology and resourcing. However, existing guides are either program/QA-centric (E-xcellence; ESG) or strategy/practice-centric (Bates & Sangrà, 2011; Hill & Garrett, 2023), leaving institutions without a single instrument that connects strategy/governance/platforms & IT/pedagogy & staff/student services / QA into a workflow for self-assessment and planning.

The present work addresses this gap by proposing and field-testing an integrated, 9-dimensional framework, operationalized as a facilitation-ready checklist (comprising areas, sub-areas / topics / diagnostic questions with sources).

## 2.7 Conceptual model and propositions

We propose a concept based on a model, in which Strategic Intent & Governance enable Platform/IT Readiness and Pedagogical/Staff Capacity, which together shape Student Services & QA Practices, leading to Institutional Readiness & Sustainable Online Provision.

The model assumes mutual reinforcement (e.g., governance maturity improves platform decisions, and analytics-enabled QA enhances student services), as well as feedback loops (e.g., QA outcomes inform strategy updates). The framework/checklist instantiates each linkage with concrete diagnostic questions and evidence requirements.

Propositions (for empirical testing in subsequent work):

- P1 (Governance readiness) - Universities with explicit digital strategy, clear decision rights, and funded governance structures will demonstrate higher institutional readiness scores and faster time-to-implementation for online programs than those without those conditions (Bates & Sangrà, 2011; Hill & Garrett, 2023; ENQA, 2015).
- P2 (Platform-pedagogy fit) - Institutions that evidence platform/IT readiness (interoperability, capacity, availability, security) will achieve higher quality-of-delivery (course/program design, interaction, assessment integrity) than peers with ad hoc platform choices (Kear et al., 2016; ENQA, 2015).
- P3 (Staff & Services) - Structured faculty development, combined with integrated student services (advising, accessibility, and analytics-based support), will be associated with improved student engagement and success metrics in online programs (Baker & Kassimer, 2021; Bates & Sangrà, 2011).
- P4 (Systems coupling) - The effect of pedagogy and services on outcomes is mediated by governance and platform readiness; partial improvements (e.g., pedagogy only) yield smaller gains than coordinated, multidimensional improvements (Hill & Garrett, 2023; Kear et al., 2016).

These propositions reflect testable expectations that can guide future quantitative evaluations of the framework's diagnostic power and its association with institutional outcomes.

## 3. Proposal

### 3.1 Purpose and design principles

Based on the background review, we propose a pragmatic, institution-wide framework to guide traditional universities through a planned, evidence-based transition to open and online education. It extends the EADTU

E-xcellence benchmarking approach by addressing persistent gaps in strategy, governance, platform integration, resourcing, and IT operations: areas that have been repeatedly identified as under-specified in existing guidance. In doing so, it aligns with the objectives of the European Higher Education Area and the EU Digital Education Action Plan (2021–2027), which call for systemic institutional capacity-building and evidence-based digital transformation (European Commission, 2020; EHEA, 2020).

The framework is (i) strategically anchored (digital vision and leadership), (ii) holistic (people, process, technology, quality), (iii) operational (actionable criteria and checklists), and (iv) iterative (plan–assess–improve cycles validated in pilot visits).

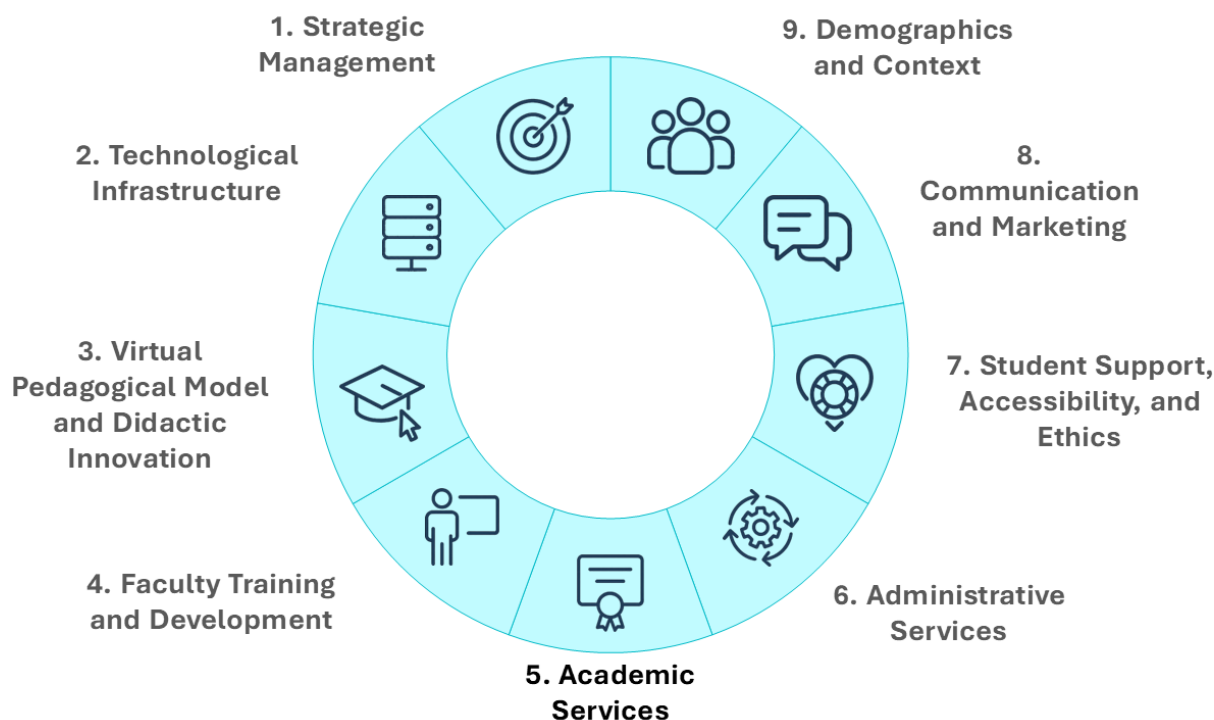


Figure 1: Framework Architecture, details in Fig. 2.

### 3.2 Architecture

The framework operationalises nine mutually reinforcing dimensions. Each dimension is broken down into **areas, sub-areas, topics, and diagnostic question(s), forming a traceable checklist that institutions use to self-assess their maturity, identify gaps, and prioritize actions.** The framework is illustrated in Fig. 1. Below, we synthesize its main contents, with more details in Fig. 2. The full framework is publicly available at <http://hdl.handle.net/10400.2/20375> (Santos et al., 2025).

#### 1. Strategic management

Focus of the subareas: digital vision (intent), legislation, governance, decision rights, roles, change management, value proposition, investment logic, KPIs, incentives, partnerships, risk/compliance.

Sample topics: legal alignment; who decides; how feedback/incentives work; how budgets/ROI are handled. Question example: "What types of incentives (e.g., funding, awards, promotion criteria) encourage innovation?"

## **2. Technological Infrastructure**

Focus of the subareas: hosting, performance, LMS/VLE, integrations (LTI/xAPI/SSO), security/privacy (e.g., proctoring), credentialing, analytics & service management, interoperability, and emergent technology guidelines (including GenAI & metaverse technology).

Sample topics: usability/scalability evidence; integration test cadence; GDPR compliance; AI/GenAI guidance. Question example: "What monitoring is in place to ensure the infrastructure's ongoing performance?"

## **3. Virtual Pedagogical Model and Didactic Innovation**

Focus of the subareas: program review & redesign; course delivery methodologies (e.g., problem/project-based, blended, microlearning); instructional design & use of technologies; interactivity; selection of third-party materials; assessment, learning monitoring & quality; support for pedagogical innovation; adaptation of external models.

Sample topics: outcomes/methods alignment; personalisation/flexible paths; layout/consistency guidelines; version control of materials; cross-functional design teams; QA indicators for online; formative/summative balance; competency-based assessment; integrity (authentication/proctoring with privacy). Question example: Which QA benchmarks or indicators are used, and how are results fed back into course and program redesign? How is training impact measured (e.g., changes in teaching practice)?

## **4. Faculty Training & Development.**

Focus of the subareas: training in online technologies and methodologies; pedagogical support; incentives.

Question example: Are professional learning pathways and incentives in place for online pedagogy, learning design, and data-informed practice?

## **5. Academic services.**

Focus of the subareas: digitised academic processes; assessment & certification; support resources and materials (libraries, multimedia, collaboration tools, virtual mobility/OER/MOOCs).

Sample topics: Academics IS/VLE integration; enrolment/registration/feedback flows; prior learning recognition and stackable micro-credentials; digital payments; grading analytics; digital certificate issuance/verification; access and usage metrics for resources; roles for external e-learning activities. Question example: What processes validate and credit a learner's external experience, and how do they integrate into degree pathways?

## **6. Administrative Services.**

Focus of the subareas: process automation; systems integration; and administrative team training.

Sample topics: which finance/HR/logistics processes remain manual; integration challenges and resolutions; onboarding/orientation to new tools; evaluating training impact for admin roles. Question example: Which processes remain manual, and what is the plan for further automation?

## **7. Student Support, Accessibility & Ethics.**

Focus of the subareas: support and assistance (orientation, advising, wellbeing/mental health, study skills, 24/7 helpdesk); accessibility and inclusion (WCAG); ethics and safety (policies, cyberbullying); community tools.

Sample topics: timely information on courses/assessments; early-warning analytics for at-risk students; rights/roles guidance and verification; resource usage tracking and feedback; inclusion/cross-cultural policies and training. Question example: Which analytics or early-warning systems detect struggling students?

#### **8. Communication & Marketing.**

Focus of the subareas: internal communication (tools); internal communication (processes & procedures); external communication; engagement & feedback strategy (monitoring and continuous improvement).

Sample topics include onboarding and adoption for Slack/Teams/Discord; online meeting standards; intranet/portal engagement; channel protocols; training evaluation; website/social presence for digital identity; email metrics; chatbot/live-chat quality; and closing the loop on comms analytics. Question example: How do you measure the impact of these updates (e.g., web analytics, feedback forms)?

#### **9. Demographics & Context.**

Focus of the subareas: faculty & staff, organisation, students & alumni, funding.

Sample topics: time-zone distribution and scheduling; staff ranks and workload policies (inc. asynchronous DL); campuses/sites; accreditation and reaccreditation cycles; academic-year structures; program formats (majors/minors, short/long masters, PhDs); non-degree offerings; flexibility in what/where/when/how to study; alumni engagement; lifecycle support; transparent fees/funding. Question example: Which bodies grant recognition or accreditation, and how often is reaccreditation required?

### **3.3 Process model and use**

Institutions apply the framework through facilitated workshops/self-assessment/evidence reviews, producing: (i) a maturity snapshot per dimension; (ii) a prioritised action plan (quick wins vs. structural reforms); and (iii) governance-approved roadmaps (12-24 months). In the pilot site visits reported in Section 4, no workshops were conducted; instead, experts conducted interviews with a diverse range of individuals, from senior management to operational staff, and performed artefact checks, including sample completion of framework items, to identify potential misunderstandings or misalignments. These interviews and checks were later synthesized into reports. We propose that when the workshops take place, they employ a 0-4 maturity anchor (0 = absent, 1 = developing, 2 = improving, 3 = managing, 4 = optimising) to structure discussions and link findings to evidence. This scoring method enables longitudinal tracking and cross-institutional benchmarking, supporting both internal improvement and analysis at the alliance level.

### **3.4 Positioning and scholarly grounding**

The framework builds on and complements established references: EADTU E-xcellence for quality benchmarking (Kear et al., 2016), strategic change and digital leadership in HE (Bates & Sangrà, 2011; Felix, 2024), and institution-level online master planning (Hill & Garrett, 2023). It addresses the known gaps by integrating strategy, governance, and IT operations with pedagogical and support dimensions in a single operational instrument. By doing so, it offers a practical contribution to the European debate on how universities can operationalise the principles of digital, inclusive, and lifelong learning transformation in line with EHEA objectives.

|   |  |
|---|--|
| <b>1. Strategic Management</b>                              | Strategic Plan and Digital Vision                          |
|   | Applicable Legislation                                     |
|   | Governance Structure                                       |
|   | Change Management  |
| <b>2. Technological Infrastructure</b>                      | Platforms and Tools  |
|   | Security and Technical Support                             |
|   | IT Resources   |
|   | Emergent Technologies                                      |
| <b>3. Virtual Pedagogical Model and Didactic Innovation</b> | Program Review and Redesign                                |
|   | Course Delivery, Teaching Methodologies, and Strategies    |
|   | Instructional Design and Use of Technologies               |
|   | Assessment, Learning Monitoring, and Quality               |
|   | Support for Pedagogical Innovation                         |
|   | Adaptation of External Models                              |
| <b>4. Faculty Training and Development</b>                  | Training in Online Technologies and Methodologies          |
|   | Pedagogical Support  |
| <b>5. Academic Services</b>                                 | Digitized Academic Processes                               |
|   | Assessment and Certification                               |
|   | Support Resources and Materials                            |
| <b>6. Administrative Services</b>                           | Process Automation   |
|   | Administrative Team Training                               |
| <b>7. Student Support, Accessibility, and Ethics</b>        | Student Support and Assistance                             |
|   | Accessibility, Inclusion, and Ethics                       |
| <b>8. Communication and Marketing</b>                       | Internal Communication (Digital Tools)                     |
|   | Internal Communication (Processes and Procedures)          |
|   | External Communication                                     |
|   | Engagement and Feedback Strategy (Monitoring and Analysis) |
|   | Engagement and Feedback Strategy (Continuous Improvement)  |
| <b>9. Demographics and Context</b>                          | Faculty and staff  |
|   | Organization   |
|   | Students and alumni  |

Figure 2: Framework – Global view of areas and subareas.

## 4. Field validation

### 4.1 Objectives

We validated whether the framework operates as a practical, traceable instrument for (a) institutional self-diagnosis, (b) prioritisation of actions, and (c) governance dialogue across academic and administrative units. We examined: (i) usability (clarity, coverage, cognitive load), (ii) diagnostic power (ability to surface strengths/gaps per dimension), and (iii) actionability (translation into credible 12–24-month roadmaps). These objectives align with the framework's intended use as outlined in Section 3.

### 4.2 Sites and participants

Three one-week expert visits (March–April 2025) engaged leadership, central services, and faculty/staff, combining briefings, semi-structured interviews keyed to the nine dimensions, artefact reviews, and expert synthesis reports.

**Univ-A — Daugavpils University (Latvia).** Public regional university with ~2,637 students, 311 staff, and 47 programs. Strategic pressure arises from demographic change and regional labour needs; core systems include Academic Information Systems/Moodle provisioning. Stakeholders report an emerging digital vision, but there is limited elaboration on online didactics and staff development.

**Univ-B — “Fan S. Noli” University, Korçë (Albania).** Small public university with ~2,500 students, ~150 teaching staff, and four faculties. Infrastructure and buildings have improved; a bespoke information system ("Pitagora") supports grade entry, and a Moodle instance is available but not operational. Leadership cites pending national provisions for e-learning as a constraint; interest in digitizing educational processes is clear.

**Univ-C — St. Cyril and St. Methodius University of Veliko Tarnovo (Bulgaria).** Longstanding experience with online programs since 2002 (cumulative 1,503 learners), standardized course layouts, and national alignment for student data/certification. Gaps include administrative digitization, support for online learners, systematic faculty development, and institutionalized innovation procedures.

### 4.3 Procedure and instruments

Each visit followed a common protocol mapped to the framework's Areas / Sub-areas / Topics / Diagnostic questions:

- (1) Briefing & scope alignment with leadership.
- (2) Interviews & evidence review across the nine dimensions (policies, processes, metrics, platform configurations).
- (3) Expert synthesis into a written synthesis report (per site), highlighting strengths, gaps, and candidate priorities.
- (4) Feedback to leadership via an oral debrief and circulation of the written report.

The instruments included a checklist (Fig. 2, expanded with individual topics and diagnostic questions). No formal workshop-based maturity scoring was conducted during these visits.

#### 4.4 Analysis

Interview notes and artefacts were analysed against the nine dimensions. For each site, the visiting expert provided a maturity judgment, referencing concrete evidence or agreed absences. Our analysis is interpretive and expert-led: we did not conduct a formal thematic content analysis. Rather, we synthesized interview notes and artifacts against the nine dimensions using expert judgment, and anchored every judgment to concrete evidence or agreed-upon absences. We then summarised cross-site patterns and site-specific priorities.

#### 4.5 Findings

##### Usability and completeness

Across sites, stakeholders found the framework to be sufficiently comprehensive for structuring cross-unit conversations. Leaders preferred the 9-item synthesis (Section 3) for executive discussion, with the full checklist used in working meetings. The A/B/C/D trace facilitated shared vocabulary between academic and service units, particularly in areas such as IT operations, QA, and administrative and academic services.

##### Diagnostic power: site snapshots

DU (Univ-A). Strengths: community cohesion, core digital flows (Academic IS/Moodle), and willingness to engage. Gaps: digital pedagogy model, staff training, vision/strategy for online, and student-facing consistency (some faculty still distribute materials by email). Strategic impetus is stronger from regional demographics/labour shortages than from current on-campus demand. Implication: Prioritize pedagogy/assessment design capacity, as well as change management, before scaling.

Fan S. Noli (Univ-B). Strengths: improved physical/digital infrastructure; leadership interest; library digitization; clear organisational chart. Gaps include a non-operational LMS, reliance on its internal "Pitagora" IS for grades only, low staff awareness of the LMS instance, and regulatory uncertainty surrounding digital learning provision. Implication: enable operational LMS, define governance/roles, and prepare for forthcoming legislation with policies and processes.

UVT (Univ-C). Strengths: two-decade online experience; standard layouts; national systems integration for students/certification. Gaps: helpdesk e-ticketing, faculty development beyond tool-use, formative assessment online, admin process digitization, and support roles for online learners. Implication: modernize the pedagogical model (C), institutionalize training (D), and formalize service operations (B/F/G).

##### Cross-site patterns

Common gaps. (i) Change-management & incentives not explicit; (ii) interoperability/operations under-specified; (iii) systematic faculty development beyond basic LMS use; (iv) administrative/academic services digitisation (recognition of prior learning, micro-credentials, digital certificates end-to-end); (v) student analytics/early-warning and defined online support roles; (vi) clarity on legal/ethical guidance (GDPR/AI). Evidence for these emerged, respectively, at DU (strategy/pedagogy/staffing), Fan S. Noli (LMS governance/legislation), and UVT (ops/faculty/admin digitisation).

Enablers. (i) Executive sponsorship and structured committees (UVT); (ii) existing core platforms even if under-used (DU, Fan S. Noli); (iii) national systems for student data/certification (UVT); (iv) improved infrastructure and library digitisation (Fan S. Noli).

### **Actionability: emerging roadmaps**

Each site is now developing a 12-24 month roadmap, which includes identifying quick wins and structural initiatives. While these are underway, some potential is already emerging from these first reports.

Quick wins ( $\leq 6$  months): publish GenAI/GDPR guidance; turn on LMS governance (roles, course shells, release calendar); define incident/change processes for the LMS; establish internal communication protocols for program approvals.

Structural (6–24 months): consolidate identity/SSO; implement integrations for proctoring/credentials/analytics; automate admin flows (enrolment to certificate); institutionalise faculty & staff development; redesign QA data/review/redesign loops at course/program level.

### **4.6 Validity considerations and limitations**

Given the qualitative, expert-judgment nature of the validation and the small number of sites, generalizability is bounded; future work will introduce formal coding schemes and quantitative maturity metrics. Regarding external validity, three institutions in distinct national contexts provide diverse but limited evidence; future studies should extend the protocol to additional systems and regulatory regimes. Researcher effects should also be considered, as framework authors facilitated visits, thereby increasing the risk of confirmation bias.

### **4.7 Ethics**

Participants received information about the aims; participation was voluntary; no individual-level data are reported. Detailed, specific reports remain available to project partners.

### **4.8 Summary**

Field validation indicates that the framework is usable, diagnostically sensitive to system-level blockers (interoperability/operations; administration and academic services digitization; explicit change management), and action-generative, with indications that it can produce governance-aligned roadmaps. This supports its intended role as a traceable, cross-functional instrument for planning transitions to open digital learning.

In view of the outcomes of the field activities, we now provide the following answers to the research questions.

Answer to RQ1 (capabilities & decision structures): the review and conceptual model indicate that sustainable online provision requires explicit strategic intent and governance, coupled with platform/IT readiness and pedagogical/staff capacity, with QA and services closing the loop (P1–P4). The framework makes these couplings operational by translating them into concrete diagnostics (e.g., decision rights, capacity/availability management, assessment integrity, analytics-enabled student support).

Answer to RQ2 (the practical instrument): the checklist structure and process model (facilitated training, evidence reviews, maturity anchors, and governance sign-off) provides a workable method for joint assessment by leaders, services, and faculties. Institutions can derive supporting instruments, such as a maturity snapshot, a prioritized action plan (including quick wins versus structural reforms), or a 12– to 24-month roadmap, along with supporting evidence.

Answer to RQ3 (diagnostic insights and actionability): Three site visits (March–April 2025) showed that the instrument is usable for leadership dialogue, diagnostically sensitive to system-level blockers, and action-generative. Recurring gaps clustered around: (i) change-management and incentives, (ii)

interoperability/operations, (iii) systematic faculty development beyond tool training, (iv) digitization of academic and administrative services, and (v) analytics-enabled student support & GDPR/AI guidance. These patterns emerged consistently across the sites. They are being translated into quick wins and structural initiatives, with the goals of establishing roadmaps for each institution.

## 5. Conclusions

This paper proposes and field-validates a nine-dimensional institutional framework that operationalizes the transition from campus-based provision to open, hybrid, and online education. The framework consolidates dispersed guidance (quality assurance, strategy/governance, platforms/IT operations, pedagogy/staff development, student services, communications, context) into a single, facilitation-ready instrument organised as Areas / Sub-areas / Topics / Diagnostic questions, enabling traceable, cross-functional self-assessment and planning.

For university leaders, the primary value of the framework lies in its coordination, as it brings together strategy, quality, technology, pedagogy, and services in a single conversation, providing evidence-backed decision points. In practical terms, it helps (a) diminish the risk of platform decisions via service-level management expectations, (b) couple design quality with operational capacity, and (c) align governance and incentives with the actual work of online delivery. For project teams, it provides a transparent checklist that exposes dependencies early and supports governance-approved plans.

Conceptually, the work clarifies the role of our propositions: how strategy/governance (P1) and platform readiness (P2) condition pedagogy/staff capacity and services (P3), with systems coupling (P4) explaining why partial, siloed improvements underperform coordinated ones. Empirically, the short qualitative field validation substantiates the instrument's usability and actionability, providing a basis for future quantitative tests of the propositions.

The validation encompasses three universities in distinct national contexts and relies on qualitative judgments anchored in evidence; generalizability is therefore bounded. Researcher facilitation introduces potential confirmation bias, which is mitigated through triangulation and the explicit capture of negative cases. These limits are acknowledged in the design of future studies.

Subsequently, we plan on quantifying maturity per dimension and relating it to outcome indicators (time-to-launch, course QA indicators, student success), examining regulatory diversity (e.g., GDPR, recognition/credentialing) and its operational effects, and building an open repository of diagnostics and roadmaps to enable benchmarking and comparative analysis across institutions. The full checklist and facilitation materials will be made publicly available.

Thus, the framework provides universities with a systematic, evidence-based path to plan and govern their transition to open digital learning. By unifying strategy, governance, technology, pedagogy, services, and QA into an operational workflow, it turns widely cited principles into practice. As the field validation suggests, this can lead to prioritised roadmaps that are both credible and tractable within typical institutional constraints. In doing so, it offers a practical bridge between European policy aspirations for digital transformation and the operational realities of higher education institutions.

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