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"Fostering Socially Distanced and Inclusive on Campus Education in Armenian HEIs"

BEST PRACTICE REPORT ON INTERNAL QUALITY ASSURANCE OF ONLINE/DIGITAL TEACHING, LEARNING & ASSESSMENT

(EU Best Practice Collection & Benchmarking of QA in Digital TLA)

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Contents

Section 1. Introduction

1.1 Purpose of the Report

This report forms part of the EU-funded *eCAMPUS* project and aims to:

1. Identify best practices in digital QA across Europe
2. Benchmark four advanced QA systems (Ireland, Estonia, Catalonia, Norway)
3. Analyse these practices through the lens of the ESG
4. Translate lessons into recommendations for Armenian HEIs and QA agencies

The analysis draws from official guidelines, evaluation methodologies, QA reports, and international research by ENQA, OECD, EQAR, and other bodies.

1.2 Scope and Structure

The report is organised into eight sections:

1. Executive Summary & Introduction
2. National & Institutional Context Across Countries
3. Cross-Country Analysis of QA Focus Areas (Digital TLA)
4. Principles, Frameworks & Theoretical Models
5. QA Methodologies and Tools Across Systems
6. Stakeholder Roles in Digital QA
7. Results, Impact & Lessons Learned
8. Reflections, Transferability & Recommendations for Armenia
   Annexes: Comparative tables, country case boxes, glossary, references.

1.3 Methodology

The benchmarking process follows:

- **Document analysis**:
  - National QA guidelines
  - Agency evaluation methodologies
  - Institutional review protocols
  - Systematic reviews (OECD, ENQA)
- **Structured comparison** using a shared template with eight QA focus areas
- **Cross-system synthesis** to identify common principles and divergent approaches

1.4 Why These Four Countries?

Ireland, Estonia, Catalonia, and Norway were selected because they represent four distinct models of digital QA:

Country	Model Type	Distinctive Feature
Ireland	Statutory national guidelines	Legally binding topic-specific QA rules
Estonia	Course-level enhancement tool	Long-running E-course Quality Label
Catalonia	Agency-level institutional methodology	Full evaluation method for online universities
Norway	Strategy-driven integration	Accreditation + national competence funding

Together, they provide a complete picture of possible approaches for countries strengthening QA of digital learning.

1.5 Defining "Quality Assurance in Digital TLA"

For the purposes of this report, *digital TLA* includes:

- Fully online learning
- Blended/hybrid learning
- Digitally-supported face-to-face learning
- Technology-enhanced assessment
- Analytics-supported teaching
- Staff digital competence development
- Digital infrastructure supporting teaching

"Quality assurance" refers to:

- Internal QA (institution-led)
- External QA (agency-led)
- Enhancement mechanisms
- Evaluation methodologies
- Standards, principles and guidelines

1.6 Conceptual Basis

The benchmarking uses:

European Standards and Guidelines (ESG)

Digital QA is framed not as a separate system but as a dimension fully embedded within ESG 1.1–1.10 and 2.1–2.7.

OECD 2022 digital HE principles, including:

- Student-centred online pedagogy
- Digital inclusion & accessibility
- Academic integrity in online settings
- Learning analytics and AI ethics
- Staff digital capability

- Infrastructure quality

ENQA approaches to e-learning evaluation, such as:

- Virtual campus inspection
- Digital-specific review criteria
- Trained expert panels
- Data-protection expectations

Section 2. National & Agency Context across Countries

This section provides a comparative overview of the national and agency contexts shaping quality assurance (QA) of digital teaching, learning, and assessment (TLA) in four European systems: Ireland, Estonia, Spain/Catalonia, and Norway. Each represents a distinct governance model, maturity level, and instrument for structuring quality in digital higher education.

2.1 Ireland — QQI and a Statutory National QA Framework

Ireland offers one of Europe's most mature and integrated policy environments for digital QA. The national QA system is unified under Quality and Qualifications Ireland (QQI), a statutory body responsible for external QA and qualifications frameworks.

Key governance features

- Single national agency responsible for higher, further, and lifelong learning QA.
- Legally binding (statutory) guidelines, including the *Topic-Specific QA Guidelines for Blended and Online Learning* (2018, revised 2023).
- Providers must "have regard to" (demonstrate compliance with) the guidelines in establishing internal QA.
- Digital learning is treated as normal provision, not experimental.

Maturity level: Advanced

Ireland has a long history of digital/online provision and sees technology-enhanced learning as part of the mainstream HE ecosystem. Many institutions operate large-scale blended and online programmes, and digital QA is embedded across all levels of governance.

Irish context strengths

- Clear national expectations
- Strong policy coherence
- Explicit links to the ESG
- Advanced thinking around AI, analytics and data ethics
- Mature institutional readiness

2.2 Estonia — HAKA and the E-course Quality Label

Estonia's national QA environment is highly digitalised, reflecting the broader national digital transformation agenda. Instead of statutory guidelines, Estonia uses a course-level national quality label as a key enhancement mechanism.

Key governance features

- HAKA (Estonian Quality Agency for Education) oversees QA across sectors.
- The E-course Quality Label (est. 2008) is a voluntary but widely adopted tool across HE, VET and general education.
- The label is implemented jointly with the e-Universities Consortium.
- Estonia promotes cross-institutional cooperation and a national community of practice.

Maturity level: Advanced (course-level QA)

The label has been used for 15+ years and provides clear expectations for digital course design, assessment, accessibility, participation, support, and evaluation.

Estonian context strengths

- Operational, practical, easy-to-use enhancement tool
- Clear alignment with the "PDCA" cycle of quality
- Strong culture of digital experimentation
- Transparent public database of awarded courses
- A national community of instructional designers and online educators

2.3 Spain/Catalonia — AQU and the Digital University Evaluation Model

Catalonia is home to one of the earliest fully online universities in Europe: Universitat Oberta de Catalunya (UOC). Quality assurance is overseen by AQU Catalunya, an EQAR-registered agency.

Key governance features

- AQU explicitly argues that the ESG are fully applicable to e-learning, but require reinterpretation.
- Developed a custom methodology for evaluating fully online universities, used to evaluate UOC.
- AQU authored the *ENQA "Quality Assurance of E-learning"* report, which defines Europe-wide indicators.
- Evaluation involves virtual campus inspection by expert panels.

Maturity level: Advanced (institutional-level digital QA)

Catalonia is a major reference point for QA of online universities. AQU's work goes beyond programmes, evaluating:

- Digital pedagogy
- Staff roles in online systems
- Virtual learning environments
- Digital student experience
- Online academic integrity
- Cross-border provision

Catalan context strengths

- High-level and deep institutional evaluation methodology

- Expert reviewers trained specifically in digital education
- Well-developed theoretical model aligned with ESG
- One of the strongest international references for QA of online-only universities

2.4 Norway — NOKUT and Strategy-Driven Digital QA Integration

Norway uses strategic integration rather than separate digital QA rules. Digital quality is strengthened through:

- Accreditation criteria administered by NOKUT
- National strategies focused on flexible and online learning
- Public funding supporting teacher training in online pedagogy
- Pilot centres of vocational excellence testing digital innovation

Key governance features

- No separate digital QA guidelines — digital is embedded into standard QA processes.
- Strong national emphasis on flexible, lifelong, and work-based learning.
- Policy-led ecosystem: the "Strategy for Higher Vocational Education" highlights online pedagogy.

Maturity level: Developing / Advanced hybrid

Digital QA evolution in Norway is driven by government strategies, funding mechanisms, and institutional innovation, rather than agency-specific standards.

Norwegian context strengths

- Strong alignment with labour market needs
- Investment in staff digital competence
- Emphasis on adult learners and flexible pathways
- Digital learning as part of national skills policy
- Infrastructure investment through national initiatives

2.5 Cross-Country Comparative Governance Analysis

The four countries demonstrate four distinct QA governance models:

Country	Governance Model	Main Instrument	Level
Ireland	Statutory, ESG-aligned	National topic-specific QA guidelines	Programme & institutional
Estonia	Voluntary enhancement	E-course Quality Label	Course-level
Catalonia	Agency-led, theoretical & methodological	Evaluation model for online universities	Institutional & programme
Norway	Strategy-driven	Accreditation + national strategy	Institutional system-level

Key comparison points

1. Degree of formalisation

- Ireland = highest (statutory requirement)
- Estonia = voluntary but widely adopted
- Catalonia = formal at agency level
- Norway = formal through accreditation, not through digital-specific standards

2. QA scope

- Ireland: comprehensive (pedagogy, tech, support, analytics, ethics)
- Estonia: operational (course-level design & delivery)
- Catalonia: holistic (institution-wide digital QA)
- Norway: strategic (capacity building + accreditation criteria)

3. Integration with national priorities

All four align digital QA with national goals:

- Ireland: inclusion, wellbeing, integrity, lifelong learning
- Estonia: digital nation / innovation culture
- Catalonia: transparency, accountability, institutional strength
- Norway: flexibility, workforce upskilling, regional access

2.6 Emerging National Trends Across Systems

Across the four countries, shared trends include:

1. Avoiding Separation of Digital QA

All systems reject the idea of "separate QA for online learning."
Instead: digital = embedded in ESG logic.

2. Expansion of Regulatory Focus

Digital QA increasingly covers:

- AI in education
- Data protection
- Ethics of analytics
- Accessibility for diverse populations
- Online academic integrity

3. Institutional Responsibility

Even in highly guided systems, institutions must demonstrate:

- Digital strategies
- Infrastructure readiness
- Staff competence
- Student support adaptation

4. Cross-border and remote provision

Catalonia and Ireland explicitly address:

- Offshore online delivery
- Recognition of online qualifications
- Virtual mobility

2.7 Implications for Systems Developing Digital QA

Systems seeking to strengthen their digital QA can draw on these examples:

- **Ireland** offers a model for statutory guidelines
- **Estonia** provides a ready-made course-level rubric
- **Catalonia** provides a model for full digital university evaluation
- **Norway** shows how national strategy can drive institutional change

Section 3. Cross-Country Analysis of QA Focus Areas in Digital TLA

This section systematically compares Ireland, Estonia, Catalonia, and Norway across **eight core QA domains** identified in the ECAMPUS benchmarking template. It synthesises national guidelines, agency methodologies, institutional practices, and European-level research (ENQA, OECD) to highlight patterns, differences, and implications for systems developing digital QA capacity.

3.1 Digital Course Design

Digital course design is the foundational domain across all four systems. Despite distinct instruments, the key principles converge.

Ireland (QQI)

Ireland places the strongest formal requirements on digital course design. The Topic-Specific Guidelines for Blended and Online Learning require institutions to demonstrate:

- Programmes are designed specifically for online/blended delivery, not adapted from face-to-face.
- Learning outcomes, activities, and assessment are aligned and pedagogically justified.
- Students receive clear guidance on expectations, structure, workload, and navigation.
- Courses comply with requirements for inclusion, flexibility, and accessibility.
- Digital elements are integrated into institutional policies, resource planning, and infrastructure.

Ireland expects digital course design to be "coherent, intentional, and learner-centred," with design decisions justified during programme validation and external review.

Estonia (HAKA – E-course Label)

Estonia evaluates digital course design using a detailed rubric structured along a PDCA-like lifecycle. Criteria include:

- Clear identification of the target group and their needs.

- Precise and learner-centred learning outcomes.
- Appropriate alignment of content, activities, and workload.
- Coherent course planning, including prerequisite knowledge.
- Visibility and transparency of the learning pathway in the digital environment.

Estonia's rubric is one of the most practical and operational tools in Europe, producing concrete guidance that teachers can implement quickly.

Spain / Catalonia (AQU)

Catalonia focuses strongly on digital pedagogy in institutional evaluations, particularly for UOC, a fully online university.

AQU examines:

- Coherence of the learning model (interaction types, roles, pacing).
- Integration of digital learning methods across programmes.
- Appropriateness of methodologies for online students, often adult and international.
- Robustness of learning materials and digital resources.
- Evidence of continuous improvement in institutional pedagogical frameworks.

Course design is assessed both at programme level and institutional level, recognising that digital universities operate as integrated systems.

Norway (NOKUT)

Norway evaluates digital course design through:

- Accreditation criteria that require clear learning outcomes aligned with digital delivery.
- National strategy emphasizing flexible, competence-based learning.
- Pedagogical improvement projects funded to support digital innovation.

Norway's approach is less standardised than Ireland's or Catalonia's, but strongly embedded in institutional accountability and national policy priorities.

Cross-country synthesis: Digital Course Design

Shared principles:

- Learner-centred design
- Explicit alignment between outcomes, activities, and assessment
- Transparency of workload
- Purpose-built digital pedagogy
- Clear course navigation and structure

Differences:

- Ireland: most formal and nationally regulated
- Estonia: most operational and teacher-focused
- Catalonia: most institutionally comprehensive
- Norway: most strategy-driven

3.2 Online Assessment & Exams

Academic integrity and meaningful assessment design are central concerns in all countries.

Ireland (QQI)

Ireland's guidelines provide the most detailed national expectations, including:

- Evidence of appropriate e-assessment design during programme validation.
- Secure authentication and identity verification processes.
- Policies for plagiarism, remote assessment misconduct, and use of AI tools.
- Transparency in criteria, rubrics, and feedback.
- Appropriate student workload in digital contexts.

Ireland also recognises AI, proctoring, analytics-based monitoring as emerging risk domains.

Estonia (HAKA)

The E-course Label emphasises:

- Alignment of assessments with learning outcomes.
- Clear communication of assessment and feedback expectations.
- Digital tools supporting assessment functionality.
- Transparency of grades and criteria during course delivery.

Estonia's framework is practical but does not require institution-wide assessment policies.

Spain / Catalonia (AQU)

AQU evaluates assessment at institutional scale:

- Assessment policies must be adapted for online delivery.
- Clear procedures for authentication and integrity.
- Visibility of assessment in the virtual campus environment.
- Evidence that assessment methods foster active learning and are appropriate for global, distributed learners.

UOC's evaluation included direct reviewer access to the LMS to verify assessment processes.

Norway (NOKUT)

Norway integrates digital assessment into:

- Accreditation evaluations.
- National strategy priorities.
- Institutional project funding for improving online assessment practices.

Norway emphasises assessment integrity but does not provide a unified national rubric.

Cross-country synthesis: Online Assessment

Shared principles:

- Fairness, transparency, alignment with learning outcomes
- Authentication and integrity mechanisms
- Well-designed feedback systems

Differences:

- Ireland: detailed national rules
- Estonia: course-level clarity
- Catalonia: institutional-level assessment systems
- Norway: strategic + accreditation-driven integrity focus

3.3 Learning Analytics

Learning analytics is an increasingly important component of digital QA, though system maturity varies significantly.

Ireland (QQI)

Ireland explicitly recognises learning analytics as a "significant opportunity" for QA:

- Providers must monitor engagement and resource use.
- Analytics should inform course reviews and programme improvement.
- Ethical and privacy safeguards are required.
- AI-based analytics must be aligned with transparency and consent principles.

Ireland is a European frontrunner in integrating analytics into QA.

Estonia (HAKA)

The E-course Label encourages:

- Reflection on student feedback
- Systematic collection of improvement notes
- Evaluation of student participation
- Use of course-level data to inform redesign

While analytics are not centralised, the model promotes habitual data use.

Spain / Catalonia (AQU)

Catalonia evaluates analytics at institutional scale:

- UOC uses sophisticated analytics tools for student progress tracking.
- Analytics integrated into tutoring systems (early alerts).
- AQU reviews institutional capacity for data-driven decision-making.
- Analytics are seen as essential to student success in online systems.

Norway (NOKUT)

Analytics adoption is more uneven:

- Several pilot projects in centres of excellence.
- Institutional interest growing, particularly in flexible vocational contexts.
- No national analytics requirement yet.

Cross-country synthesis: Learning Analytics

Shared principles:

- Use analytics to support student progression
- Data informs programme and course reviews

- Safeguards for privacy, ethics, and transparency

Differences:

- Ireland: explicit national guideline
- Catalonia: strongest institutional adoption
- Estonia: course-level data use
- Norway: emerging, not systematized

3.4 Digital Student Support

All systems converge strongly on the notion that *online learners must receive equivalent support* to face-to-face learners.

Ireland (QQI)

Ireland requires providers to ensure:

- Accessible administrative, academic and technical support.
- Guidance for online learners on study skills, expectations, and wellbeing.
- Equivalent access to library resources and specialist services.

Support must be designed specifically for online realities.

Estonia (HAKA)

The E-course Label requires:

- Availability of technical, organisational, social, and pedagogical support.
- Community-building and interaction opportunities.
- Transparent channels for feedback and assistance.

Focus is on course-level support quality.

Spain / Catalonia (AQU)

AQU assesses:

- Full online adaptation of all student services (admin, library, tutoring, counselling).
- Institutional effectiveness of remote support systems.
- Interaction quality between students and staff (mentors, tutors, facilitators).

UOC's support model is a reference point internationally.

Norway (NOKUT)

Norway emphasises:

- Supporting adult, part-time and vocational learners.
- Accessibility of student services across remote regions.
- Integration of guidance and wellbeing services into flexible learning pathways.

Cross-country synthesis: Digital Student Support

Shared elements:

- Clear support pathways
- Online tutoring and guidance
- Access to library and digital resources

- Technical support availability

Differences:

- Ireland & Catalonia: strongest institutional support expectations
- Estonia: course-level emphasis
- Norway: strong focus on adult and flexible learners

3.5 Staff Digital Competence

Staff capability is universally seen as a prerequisite for digital quality.

Ireland (QQI)

QQI requires institutions to:

- Provide training in digital pedagogy.
- Support staff through instructional designers and educational technologists.
- Ensure staff competence is evidenced during programme validation.

Estonia (HAKA)

Estonia strengthens competence through:

- Workshops, national seminars, and training events.
- Communities of practice.
- Feedback from expert evaluations of e-courses.

Spain / Catalonia (AQU)

Catalonia examines:

- Defined staff roles (content authors, tutors, facilitators).
- Institutional pathways for staff development.
- Evidence of pedagogical innovation.

UOC has one of Europe's most structured systems of online teaching roles.

Norway (NOKUT)

Norway invests heavily in development:

- Government-funded training programmes.
- Professional development tied to national strategy.
- Pilot centres that support digital pedagogy experimentation.

3.6 Digital Accessibility & Inclusion

All systems treat inclusion as a core value.

Ireland

Strongest formal framework; aligns with UNESCO and OECD.
Requires accessible design, wellbeing support, flexible pathways.

Estonia

Ensures courses work across devices, include clear structure, and require no paid tools.

Catalonia

Evaluates institutional commitments to accessibility, UDL, and virtual mobility.

Norway

Emphasises inclusion of adult learners, rural learners, and diverse populations.

3.7 Data Protection & Ethics

Ireland

Most comprehensive articulation of digital ethics and AI-related risks.

Estonia

Explicit acknowledgement of digital ethics as a future priority.

Catalonia

Focus on privacy in virtual campus and analytics.

Norway

Compliance with strict national privacy frameworks (GDPR-aligned).

3.8 Digital Infrastructure QA

Shared expectations include:

- Robust LMS
- Reliable IT systems
- Disaster recovery
- Scalable systems
- Usability and accessibility

Ireland

Strong requirements for infrastructure "fit for digital purpose."

Estonia

Operational focus: no broken links, works on standard devices.

Catalonia

Direct system review by expert panels (virtual campus access).

Norway

Infrastructure tied to national strategy and vocational excellence centres.

Section 4. Key Principles, Frameworks & Theoretical Models

This section synthesises the conceptual foundations underpinning quality assurance of digital teaching, learning and assessment (TLA) across the four countries examined: Ireland, Estonia, Spain/Catalonia, and Norway. It analyses how each system interprets the *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG 2015)* and integrates broader frameworks such as OECD's principles of digital

higher education, ENQA guidance, and sector-specific research on digital pedagogy, accessibility and AI ethics.

4.1 The ESG as the Common Baseline

Across all four countries, the ESG serve as the universal foundation for digital QA. Importantly, none of the countries create *new standards* for digital learning. Instead, they reinterpret existing ESG principles for the digital context.

Key ESG principles relevant to digital QA

ESG Standard	Digital Interpretation
ESG 1.1 — Policy for QA	Institutions must articulate a policy covering digital learning infrastructure, data governance, staff competencies, and academic integrity in online settings.
ESG 1.2 — Programme Design & Approval	Programmes must demonstrate intentional design for online/blended delivery, not adaptation.
ESG 1.3 — Student-centred Learning	Digital pedagogy must support flexibility, interaction, autonomy and accessibility.
ESG 1.4 — Student Assessment	Online assessment must be valid, secure, transparent and integrity-based.
ESG 1.5 — Teaching Staff	Staff must receive training in digital pedagogy and educational technologies.
ESG 1.6 — Learning Resources	Digital infrastructure must be robust, secure and accessible.
ESG 1.7 — Information Management	Analytics must be used ethically and support enhancement.
ESG 1.8 — Public Information	Accurate communication about digital delivery modes and expectations.
ESG 1.9 — Ongoing Monitoring	Digital courses and programmes must undergo continuous improvement cycles.
ESG 1.10 — Cyclical External QA	External QA must integrate digital-specific indicators and expert capacity.

Shared cross-country principle
Digital QA is not parallel to the ESG — it is embedded inside the ESG logic.

This confirms that systems developing their digital QA frameworks should *strengthen* ESG interpretation rather than invent new or separate structures.

4.2 OECD's Eight Emerging Principles for Digital Higher Education

The OECD 2022 working paper *"Digital Higher Education: Emerging Quality Standards, Practices and Supports"* identifies eight principles increasingly adopted by QA agencies and governments. These principles appear clearly across all four countries studied.

OECD Principle 1 — Student-centred Online Pedagogy

Ireland, Estonia and Catalonia emphasise digital pedagogy rather than technology itself. Effective online learning must include:

- clear structure and navigation
- active learning elements
- interactive activities
- opportunities for collaboration
- clear guidance and workload transparency

OECD Principle 2 — Equivalent Quality Across Modes

All systems reject the idea that online learning is "lesser". Ireland articulates this most strongly: digital must meet the same quality expectations, while using *different* operational indicators.

OECD Principle 3 — Digital Inclusion & Access

All four systems include:

- accessibility requirements
- UDL principles
- equitable access to platforms
- support for diverse populations (HE, VET, adult learners)

Norway adds *regional equity* to this principle.

OECD Principle 4 — Academic Integrity in Digital Settings

Ireland and Catalonia are frontrunners on:

- e-assessment integrity
- authentication
- plagiarism policies
- AI integrity challenges

Estonia embeds integrity within course-level transparency.

OECD Principle 5 — Learning Analytics and Data Governance

Ireland has the clearest national treatment of analytics. Catalonia uses advanced institutional analytics (UOC model). Estonia includes light analytics through evaluation cycles.
Norway is building analytics through funded projects.

OECD Principle 6 — Staff Digital Competence

All four systems require:

- structured training,
- instructional design support,
- competence frameworks aligned with digital pedagogy.

Norway invests heavily through national initiatives.

OECD Principle 7 — Infrastructure as a Core Pillar of QA

Digital infrastructure is not "IT"—it is "pedagogical infrastructure". Ireland and Catalonia emphasise this best, with robust expectations for LMS, security, scalability and continuity.

OECD Principle 8 — System-level Coherence and Capacity Building

All four systems emphasise capacity building as essential:

- Ireland → guidelines + institutional adoption
- Estonia → community of practice
- Catalonia → trained expert reviewers
- Norway → national strategy and funding

4.3 ENQA Perspectives on QA of E-learning

ENQA has repeatedly emphasised that *e-learning requires adapted indicators, not new standards*. Several ENQA analyses—particularly the one led by AQU—highlight the following elements:

1. Need for digital expertise on review panels

Catalonia demonstrates this strongly. Ireland is integrating such expertise in its reviews. Norway and Estonia rely on thematic expert knowledge.

2. Virtual campus inspections

AQU pioneered this through UOC evaluations. reland encourages platform-level evidence in reviews. Estonia applies structured checks through the Label.

3. Evidence-based digital QA

Agencies must be able to assess:

- online interaction patterns
- assessment environments
- student support systems
- teaching materials
- digital pedagogy

4. Recognition of institutional diversity

ENQA warns that online universities (e.g., UOC) require different evaluation logics. Catalonia's methodology reflects this insight.

5. Integration of analytics into QA

Agencies should consider:

- engagement data
- performance patterns
- evidence from LMS
- learner behaviour analytics

Ireland and Catalonia are the most advanced here.

6. Attention to student workload in digital programmes

Digital environments can inadvertently increase workload. Estonia's rubric and Ireland's guidelines explicitly address this risk.

4.4 Cross-cutting Theoretical Models

In addition to the ESG/OECD/ENQA frameworks, three theoretical models shape the QA approaches of the four countries.

4.4.1 Constructive Alignment (Biggs & Tang)

All four countries require clear alignment of:

- intended learning outcomes
- learning activities
- digital tools
- assessments

Ireland and Estonia embed constructive alignment directly in guidelines and rubrics.

4.4.2 Universal Design for Learning (UDL)

UDL underpins:

- Ireland's focus on accessibility, inclusion and flexibility
- Catalonia's emphasis on student-centred online pedagogy
- Estonia's requirement for clear navigation and device accessibility
- Norway's inclusion of diverse learner groups and flexible pathways

4.4.3 The Community of Inquiry (CoI) Framework

This theoretical model identifies **three presences** essential for quality online learning:

- cognitive presence
- social presence
- teaching presence

Estonia's rubric addresses all three presences. Catalonia's institutional methodology also reflects this framework, especially through the analysis of tutor roles and interaction patterns.

4.5 Comparative Synthesis of Principles

Taken together, the theoretical frameworks demonstrate the following cross-country principles:

1. Digital quality is fundamentally pedagogical, not technological

All four systems emphasise design, alignment, teaching methods and learner engagement over tools.

2. Digital quality must ensure equivalence across learning modes

Online, blended and on-site programmes should share quality expectations even when operational indicators differ.

3. Institutional responsibility is essential

Digital quality must be embedded in institutional QA systems, supported by:

- governance

- strategies
- resourcing
- staff development

4. Digital QA must incorporate inclusivity and accessibility

Every system includes principles related to:

- disability support
- UDL
- digital access
- workload equity
- wellbeing

5. Ethics and data governance are emerging as core principles

Ireland and Spain lead in this domain, but all systems acknowledge that AI, analytics and data privacy pose new QA challenges.

6. Continuous improvement must be data-driven

Course-level (Estonia) and institutional-level (Ireland, Catalonia) improvement loops use:

- feedback
- analytics
- review cycles
- evidence from LMS and digital engagement

7. Stakeholders must be involved meaningfully

Digital QA requires input from:

- students
- teachers
- IT staff
- instructional designers
- management
- external experts

4.6 Implications for Armenia and Emerging Digital QA Systems

Based on principles across the four systems, national QA frameworks in emerging contexts should:

1. Embed digital QA into existing QA policies

Avoid parallel systems; integrate digital expectations into national QA frameworks, drawing on ESG interpretation.

2. Develop practical QA tools and rubrics

Estonia's model can serve as a template for faculty-friendly instruments.

3. Strengthen academic integrity and ethics

Given rising concerns about AI and digital misconduct, institutions must develop robust digital integrity systems.

4. Build institutional capacity before imposing standards

Norway shows the value of investment in staff and infrastructure as a prerequisite to quality rules.

5. Support digital inclusion and accessibility

Designing for diversity is essential in modern digital education.

6. Use cross-country evidence to develop national guidelines

Ireland's statutory model can inspire national frameworks; Catalonia's methodology can support agency-led evaluation.

Section 5. QA Methodologies & Tools across Countries

This section compares the quality assurance (QA) methodologies and tools used across Ireland, Estonia, Spain/Catalonia, and Norway. It explores how each system operationalises QA processes, what evidence they require, and how evaluation procedures are adapted to digital teaching, learning, and assessment (TLA). Tools are examined at institutional, programme, and course levels.

5.1 Ireland — Methodologies & Tools Used by QQI

Ireland has the most formalised national QA approach to digital learning, driven by statutory guidelines. QA methodologies include:

5.1.1 Programme Validation for Digital/Blended Programmes

All providers must submit programme proposals to QQI demonstrating:

- Digital course design rationale
- Assessment strategy adapted for online delivery
- Digital student support systems
- Staff digital competence plans
- Infrastructure readiness
- Risk assessment (including data protection and AI risks)

QQI reviewers evaluate whether institutions have "understood, planned and approved" appropriate differences for blended/online delivery.

Evidence required:

- Curriculum maps adapted for digital contexts
- LMS samples, screenshots, workflow documents
- Policies on online assessment integrity
- Digital training records
- Data governance documentation

5.1.2 Institutional QA System Approval

Institutions must demonstrate integration of digital learning into:

- Internal QA policies
- Course approval processes
- Monitoring systems
- Review mechanisms
- Digital infrastructure governance

QQI checks whether digital learning is embedded structurally and strategically.

5.1.3 Annual & Cyclical Reviews

QQI uses:

- Annual monitoring
- Mid-cycle progress checks
- Full institutional reviews every 6 years

These include analysis of digital TLA performance, student feedback, analytics, and enhancement actions.

5.1.4 Tools Provided by QQI

QQI provides:

- Topic-Specific QA Guidelines (2018; revised 2023)
- Core QA Guidelines
- Self-Evaluation Templates
- Statutory sectoral QA policies
- Learner protection policies
- Digital-focused enhancement themes

Ireland's methodology is the closest to a national digital QA framework in Europe.

5.2 Estonia — Methodologies & Tools of the E-course Quality Label (HAKA)

Estonia's QA tool is the E-course Quality Label, a structured enhancement process combining self-evaluation and external feedback.

5.2.1 Self-Evaluation

Course authors complete an online form covering five dimensions:

1. Analysis (target group, learning outcomes)
2. Planning (syllabus, prerequisites, alignment)
3. Course Development (structure, navigation, multimedia, IP compliance)
4. Conduct of the Course (support, interaction, feedback)
5. Evaluation (reflective improvement cycle)

The form is rubric-based, with detailed descriptors.

5.2.2 Expert Review

- Experts are trained by HAKA or the e-Universities Consortium.
- They independently evaluate each course using the same rubric.
- They prepare a structured assessment report.

Evaluation focuses on *course-level quality*, not institutional processes.

5.2.3 Panel Evaluation

A panel reviews:

- Self-evaluation
- Expert reports
- Course access (temporary reviewer access to the LMS)

They decide whether to:

- Award the label
- Provide recommendations
- Request improvements before re-submission

5.2.4 Course Repository & Exemplars

Awarded courses are:

- Made public
- Used as models for digital pedagogy
- Showcased in national seminars

This builds a national community of practice.

5.2.5 Annual National Seminar

HAKA hosts an event where:

- Teachers share experiences
- Exemplar courses are discussed
- The rubric is refined annually
- Emerging digital challenges (AI, analytics, multimodal learning) are explored

5.2.6 Strengths of Estonia's Methodology

- Extremely practical
- Low administrative burden
- High impact on digital course quality
- Scalable across sectors (HE, VET, general education)

- Creates a culture of digital innovation

Estonia demonstrates how micro-level QA tools can produce system-wide improvements.

5.3 Spain/Catalonia — AQU's Methodological Model for Online Universities

Catalonia's methodology is the most institutionally comprehensive, developed initially for evaluating UOC.

5.3.1 Self-Evaluation Report (SER) Requirement

Institutions must produce a detailed SER explaining:

- Digital learning models
- Pedagogical frameworks
- Institutional roles in online teaching (tutors, mentors, instructors)
- Digital student support structures
- Assessment policies and procedures
- Digital infrastructure governance
- Data protection & analytics policies
- Quality management systems adapted to digital delivery

SERs must explicitly articulate how the institution implements the ESG in digital environments.

5.3.2 External Review Panels Trained in Digital Learning

Panels include:

- Online learning experts
- QA experts
- Technologists
- Pedagogical advisors
- International specialists

Training ensures evaluators understand the digital context.

5.3.3 Virtual Campus Inspection

One of AQU's major innovations:

- Reviewers receive access to the LMS
- They inspect course examples, interaction patterns, assessment areas
- They test tools, examine documentation, and simulate the student experience

This method provides highly detailed evidence of actual practice.

5.3.4 Institutional & Programme-Level Differentiation

Reviews cover:

- Institutional capacity and governance
- Programme-level pedagogical alignment
- Quality management effectiveness
- Evidence of continuous enhancement
- Strategies for cross-border online provision

5.3.5 Methodological Strengths

- Most detailed and academically robust model
- Suitable for fully online universities
- Applicable internationally
- Strong integration with ESG interpretation
- Recognised by ENQA as a reference model for e-learning QA

5.4 Norway — Accreditation-Based QA + Strategy-Driven Tools

Norway uses accreditation criteria and national strategies rather than a dedicated digital QA framework.

5.4.1 Accreditation Standards

NOKUT requires:

- Clear learning outcomes aligned with digital delivery
- Suitable staff competence
- Adequate student support
- Relevant infrastructure
- Evidence of internal QA systems that cover digital provision

These standards apply equally to all programmes, including online and blended formats.

5.4.2 National Strategy Tools

The Strategy for Higher Vocational Education supports digital quality through:

- Funding for online pedagogy training
- Centres of excellence focusing on digital innovation
- Collaboration with labour market partners
- Enhancement projects in flexible learning

5.4.3 Institutional Monitoring & Evaluation

Institutions must:

- Demonstrate digital readiness
- Provide evidence of infrastructure reliability

- Maintain supportive environments for adult learners
- Develop digital learning pathways in collaboration with industries

5.5 Cross-Country Comparison of QA Methodologies

Country	Methodology Type	Strength
Ireland (QQI)	Statutory national QA validation + institutional review	High formalisation; full ESG integration
Estonia (HAKA)	Course-level rubric + Label + community of practice	Operational, low burden, widely adopted
Catalonia (AQU)	Institutional & programme evaluation with virtual campus inspection	Deep, rigorous, suitable for online universities
Norway (NOKUT)	Accreditation + national strategy and competence-building	Flexible, policy-driven, systemic enhancement

5.6 Key Tools for Digital QA Across Systems

1. National Digital QA Guidelines (Ireland)

Topic-specific tools embedded in statutory authority.

2. Course Quality Label Rubric (Estonia)

Concrete checklist + exemplars = practical adoption.

3. Digital Institution Evaluation Model (Catalonia)

Virtual campus inspection + digital pedagogy analysis = high fidelity.

4. Strategy + Accreditation (Norway)

Capacity-building approach for flexible learning ecosystems.

Section 6. Stakeholder Involvement in Digital QA

Digital teaching, learning and assessment (TLA) introduces new dynamics in quality assurance, requiring the involvement of a broader and more integrated set of stakeholders than traditional face-to-face systems. This section examines how Ireland, Estonia, Catalonia, and Norway involve stakeholders at various levels, including students, academic staff, institutional leadership, IT services, external experts, employers, and national bodies.

6.1 Students

Students are central actors in QA across all four countries. Their involvement is essential for ensuring that digital learning environments remain student-centred, accessible, and effective.

Ireland (QQI)

Ireland requires institutions to:

- Include students in programme design and review, including digital adaptations.

- Use structured mechanisms for gathering student feedback on online learning environments.
- Provide students with transparent information about digital modes, expectations, workload, and assessment.
- Ensure students understand digital integrity rules, privacy considerations, and the use of analytics.

QQI institutional reviews specifically examine how *students influence digital QA processes*.

Estonia (HAKA)

Estonia's course-level approach ensures student involvement primarily through:

- Course feedback collected each semester.
- Indicators within the E-course rubric that require teachers to demonstrate active use of student feedback.
- Transparent communication of grading criteria, assessment methods, and digital expectations.

In addition, students at labelled institutions are more likely to participate in digital innovation workshops and national seminars.

Spain / Catalonia (AQU)

AQU strongly emphasises student involvement in digital QA:

- Students participate in institutional self-evaluation processes.
- Student representatives are involved in external review visits (on-site or online).
- AQU panels analyse student interaction patterns directly through the virtual campus.
- Students provide structured feedback on digital learning, tutoring, and support services.

UOC (a fully online institution) has sophisticated student feedback systems integrated into its QA model.

Norway (NOKUT)

Norway involves students through:

- Participation in national strategy consultations for flexible learning.
- Representation in accreditation reviews.
- Systematic collection of student feedback at institutional level.
- Dialogue between NOKUT and national unions regarding digital assessment integrity.

Cross-country synthesis: Student involvement

All systems emphasise student involvement; however:

- **Ireland and Catalonia** rely most heavily on student input in QA reviews.
- **Estonia** incorporates students at course level.
- **Norway** integrates students primarily through national strategies and institutional mechanisms.

Students play increasing roles in discussions on ethics, AI usage, digital identity, and academic integrity in digital environments.

6.2 Academic Staff

Academic staff are essential to digital QA because they:

- Implement digital pedagogy
- Design online courses
- Guide students
- Deliver assessment
- Engage with analytics
- Participate in institutional review

Ireland (QQI)

QQI's guidelines require providers to demonstrate:

- Continuous professional development (CPD) in digital pedagogy
- Institutional structures supporting collaboration between academics and instructional designers
- Staff involvement in programme monitoring and enhancement
- Participation in internal and external QA processes
- Reflective practice around digital assessment and analytics

Ireland's approach is capacity-building oriented, emphasising staff empowerment.

Estonia (HAKA)

Staff involvement is facilitated by:

- Teacher-owned self-evaluations for the E-course Label
- Peer learning communities through national seminars
- Expert training for reviewers
- Peer evaluation built into the Label process

This model strengthens teacher engagement and ownership of quality.

Spain / Catalonia (AQU)

Catalonia's model places high expectations on academic staff:

- Distinct staff roles (content creators, tutors, advisers, coordinators) are defined and reviewed.
- Staff must demonstrate competence in digital pedagogy and digital communication.
- Staff interviews and focus groups form part of external reviews.
- AQU examines institutional staff development strategies and performance monitoring.

Staff in Catalonia participate in some of Europe's most structured digital teaching systems (e.g., UOC's tutor model).

Norway (NOKUT)

Norway supports staff through national strategies:

- Continuing education in online pedagogy

- Project funding for digital innovation
- Support from centres of vocational excellence
- Requirements during accreditation regarding staff readiness for digital delivery

Cross-country synthesis: Staff involvement

Shared principles:

- Digital competence is essential.
- Institutions must provide training and support.
- Staff involvement in QA is meaningful and structured.

Main differences:

- Ireland & Catalonia: most formal requirements
- Estonia: most teacher-centered and practical
- Norway: strategy-driven and investment-heavy

6.3 Institutional Leadership & Governance

Institutional leaders ensure that digital QA:

- Aligns with strategic priorities
- Is adequately resourced
- Is supported by infrastructure
- Is embedded in internal QA

Ireland (QQI)

Leaders must:

- Integrate digital learning into institutional QA policies
- Provide infrastructure, training, and oversight
- Manage risk related to digital learning and data use
- Ensure alignment between digital strategy and programme validation

External reviews examine senior leadership involvement in digital transformation.

Estonia (HAKA)

Leadership involvement is indirect but visible through:

- Institutional adoption of the Label rubric
- Investment in instructional design units
- Participation in national digital education consortiums
- Encouragement of staff participation in the Label process

Spain / Catalonia (AQU)

Leadership engagement is formal and extensive:

- Leaders must articulate institutional strategies for online learning.
- AQU evaluates governance structures for sustaining online modalities.
- Management roles related to e-learning are reviewed.
- Leaders participate in interviews and strategic documentation reviews.

Catalonia shows the highest institutional governance sophistication.

Norway (NOKUT)

Norwegian institutional leaders are central to:

- Implementing national strategies
- Securing public funding
- Designing flexible and hybrid pathways
- Ensuring institutional QA covers digital provision
- Maintaining alignment with labour market partners

6.4 IT Services, EdTech Units & Instructional Designers

Digital QA cannot function without strong technical and pedagogical support teams.

Ireland

Providers must show:

- Dedicated IT and instructional design staff
- LMS management
- Policies for system security & continuity
- Collaboration with academic units on digital design
- Data governance responsibilities

Estonia

Instructional designers are essential to:

- Supporting teachers applying for the Label
- Ensuring digital materials meet IP and accessibility criteria
- Testing courses for usability and device compatibility

Catalonia

Catalonia has the most complex technical-pedagogical structures:

- Virtual campus units
- Data analytics teams
- Digital content production studios
- Tutoring coordination offices
- LMS quality management teams

AQU evaluates these units explicitly during institutional reviews.

Norway

IT and pedagogy support teams are vital for:

- Implementing digital elements of accreditation
- Supporting adult learners in remote regions
- Running innovation pilots in vocational excellence centres

6.5 External Experts & QA Agencies

External stakeholders play a critical role in ensuring objectivity.

Ireland (QQI)

External reviewers evaluate digital programmes and institutional systems, trained in:

- Digital pedagogy
- Analytics use
- Online assessment integrity
- Accessibility standards

Estonia (HAKA)

Expert reviewers evaluate courses using the rubric.
Their reports offer:

- Concrete feedback
- Links to exemplars
- Recommendations for improvement

Catalonia (AQU)

AQU uses digital-specialist reviewers. Virtual campus access allows deep inspection of online delivery.

Norway (NOKUT)

External reviewers assess digital readiness within accreditation.

6.6 Employers, Labour Market Partners & National Bodies

Particularly in Norway and Estonia, employers influence QA through:

- Co-design of flexible learning
- Participation in vocational excellence centres
- Needs analysis for digital upskilling
- Ensuring online programmes meet labour market expectations

Ireland increasingly integrates external stakeholders through national policy consultation processes.

Section 7. Results, Impact & Lessons Learned

This section presents evidence of outcomes, system-wide impact, and lessons derived from the four-country comparison: Ireland, Estonia, Spain/Catalonia, and Norway. It synthesises findings across policy, institutional, programme and course levels, highlighting how different models influence quality, student experience, staff capability, and national digital-readiness.

7.1 Ireland — Results & Impact of QQI's Digital QA Framework

Ireland's statutory, integrated QA approach has produced some of the most visible, systemic, and sustainable impacts in Europe.

7.1.1 System-wide consistency and clarity

Because QQI's topic-specific guidelines are statutory, all providers must comply with the same expectations. This has led to:

- Greater uniformity in digital course design
- Consistent institutional structures for digital QA
- Clear expectations for assessment integrity
- Standardised approaches to digital student support

As a result, Ireland has fewer "digital outliers"—institutions that lag behind or operate inconsistently.

7.1.2 Strengthened programme validation processes

Providers must demonstrate competence in digital pedagogies and assessment during programme validation, resulting in:

- More robust digital programmes
- Better alignment between technology and pedagogy
- Increased use of learning analytics
- Improved risk management (data ethics, AI, privacy)

This has improved digital readiness at the programme level across the entire sector.

7.1.3 Institutional transformation

QQI's guidelines have accelerated digital transformation inside institutions:

- Staff development units have expanded
- Instructional design units have become institutionalised
- Digital strategies have become mandatory
- Infrastructure investment has increased

Irish HEIs report that digital learning is now viewed as a strategic asset, not a side-project.

7.1.4 Student experience improvements

Students gain:

- Clearer online communication
- Better-organised digital courses
- Stronger assessment feedback mechanisms
- Improved technical support
- More accessible learning materials

Irish learner surveys show high satisfaction with digital provision, especially in blended programmes.

7.1.5 Risks & ongoing challenges

Despite major progress, challenges remain:

- Balancing innovation and compliance
- Managing workload in blended learning
- Ensuring ethical use of analytics and AI
- Supporting part-time and adult learners

Ireland continues refining guidelines to address these issues.

7.2 Estonia — Results & Impact of the E-course Quality Label

Estonia's E-course Quality Label is one of the most impactful course-level QA enhancement tools in Europe.

7.2.1 Cultural transformation among teaching staff

The Label has:

- Elevated teacher professionalism in digital pedagogy
- Encouraged reflective practice
- Supported development of "digital teaching identity"
- Fostered a national culture of sharing, peer review, and co-creation

Teachers voluntarily apply for the Label, demonstrating confidence and motivation.

7.2.2 Improvements in digital course consistency

The E-course rubric has standardised:

- Navigation and structure
- Alignment between outcomes and activities
- Use of media and interactive resources
- Accessibility of materials
- Assessment clarity

Many HEIs report that the rubric helped reduce inconsistency between courses.

7.2.3 Quality enhancement through feedback

Expert reviewers provide detailed pedagogical feedback, enabling teachers to:

- Identify gaps
- Improve course sequencing
- Enhance assessment transparency
- Strengthen student engagement

This feedback loop is a cornerstone of Estonia's digital enhancement ecosystem.

7.2.4 Community of practice

Annual seminars and awarded course showcases have created:

- A national peer-support culture
- Cross-institution networking
- Collaborative resource development
- Shared norms and expectations for digital learning

This is one of Estonia's strongest contributions to Europe's digital QA landscape.

7.2.5 Risks & challenges

- Voluntary participation means variability in adoption
- Course-level improvements may not translate to institution-level QA
- Rapid technological change requires annual rubric updates

Still, the model remains a reference for low-cost, high-impact digital QA.

7.3 Spain / Catalonia — Results & Impact of AQU's Model

Catalonia's institutional evaluation model is one of the most comprehensive QA approaches for fully online universities in Europe.

7.3.1 Improved transparency and accountability

AQU's methodology forces online universities to document:

- Pedagogical models
- Staff roles
- Digital support systems
- Assessment integrity
- Use of analytics
- Resource governance

This transparency increases trust among students, employers, and international partners.

7.3.2 Virtual campus inspection: a methodological breakthrough

The process of giving reviewers access to the virtual campus has:

- Improved evaluation accuracy
- Allowed reviewers to see the "real" student experience
- Increased accountability for assessment practices
- Strengthened adoption of tutoring and mentoring systems

Few other European agencies use this method at such depth.

7.3.3 Institutional strengthening

Institutions reviewed by AQU report:

- Better-defined staff roles for digital learning
- Stronger institutional QA systems
- Enhanced digital student support services
- Improved assessment integrity systems
- More robust programme design procedures

The result is a more *coherent* digital university ecosystem.

7.3.4 International recognition

AQU's methodology is widely cited in ENQA and OECD publications. UOC is recognised worldwide as a leader in digital pedagogy and student support.

7.3.5 Risks & challenges

- Methodology is resource-intensive
- Requires specialised reviewer expertise
- May be overwhelming for small institutions
- Relies on institutional transparency

Despite challenges, Catalonia's model sets a high standard for digital institutional QA.

7.4 Norway — Results & Impact of Strategy-Driven Digital QA

Norway's strategy + accreditation model focuses on capacity-building, especially in vocational and flexible learning sectors.

7.4.1 Strengthened staff digital competence

National funding has supported:

- CPD in digital pedagogy
- Development of micro-credentials for teachers
- Institutional innovation labs
- Participation in excellence centres

This has created a strong foundation for quality improvement.

7.4.2 Growth of flexible and online programmes

The national strategy prioritises:

- Online vocational programmes
- Hybrid and work-based learning
- Competence-based education for adults

As a result, flexible provision has expanded.

7.4.3 Embeddedness of digital within accreditation processes

NOKUT's accreditation checks are pushing institutions to:

- Integrate digital QA into internal systems
- Improve infrastructure
- Strengthen student support
- Document learning outcomes rigorously
- Partner with employers for digital vocational programmes

7.4.4 Increasing attention to inclusion

Digital pathways allow:

- Rural learners to participate
- Working adults to upskill
- Students with disabilities to access flexible modes
- National workforce development goals to be met

7.4.5 Risks & challenges

- No dedicated digital QA guidelines mean uneven institutional readiness
- Rapid growth of flexible programmes creates variability
- Adoption depends on institutional motivation
- Analytics and digital integrity remain underdeveloped

Still, Norway's model is a powerful example of policy-led transformation.

7.5 Cross-Country Lessons Learned

Across the four systems, several lessons emerge that are critical for countries modernising their QA of digital TLA.

Lesson 1 — Integration beats separation

The strongest QA systems **do not create parallel digital QA systems**. Instead, they reinterpret existing ESG standards for digital contexts.

Lesson 2 — Clear expectations accelerate improvement

Ireland's statutory guidelines show that when expectations are explicit:

- Institutions align strategies
- Staff develop competence
- Infrastructure improves
- Students experience more coherent digital learning

Lesson 3 — Practical tools drive operational quality

Estonia demonstrates the power of:

- Rubrics

- Course-level evaluation
- Peer review
- Public exemplars

These tools impact teaching practice directly.

Lesson 4 — Institutional-level evaluation is essential for online universities

Catalonia shows that evaluating **only programmes** is insufficient for digital universities. Institutions must be reviewed holistically, including:

- governance
- pedagogy
- assessment
- infrastructure
- analytics
- staff roles
- student support

Lesson 5 — Capacity-building must accompany standards

Norway demonstrates that **investment** must accompany QA expectations. Training, resources and strategy are crucial for sustainable quality.

Lesson 6 — Digital ethics and data governance are the next frontier

All systems recognise that future QA must address:

- AI in assessment
- Privacy & data protection
- Ethical use of analytics
- Transparency in AI-supported teaching

Ireland is already integrating these requirements.

Lesson 7 — Student experience must be the guiding lens

Across countries, systems increasingly measure digital quality based on:

- student engagement
- workload fairness
- access and equity
- transparency
- wellbeing
- support availability

Digital QA must always remain student-centred.

Section 8. Reflections, Transferability & Recommendations for Armenia

This section synthesises insights from Ireland, Estonia, Spain/Catalonia, and Norway to provide strategic recommendations for Armenia (and similar higher education systems) seeking to strengthen digital QA. Recommendations are grouped at system, agency,

and institutional levels and integrate actionable tools, governance models, and capacity-building measures.

8.1 Key Reflections From the Comparative Analysis

Across all benchmarked countries, several structural patterns emerge that shape digital QA systems.

8.1.1 Digital QA works best when integrated, not isolated

All four countries have explicitly avoided creating a *parallel* QA system for digital learning.

Instead:

- Ireland → embeds digital rules inside the national QA framework
- Estonia → integrates digital quality at course level via enhancement tools
- Catalonia → integrates digital into institutional reviews
- Norway → integrates digital expectations into accreditation & national strategy

Implication for Armenia:

Digital learning must be placed *inside* the existing QA architecture, not next to it.

8.1.2 Strong digital QA requires clarity of expectations

Systems with explicit frameworks (Ireland) or detailed rubrics (Estonia) show the most consistent improvement.

When expectations are unclear:

- institutions experiment inconsistently
- staff do not know what "quality" means
- infrastructure investment is uneven
- students experience variability

Implication:
Clear, shared digital QA expectations create predictability and support improvement.

8.1.3 Practical tools matter as much as high-level policy

Estonia's national rubric and quality label demonstrate that practical, operational tools can have enormous impact even without legal authority.

Implication:
Armenia does not need to start with legislation—tools and rubrics can come first.

8.1.4 Institutional capacity is a prerequisite

Across all systems, real digital quality depends on:

- trained staff
- instructional designers

- functioning LMS
- support services
- data governance structures

Implication:
Capacity-building must accompany any QA reform.

8.1.5 Digital ethics, data protection & AI literacy are essential

All countries recognise emerging risks:

- AI-generated content
- digital assessment fraud
- student data privacy
- algorithmic bias
- opaque analytics usage

Implication:
Digital ethics must be part of QA criteria from the start.

8.2 Transferability: What Armenia Can Adopt from Each Country

Below is a structured mapping of what elements can be transferred and adapted.

8.2.1 Transferable Elements From Ireland

Ireland's model offers Armenia a template for national-level guidance.

Most transferable components:

- Topic-specific QA guidelines for blended/online programmes
- Integration of digital QA into national programme validation
- Requirements for digital assessment integrity
- Standards for digital support, inclusion, and accessibility
- Explicit attention to analytics, data protection & AI
- Institution-wide digital strategies as QA evidence

Why transferable?

Ireland's model is scalable and suited to countries with:

- central QA agencies
- national qualification frameworks
- a desire to embed consistency

8.2.2 Transferable Elements From Estonia

Estonia provides practical, teacher-friendly tools.

Most transferable components:

- E-course Quality Label rubric

- Self-evaluation format for courses
- Expert review process
- Public national catalogue of good practices
- Annual seminars for digital educators
- Peer feedback culture

Why transferable?

Armenia can adopt these tools immediately without legislative change.

8.2.3 Transferable Elements From Spain/Catalonia

Catalonia offers a model for institutional-level e-learning evaluation, especially useful as Armenia develops online universities or large-scale distance learning.

Most transferable components:

- Institutional self-evaluation templates for digital learning
- Virtual campus inspection by reviewers
- Evaluation of digital pedagogy, staff roles, and student support
- Explicit ESG interpretation for online universities

Why transferable?

This model supports comprehensive institutional QA for digital ecosystems.

8.2.4 Transferable Elements from Norway

Norway's approach is policy-driven and ideal for systems undergoing digital transition.

Most transferable components:

- National strategy for flexible/digital learning
- Funding schemes for digital pedagogy training
- Centres of excellence for digital development
- Emphasis on adult and vocational learners

Why transferable?

Armenia can adopt this approach to build digital capacity across multiple sectors.

8.3 Recommendations for Armenia: National-Level Actions

Below are strategic recommendations for Armenia's Ministry of Education, NASQA (or national QA agency), and policy-level actors.

8.3.1 Develop a National Digital QA Framework

Inspired by Ireland, Armenia should:

- Publish national guidelines for blended & online TLA
- Embed digital QA into existing HE standards
- Clarify expectations for assessment, support, infrastructure, analytics

- Include AI & ethics requirements

This creates consistency and reduces institutional ambiguity.

8.3.2 Launch a National E-course Quality Label (Estonia model)

Develop:

- A digital course rubric
- A voluntary self-evaluation system
- An expert review process
- Annual awards and professional events

This provides rapid, low-cost enhancement at scale.

8.3.3 Introduce Institutional Digital QA Reviews (Catalonia model)

For institutions offering:

- large-scale online degrees
- distance learning modes
- cross-border online teaching

Reviewers should examine:

- virtual campus
- digital pedagogy
- assessment integrity
- support systems
- governance & data structures

8.3.4 Establish National Capacity-Building Initiatives (Norway model)

Implement:

- large-scale digital pedagogy training programmes
- grants for institutions upgrading digital infrastructure
- training for QA reviewers in digital learning
- national networks of digital educators

8.3.5 Add Digital Ethics & Data Governance to QA Standards

Requirements should include:

- ethical analytics
- transparency around data usage
- AI literacy for staff and students
- principles for algorithmic fairness
- data protection and GDPR alignment

8.4 Recommendations for Armenian Universities (Institutional Level)

Institutions should adopt policies, tools, and practices aligned with international benchmarks.

8.4.1 Develop Digital Teaching & Learning Strategies

Institutions should:

- articulate digital pedagogy principles
- define roles for instructors, tutors, designers
- align digital learning with strategic goals
- ensure predictable resourcing

8.4.2 Integrate Digital QA into Internal QA Systems

Include:

- digital programme validation criteria
- digital course review cycles
- digital assessment policies
- analytics governance practices
- workload monitoring mechanisms

8.4.3 Professional Development for Staff

Universities should offer:

- digital pedagogy training
- instructional design workshops
- training in online assessment
- support for creating inclusive and accessible digital materials

8.4.4 Strengthen Digital Student Support

Institutions must invest in:

- online advising and tutoring
- technical support services
- accessible digital libraries
- wellbeing support tailored to remote learners

8.4.5 Ensure Infrastructure Robustness & Sustainability

Universities must:

- maintain stable LMS

- ensure cyber-security
- implement disaster recovery plans
- adopt interoperable systems

8.5 Implementation Roadmap for Armenia (3–5 years)

Below is a phased roadmap combining national and institutional actions.

Phase 1 (Year 1): Foundation & Standards Development

- Draft national digital QA guidelines (Ireland model)
- Develop course-level rubric (Estonia model)
- Train QA reviewers in digital TLA
- Pilot analytics policies and AI ethics principles

Phase 2 (Years 2–3): Pilot Testing & Institutional Adoption

- Pilot e-course quality label in 4–6 universities
- Conduct first digital institutional review (Catalonia model)
- Begin national digital pedagogy training schemes (Norway model)
- Establish digital education excellence networks

Phase 3 (Years 3–5): System Consolidation

- Integrate digital QA guidelines into national accreditation
- Scale the E-course label nationally
- Expand analytics governance
- Integrate AI-readiness indicators into QA
- Introduce cross-border online programme review mechanisms

8.6 Final Reflections: Building a Sustainable Digital QA Ecosystem

Armenia has a unique opportunity to combine the strengths of four leading European models:

- Ireland → clarity, structure, standards
- Estonia → practicality, teacher-driven innovation
- Catalonia → institutional comprehensive evaluation
- Norway → strategic capacity-building and flexibility

A hybrid model that blends these strengths would:

- Modernise Armenian higher education
- Increase international trust and compatibility
- Improve digital programme quality
- Strengthen student experience
- Support national digital transformation goals

Digital QA is not a technical issue—it is a strategic driver of educational quality and national competitiveness.

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