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Empowering Change: Navigating Twin Transitions and Enhancing Civic Engagement in Higher Education

Beyond Compliance: Societal External Review as a Driver of Curriculum Renewal for the Twin Transition

Diego Boerchi[1] | Laura Evangelista[2] | Concetta Fonzo[2]

[1]Università Cattolica del Sacro Cuore, Milan, Italy | [2]INAPP—Istituto nazionale per l'analisi delle politiche pubbliche, Rome, Italy

Correspondence: Diego Boerchi (diego.boerchi@unicatt.it)

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ABSTRACT

The article argues that prevailing quality arrangements in European higher education are increasingly inadequate for addressing the demands generated by the twin digital–green transition. Building on evidence about evolving skill needs and on the EQAVET peer-review model in vocational education and training, it introduces the concept of societal external review: a cyclical, evidence-informed process in which institutional self-evaluations are scrutinised by panels composed primarily of labour-market and societal actors, supported by quality and curriculum experts. This model shifts external quality assurance from compliance checking to a structured interrogation of how programmes interpret and implement twin-transition priorities. The article also identifies the internal functions and competences required to prepare, host and follow up such reviews, positioning societal external review as a lever for organisational learning and for strengthening universities' anticipatory capacities in reshaping curricula for green and digital futures.

1 | Introduction

The twin transition—the interlinked digital and green transformation of economies—is reshaping European labour markets and production systems and generating sustained demand for highly skilled workers able to integrate digital technologies with environmental constraints and govern organisational change (Cedefop 2023; Hofmann Trevisan et al. 2024). Greener and more digitally intensive jobs are concentrated among more educated workers, associated with wage premia and requiring broad portfolios of technical, digital and transversal competences that go beyond traditional occupational profiles, with limited mobility for lower-qualified workers (Javed and Usman 2025; Rollnik-Sadowska 2023).

Higher education occupies a strategic position in this transformation: universities produce knowledge, develop professional capabilities and act as institutional actors within regional and national innovation systems, often conceptualised through quadruple or quintuple helix arrangements connecting academia, industry, government and civil society (Carayannis and Campbell 2019). Alongside vocational education and training, they are expected to prepare graduates who combine disciplinary expertise with digital literacy and sustainability-related competences and to support organisations and public debate on the twin transition (Hofmann Trevisan et al. 2024; Trevisan et al. 2023). Yet green and digital dimensions remain unevenly embedded across fields of study and often stay in high-level mission statements rather than being translated into learning outcomes, curriculum architectures and assessment practices (Trevisan et al. 2023).

Universities' capacity to respond effectively to this agenda depends in part on how quality assurance is organised. External quality assurance and accreditation are largely oriented towards accountability, comparability and procedural compliance. They typically mobilise standards, indicators and cyclical reviews to evidence effective use of public resources and to sustain trust in qualifications (Danø and Stensaker 2007; Fesenko et al. 2022; Trevisan et al. 2023). Internal processes stress participation and

professional reflection, involving staff and students in committees, programme reviews and assessment-focused initiatives to enhance teaching and learning at local level (Elassy 2025; Lucander and Christersson 2020). Studies show that these logics are rarely integrated and that quality work has limited impact on curriculum redesign and strategic positioning, a tension often summarised as an accountability–improvement dilemma (Hybertsen and Stensaker 2024; Wood et al. 2019). The twin transition makes this dilemma more acute. Developing green and digital competences cannot be achieved through accountability mechanisms alone, nor through isolated local enhancements.

Experience in vocational education and training (VET) offers a useful point of comparison. Within the European Quality Assurance Reference Framework (EQAVET), VET providers and, more recently, national systems have developed peer review as a collaborative quality mechanism that combines external scrutiny with institutional learning (EQAVET 2023; Evangelista and Fonzo 2023). Research suggests that, when supported by clear processes and competence frameworks, peer review can help reconcile accountability and learning logics, strengthen self-evaluation cultures and support the alignment of programmes with evolving labour-market demands, including those associated with digitalisation and sustainability (Boerchi et al. 2025; Gatt and Faurschou 2016).

However, universities differ from VET providers in important respects: disciplinary autonomy, the research–teaching nexus and complex collegial governance make a simple transfer of VET peer review neither realistic nor desirable (Beerkens and Udam 2017; Masson et al. 2010; Wood et al. 2019). Existing arrangements for involving external stakeholders in higher education quality assurance—advisory boards, employer representation in committees and participation in accreditation panels—often remain consultative and episodic, with limited influence on curricular decisions, particularly in relation to the twin transition (Cheng and Hou 2022; Fagrell et al. 2020).

This article addresses these challenges by proposing external quality assurance as a form of 'societal external review': a cyclical, evidence-informed process in which panels composed primarily of labour-market and societal representatives, supported by quality and curriculum experts, scrutinise how programmes interpret and implement twin transition priorities. It then identifies the institutional functions and competences required to use societal external review as a lever for organisational learning and curriculum change oriented to the twin transition.

2 | The Need of Higher Education for the Twin Transition

The twin transition, understood as the intertwined digital and green transformation of economies and societies, is increasingly recognised as a paradigmatic shift that reshapes production systems, innovation trajectories and patterns of inequality (Diodato et al. 2023; Lyon et al. 2025). It is not simply a technological upgrade or a gradual decarbonisation of existing activities. Rather, it entails reconfiguring how organisations create value, how regions compete and how citizens work and live. Reviews of sustainability transitions in the labour market show that this process modifies both the volume and the content of employment, generating new green and digitally intensive occupations, transforming existing jobs and phasing out others, with consequences that are still only partially understood (Rollnik-Sadowska 2023).

Governing the twin transition, therefore, requires not only regulatory and industrial policy but also deliberate strategies for developing the human capabilities on which new socio-technical configurations depend. Available empirical evidence converges on the strongly skill-biased nature of this transformation. Cross-country analyses of greener jobs indicate that environmentally intensive occupations are concentrated among more educated workers and associated with wage premia, while mobility from pollution-intensive into greener jobs remains limited, especially for those with lower qualifications (Bluedorn et al. 2023). Country-level research for Italy further suggests that stricter environmental policies and the expansion of renewable energy increase demand for high-skilled labour and reduce opportunities for low-skilled workers in traditional sectors, accentuating pre-existing mismatches (Javed and Usman 2025). At the same time, a systematic review of skills for the twin transition in manufacturing identifies a broad portfolio of 40 key skills, organised around resilience, digital technologies and specialised technical competences, and argues that these combinations should guide the design of education and training programmes (Hofmann Trevisan et al. 2024).

Taken together, these studies point to an emerging ecosystem of new professional profiles whose development cannot be left to spontaneous adjustment in firms alone. Within this ecosystem, higher education institutions occupy a strategic position. Research on digital transformation towards sustainability in universities portrays higher education as a core stakeholder for the 2030 Agenda and for the digitalisation of society, simultaneously producing knowledge, training future leaders and shaping public awareness of sustainability (Trevisan et al. 2023). Work in higher education for sustainable development has shown that university curricula can intentionally cultivate systems thinking, anticipatory, normative and strategic competences, provided these are translated into explicit learning outcomes and linked to coherent pedagogical approaches (Lozano et al. 2017).

Recent analyses of the digital transformation of European higher education further highlight how universities are confronted with technological, ecological and social challenges that require rethinking not only infrastructures but also the professional profiles they prepare for (Capogna and Greco 2024). If universities are to respond to the twin transition, they must therefore assume a more explicit role in forming professionals able to integrate digital and environmental logics in different organisational contexts. In this perspective, higher education and vocational education and training should be understood as complementary pillars of a multi-level skills strategy. The literature on sustainability transitions stresses that new competences are required across the occupational spectrum, from engineers and managers who design and govern green and digital transformations to technicians and production workers who operate new processes (Rollnik-Sadowska 2023).

VET systems are crucial for providing practice-oriented green and digital skills close to workplaces, while universities are increasingly expected to prepare professionals capable of leading complex transformations, combining advanced disciplinary expertise, digital literacy and sustainability-related competences. Yet current evidence indicates that these demands are only partially reflected in existing programmes: skills identified as critical for the twin transition are not systematically mapped into degree structures, and sustainability and digital dimensions remain unevenly embedded across fields of study (Hofmann Trevisan et al. 2024; Trevisan et al. 2023). Against this background, the twin transition makes visible the need for a different approach to quality in higher education—one that strengthens the capacity of institutions to listen to evolving labour-market dynamics and to redesign curricula so that they more consistently anticipate and support the skills required by changing work and production systems.

3 | Quality Assurance Between Accountability and Participation in European Higher Education: Implications for Curriculum Design

The previous section argued that the green and digital transitions create new expectations on European higher education to anticipate labour-market change and redesign curricula. Whether universities can fulfil this role depends on how quality assurance is organised. Across Europe, two partly conflicting logics coexist: external quality assurance and accreditation emphasise accountability, comparability and control, while internal processes stress participation and professional reflection. Studies suggest that these logics are seldom integrated and that institutions struggle to use quality procedures to drive curriculum renewal, a tension often described as an accountability–improvement dilemma (Danø and Stensaker 2007; Hybertsen and Stensaker 2024).

The accountability logic has gained prominence as governments and agencies have developed frameworks that stress standards, indicators and formal procedures. Comparative studies underline how accreditation and audit schemes are expected to demonstrate value for money and support international visibility but have mixed effects on institutional learning (Danø and Stensaker 2007; Fesenko et al. 2022). In this perspective, programme evaluation models tend to privilege checklists and multi-indicator frameworks that confirm the existence of procedures, while paying less attention to how new competence needs are translated into programme design (Marciniak 2018; Steinhardt et al. 2016).

In parallel, universities have invested in internal, more participatory forms of quality work. Student–staff committees, parity bodies and programme-level groups have become common mechanisms for involving teachers and students in discussions on assessment, feedback and the learning environment (Elassy 2025; Stensaker and Matear 2024). Evidence from assessment-focused processes shows that when academic staff are engaged in structured collaborative analysis of assessment practices, quality work can strengthen local quality cultures and support incremental improvements (Lucander and Christersson 2020).

However, these initiatives usually remain confined to the meso level of teaching in existing programmes and have limited influence on decisions about new programmes, curriculum architectures or the strategic positioning of provision.

This separation is particularly visible in periodic programme reviews. Programme review is widely recognised as a key instrument for assuring academic quality, and regulations frequently require cyclical self-evaluation, external expert panels and action plans (Hoare et al. 2024). Studies of curriculum development in Sweden, for instance, highlight that external stakeholders are often consulted once a year, and that their input tends to confirm existing practices rather than trigger substantial redesign (Fagrell et al. 2020; Lindsten et al. 2019). Similar concerns emerge in comparative analyses of employer engagement in quality assurance in Asia, where interactions between universities and employers are often fragmented and lack systematic follow-up (Hou et al. 2022). In parallel, literature on employability and Education 4.0 stresses persistent gaps between what universities teach and the transversal, digital and sustainability-related competences demanded in workplaces (Ali and Jamin 2025; Epure 2017; Rodrigues et al. 2021). These studies point to a tendency for 'the tail to wag the dog': external requirements and templates orient departments towards demonstrating compliance and defending existing structures rather than experimenting with redesign (Wood et al. 2019). Even where learning-outcome frameworks and discipline standards have been used as reference points, evidence suggests a gap between formal adoption and pedagogical practice and a lack of mechanisms to translate quality data into collective curriculum decisions (Jones et al. 2021; Velazquez et al. 2025).

Taken together, these developments generate what can be termed an *accountability paradox* in European higher education. Quality assurance systems multiply procedures, indicators and reporting requirements, and internal structures invite students and staff into a variety of participatory forums. Yet the combined impact on curriculum redesign and alignment with labour-market needs remains limited. Analyses of the digital transformation of European higher education show that institutions often respond to external pressures by investing in infrastructure and compliance, while struggling to rethink educational offerings and professional profiles in a more anticipatory way (Capogna and Greco 2024). Studies of university governance in the face of digital change similarly underline how existing quality tools are used to manage risk and satisfy accountability demands rather than to support strategic debates about programme portfolios and competence development (Capogna et al. 2023).

In the context of the twin transition, this paradox becomes increasingly problematic. If higher education is to act, alongside vocational education and training, as a key contributor to new professional profiles, quality processes must help universities to read labour-market signals, mobilise internal expertise and reconfigure curricula. This does not mean abandoning accountability, which remains essential for public trust, but it does suggest the need for arrangements that place greater emphasis on collective reflection about programmes and their outcomes.

4 | EQAVET Peer Review in VET: A Cyclical, Evidence-Informed External Quality Process

Peer-based approaches to review offer one possible way forward, provided they are carefully adapted to the mission, governance and disciplinary diversity of higher education. The most known and structured is the one developed in vocational education and training by the European Quality Assurance Reference Framework (EQAVET), which has codified quality as a continuous improvement cycle rather than a one-off control exercise. The framework links planning, implementation, evaluation and review, and explicitly associates quality with responsiveness to labour-market change and competence development, rather than with procedural compliance alone (European Parliament and Council 2009; Gatt and Faurschou 2016; Masson et al. 2010). In this perspective, external processes are expected to support providers in adjusting programmes to new skill demands, including those generated by digitalisation and the green transition, instead of merely certifying their conformity with standards (European Commission 2014; Galvão 2014).

Within EQAVET, peer review has emerged as a specific methodology for external evaluation that preserves institutional ownership while bringing in a structured external gaze. Peer review differs from inspectorate-based audits in several respects. It is initiated and framed by the provider, which defines the focus of the review and produces a self-evaluation report based on quantitative and qualitative evidence. External reviewers are experienced practitioners from other VET institutions or related organisations, invited not as regulators but as critical friends who can relate to the constraints of practice and share responsibility for improvement (EQAVET 2013, 2023; Evangelista and Fonzo 2023). Research on EQAVET implementation shows that this configuration makes it easier to balance accountability and learning, because external scrutiny is embedded in a collegial dialogue on how to improve programmes and services (Boerchi et al. 2025; Gatt and Faurschou 2016).

Operationally, EQAVET peer review follows a cyclical sequence that mirrors the Plan–Do–Check–Act logic. A first phase of design and planning defines the scope, questions and indicators of the review and clarifies how different stakeholder perspectives—including learners, employers and social partners—will be captured. This is followed by a systematic self-evaluation, in which the provider assembles data on processes, outcomes and stakeholder feedback and synthesises them into a structured report that functions as the main reference document for the review. Peer reviewers then conduct a visit in which they triangulate self-reported information with observations, interviews and document analysis, and formulate feedback that combines appreciation of strengths with a limited number of prioritised recommendations. Finally, the provider translates these recommendations into an improvement plan, with specific objectives, responsibilities, timelines and indicators and commits to monitoring progress and feeding results into the next cycle (EQAVET 2023; Samuel and Farrer 2025).

A distinctive feature of this model is that external evaluation and internal quality work are conceived as tightly interwoven. Peer review is not an isolated event but a catalyst for reorganising internal decision-making around evidence and shared reflection. Studies of VET quality development emphasise the role of peer review in strengthening self-evaluation cultures, making use of data more systematic and shifting staff perceptions of quality from bureaucratic burden to professional responsibility (Bohne et al. 2017). Because EQAVET encourages providers to articulate programme outcomes in terms of competences, peer review has also been used to question the alignment between stated outcomes and the evolving demands of production systems, including those associated with digitalisation and sustainability (Gatt and Faurschou 2016; Hofmann Trevisan et al. 2024). In this sense, EQAVET peer review can be interpreted as a design pattern: a way of organising external evaluation that integrates stakeholder perspectives, supports institutional learning and, potentially, can help VET systems respond to the twin transition.

5 | From Peer Review to Societal External Review in Higher Education

Transferring the peer review model to higher education requires both continuity and discontinuity. On the one hand, universities face challenges that are structurally similar to those of VET providers: they must enhance quality with limited resources, reconcile accountability and improvement and respond to rapidly changing skill needs, now increasingly framed by the twin transition (Díaz-García et al. 2022; Müller et al. 2024). On the other hand, the organisational and professional context of higher education makes a direct replication of VET peer review unlikely. Academic autonomy, the centrality of research, disciplinary differentiation and complex collegial governance make it difficult to envisage systematic cross-institutional peer panels playing the same role that peers play in VET quality assurance (Beerkens and Udam 2017; Gatt and Faurschou 2016; Masson et al. 2010). Evidence from studies of external evaluation in schools and universities further warns that inspection-style mechanisms tend to produce mixed effects, with improvements often confined to easily measurable aspects and with a risk of compliance cultures that crowd out genuine learning (Hofer et al. 2020; Ólafsdóttir et al. 2022).

At the same time, current arrangements for involving external stakeholders in higher education quality assurance seem ill-suited to the pressures of the twin transition. While employers and professional bodies are increasingly represented in programme committees and advisory boards, their participation is usually confined to consultative, ad hoc contributions and seldom shapes core curricular decisions.

Against this background, the relevant lesson from EQAVET is not the literal replication of peer panels composed of academics from other institutions, but the underlying logic of an external process that is cyclical, evidence-informed and co-owned by providers and external actors. In higher education, this logic can be re-interpreted as a form of 'societal external review', in which the external panel is composed primarily of representatives of the labour market and wider society—employers, professional associations, regional development agencies, social partners, alumni and civil-society organisations—supported, where appropriate, by experts in quality assurance and curriculum design. Panel composition should be governed by explicit

representation criteria to prevent dominance by well-resourced actors. In practice, this implies a transparent stakeholder-mapping exercise and a balanced mix of constituencies (e.g., employers and professional bodies alongside civil-society and environmental organisations, social partners, alumni and public authorities), with clear rules on conflicts of interest. To strengthen perceived fairness, invited members can be asked to provide brief anonymous feedback on the adequacy and balance of the proposed composition before the visit, allowing the institution to adjust or complement the panel where material gaps or asymmetries are identified. An independent chair and agreed deliberation rules can further support inclusive participation and mitigate power asymmetries during the visit and the formulation of priorities.

Like EQAVET peer review, societal external review would be initiated by the institution, anchored in a self-evaluation that systematically integrates labour-market intelligence and graduate outcomes, and organised around a structured visit culminating in a negotiated improvement plan. Rather than adding another layer of bureaucracy, the process would be integrated into existing review and accreditation cycles, providing them with a clearer learning orientation and a more consistent connection to external demands (Masson et al. 2010; Samuel and Farrer 2025). From a European policy perspective, societal external review is intended to complement rather than replace existing quality assurance arrangements grounded in the European Standards and Guidelines (ESG). While ESG-based processes provide a shared framework for accountability, consistency and public trust, societal external review operates upstream, by structuring a focused dialogue on how programmes interpret and operationalise strategic priorities such as the twin digital–green transition. It reinforces ESG 1 (Standards for internal quality assurance) by strengthening evidence-informed programme review and stakeholder engagement, and ESG 1.9 by systematising external input beyond formal compliance checks. In this sense, societal external review can be understood as a developmental layer that enhances the learning-oriented potential of ESG-aligned quality systems, without altering their regulatory foundations. In epistemic terms, societal peers contribute situated and prospective knowledge to support curriculum relevance and coherence, while academic staff retain responsibility for disciplinary decisions.

As a brief illustration of how the proposed model could work in practice, Box 1 presents a stylised example. The stepwise logic underpinning the model is then outlined in the following paragraph and summarised in Table 1.

The twin transition gives this proposal its specific focus. Research on green and digital transformations shows that the two agendas have largely evolved in parallel, with limited integration and with a strong emphasis on production systems (Müller et al. 2024). At the same time, reviews of skills for the twin transition indicate that new profiles require combinations of advanced disciplinary knowledge, digital literacy, sustainability competences and the ability to navigate socio-technical change (Hofmann Trevisan et al. 2024; Rollnik-Sadowska 2023). Yet studies of higher education point to uneven and often implicit embedding of these competences in curricula, despite the proliferation of sustainability strategies and digitalisation initiatives (Trevisan et al. 2023).

BOX 1 | Illustrative example.

A bachelor's programme in industrial engineering has an explicit focus on sustainability and digitalisation. Recurrent misalignment signals prompt the programme to initiate a societal external review: employers and alumni report that graduates are strong in core technical knowledge but less prepared to integrate sustainability constraints and digitalisation interventions in design decisions in transformation-intensive workplaces. The programme therefore frames the societal external review around a clear evaluative purpose: to test whether the curriculum operationalises twin-transition priorities in learning outcomes, teaching and assessment, and whether available evidence is systematically used to steer curriculum renewal. As part of a periodic cycle, the programme conducts a self-evaluation that maps intended learning outcomes against evidence on graduate destinations, internship evaluations, employer feedback and regional transition strategies.

A societal external review panel is then convened, including representatives from manufacturing firms undergoing digital and green transformation, a regional development agency, an environmental NGO, alumni and experts in curriculum design—selected to balance labour-market intelligence with civil-society and environmental perspectives. During the visit, the panel triangulates documentary evidence with interviews and discussions with academic staff, students and graduates, examining how sustainability and digital transformation priorities are translated into courses, projects and assessment practices and whether current curricular structures adequately support systems thinking, data-enabled decision making and eco-design.

The self-evaluation points to uneven coverage of these priorities across modules; the peer panel's interviews and document-to-practice checks further underline limited opportunities for students to apply them in authentic projects. Rather than prescribing specific content, reviewers and academic staff jointly identify a small set of priorities—such as strengthening interdisciplinary project work and embedding sustainability criteria and digitalisation-oriented design tasks in core engineering modules—which are translated into a monitored improvement plan aligned with existing programme review cycles, supporting anticipatory curriculum renewal without undermining academic autonomy.

A societal external review grounded in EQAVET logic would reposition external evaluation in higher education as a structured mechanism for examining how institutions interpret, implement and monitor the priorities of the twin transition. In this perspective, external reviewers do not operate as symbolic representatives of the labour market or as occasional advisers, but as knowledgeable interlocutors who critically analyse the extent to which programmes translate green-digital transformation into coherent curricular, pedagogical and organisational choices. The first area of scrutiny concerns how twin transition priorities are embedded in learning outcomes. Evidence from recent studies shows that sustainability and digitalisation often appear in programme documentation as broad statements of intent, while their translation into operational competences,

TABLE 1 | Societal external review: cycle and internal functions to enable curriculum renewal for the twin transition.

Review phase	Core activities	Inputs (primary evidence) Output	Internal functions enabling the phase
1. Scoping and design	Define focus, questions and criteria; agree panel composition; clarify stakeholder mapping and participation formats	INPUT—Programme aims; prior review outcomes; twin-transition priorities; stakeholder map OUTPUT—Terms of reference; review questions; panel profile	1. Strategic integration 4. Stakeholder engagement
2. Self-evaluation	Assemble an evidence pack; analyse intended vs. enacted curriculum; identify gaps in green/digital competences; draft self-evaluation report	INPUT—Graduate destinations; course/assessment mapping; partner feedback; regional/sector intelligence OUTPUT—Self-evaluation report + evidence pack	2. Curriculum and learning design 3. Data and evidence stewardship
3. External dialogue & visit	Triangulate evidence via interviews/observations; interrogate how twin-transition priorities are operationalised; surface constraints/enablers	INPUT—SER + evidence pack; interviews with staff/students/graduates; partner sessions OUTPUT—Prioritised findings; negotiated improvement priorities	4. Stakeholder engagement 5. Capacity building and quality culture
4. Improvement planning	Translate priorities into actions with responsibilities, timelines, indicators; align with existing governance and review cycles	INPUT—Findings; resource constraints; institutional strategy OUTPUT—Improvement plan (actions + indicators)	1. Strategic integration 6. Implementation and learning
5. Follow-up and learning	Monitor progress; communicate changes to internal/external audiences; feed learning into next cycle	INPUT—Monitoring data; stakeholder feedback; curriculum updates OUTPUT—Progress report; updated evidence base	6. Implementation and learning 3. Data & evidence stewardship

course-level outcomes and assessment criteria remains inconsistent or implicit (Hofmann Trevisan et al. 2024; Trevisan et al. 2023). A societal external review would therefore examine whether intended learning outcomes articulate measurable competences related to digital literacy, sustainability reasoning, eco-design, data-enabled decision making, or interdisciplinary problem-solving, and whether these outcomes are vertically aligned across the curriculum.

A second dimension concerns the forms and quality of collaboration with external partners. Research consistently indicates that stakeholder involvement in higher education tends to be episodic, consultative and weakly connected to decision-making (Beerkens and Udam 2017; Fagrell et al. 2020). Within a societal external review, however, the contribution of external actors becomes part of the evaluative process and gains epistemic status: employers, professional bodies, regional development agencies, alumni and civil-society organisations participate actively in assessing the relevance, currency and forward-looking orientation of curricula. They help identify which green and digital competences are emerging in their sectors, how occupational profiles are evolving and what forms of learning—project-based, work-integrated, interdisciplinary—are most likely to prepare graduates for transformation-intensive contexts. Instead of confirming existing practice, external actors co-interpret evidence and take part in substantive discussions about curriculum design, enabling a shift from symbolic engagement to structured co-development.

A third focus of the societal external review concerns the systematic use of internal and external evidence. Studies on employability and Education 4.0 highlight that universities often overestimate the alignment between their programmes and labour-market needs, while data on graduate trajectories, workplace performance and employer feedback show persistent mismatches. The self-evaluation underpinning the review would therefore include a detailed evidence pack: data on graduate destinations, internship evaluations, partnerships in sectors affected by the twin transition, performance in digital and sustainability competences, and analyses of regional economic transformations. The external reviewers' task is to interrogate this evidence, assessing not only the relevance of programme

content but also the institution's capacity to anticipate skill needs and adjust provision accordingly. This evidence-centred approach brings the review closer to EQAVET's developmental rationale, in which self-evaluation and external scrutiny are mutually reinforcing moments of a quality cycle.

The review session—taking the form of an intensive structured dialogue rather than an inspection—allows external reviewers to triangulate documentary evidence with multiple perspectives. Interviews with academic staff, students, graduates and quality officers, along with discussions with institutional leaders, provide insight into organisational enablers and constraints: the extent to which staff receive support for updating their green and digital expertise; how curriculum committees handle external intelligence; how institutional strategies for digitalisation and sustainability connect to programme-level decisions. This triangulation is essential, as it exposes misalignments between strategic aspirations and pedagogical practices, and it enables a candid discussion of internal barriers—disciplinary silos, rigid governance structures, limited engagement with regional actors—that hinder curricular responsiveness to the twin transition.

The outcome of the review is not a generic set of recommendations, but a small number of strategic priorities accompanied by actionable measures, responsibilities, timelines and indicators. This action plan is expected to be integrated into existing quality cycles—programme review, accreditation follow-ups, strategic planning—ensuring that the process does not remain a standalone exercise. Research on higher education quality assurance repeatedly shows that evaluation processes have limited transformative power when follow-up mechanisms are weak or disconnected from institutional governance (Ali and Jamin 2025; Samuel and Farrer 2025). In contrast, a societal external review aligned with EQAVET principles embeds follow-up and monitoring into the cycle, making external evaluation the starting point of a negotiated and institutionally owned improvement trajectory.

Taken together, these elements redefine the function of external quality assurance in higher education. A societal external review grounded in EQAVET logic bridges institutional reflection with the knowledge of actors directly involved in green and digital transformations; it strengthens universities' anticipatory capacity by exposing curricula to external intelligence in a structured manner; and it anchors improvement in evidence-based, co-developed and monitored action. Rather than documenting adherence to existing standards, external review becomes a strategic tool through which higher education institutions interpret and shape the evolving skills architecture of the twin transition.

6 | Functions and Competences for Quality Governance in Higher Education

Strengthening quality governance for the twin transition requires moving beyond a static list of organisational 'roles' to a clearer understanding of the core functions that need to be performed and of the competences required to perform them. Research on quality work in higher education shows that responsibility for educational quality is already distributed among academic, administrative and leadership staff, who engage in a variety of often poorly connected practices (Ali and Jamin 2025; Becket and Brookes 2008; Lackner 2023). Rather than prescribing new formal positions, it is therefore more productive to describe the functional capabilities that institutions must ensure, regardless of how they are combined in specific job profiles or governance arrangements. In the perspective developed here, these functions are conceived as the internal counterpart of the societal external review model outlined above: they make it possible to prepare for, host and follow up external scrutiny in ways that transform it into an engine of organisational learning for the twin transition. For ease of reference, Table 1 provides a visual synthesis of the societal external review cycle (following a PDCA-like logic) and maps each phase to the six internal functions discussed in this section.

A first function concerns the strategic integration of quality work and twin transition priorities. Studies on transparency and accountability in higher education underline how quality assurance has increasingly been linked to external expectations from funders, regulators and society, while at the same time institutions seek to preserve their autonomy and academic mission (Becket and Brookes 2008; Pattaro et al. 2022). To avoid a fragmentation of initiatives, institutions need a capacity to align external review processes with internal strategy, to interpret policy signals on digitalisation and sustainability and to translate them into priorities for programmes and faculties. This strategic integration function requires competences in systems thinking, knowledge of national and European quality frameworks, familiarity with green and digital transition policies, and the ability to articulate a convincing narrative that legitimises quality work among academics and administrators (Lackner 2023). Without such a function, external evaluation risks remaining a compliance exercise, disconnected from decisions on resource allocation, staff development and curriculum reform.

A second key function relates to curriculum and learning design for the twin transition. Literature on curriculum change in higher education and on emerging competence profiles shows that universities struggle to move from rhetorical commitments to sustainability and digitalisation to coherent curricular architectures that embed green and digital competences across courses and programmes (Hofmann Trevisan et al. 2024; Trevisan et al. 2023). Even when external review or internal monitoring identifies gaps—for example, lack of systems thinking, limited attention to data literacy or insufficient integration of sustainability in professional preparation—institutions often lack the expertise to redesign programmes in a way that preserves disciplinary depth while responding to new competence demands. The curriculum design function involves the capacity to work with constructive alignment, to map existing modules against intended learning outcomes, to identify where twin transition competences are or could be developed and to support academic teams in redesigning learning paths and assessment strategies accordingly. It requires pedagogical and design competences, but also the ability to mediate between different disciplinary cultures and to connect curricular decisions with external reference points such as occupational profiles, professional standards and regional transition strategies.

A third function is the stewardship of data and evidence. Quality management research highlights both the proliferation of data in higher education and the difficulties institutions face in integrating them into meaningful analyses for decision-making (Becket and Brookes 2008). At the same time, studies on stakeholder engagement and community interaction show that external actors perceive a lack of transparency on how evidence about student outcomes, community needs or labour-market trends is used (Pattaro et al. 2022; Sheila et al. 2021). For a societal external review oriented to the twin transition, institutions need the capacity to assemble an 'evidence pack' that brings together internal data (progression and completion, graduate destinations, student feedback, results of prior reviews) and external intelligence (regional skills forecasts, sectoral transition roadmaps, outcomes of partnerships with employers and communities). The data and evidence function therefore requires competences in quantitative and qualitative analysis, familiarity with evaluation and survey design, and the ability to synthesise complex information in a form that is intelligible for diverse audiences, including external reviewers and non-expert stakeholders. Crucially, it also involves an understanding of the limits of available data and a capacity to identify where additional inquiry, such as focus groups, tracer studies or case analyses, is needed to illuminate how programmes contribute to twin transition competences.

A fourth function concerns the orchestration of stakeholder and societal engagement. Empirical studies repeatedly document that stakeholder involvement in higher education, including employers and community partners, is often fragmented, poorly resourced and lacking in clear expectations (Beerkens and Udam 2017; Fagrell et al. 2020; Hou et al. 2022). At the same time, research on stakeholder engagement for sustainable development emphasises the benefits of structured, reciprocal partnerships that give external actors a real say in defining priorities and evaluating progress (Leal Filho et al. 2025; Sheila et al. 2021). The stakeholder engagement function requires the capacity to map relevant internal and external stakeholders in relation to the twin transition, to design appropriate formats for their involvement—advisory groups, co-design workshops, review panels, community-based projects—and to ensure that their contributions feed into both self-evaluation and external review. This demands competences in partnership building, facilitation, intercultural and cross-sector communication, and the management of power asymmetries, for example, between large employers and local community groups or between highly specialised academics and practitioners. It also entails practical skills in organising engagement activities, providing feedback to participants and sustaining relationships over time, so that stakeholder involvement is experienced as meaningful rather than tokenistic.

A fifth function is dedicated to capacity building and the cultivation of a quality culture oriented to learning and shared responsibility. Studies on quality culture and quality work stress that academics and professional staff often perceive quality assurance as externally imposed and administratively burdensome, and that their engagement depends on whether they can see how quality work connects to their own educational values and practices (Greere and Riley 2013; Lackner 2023). The twin transition amplifies this challenge. Staff are expected to move beyond procedural compliance, continually update their expertise in digital technologies and sustainability, and adapt their teaching accordingly. The capacity-building function involves organising professional development on curriculum design, assessment and educational use of technology; creating spaces for peer learning and reflection; and framing external review as an opportunity for professional growth rather than as a threat. It requires competences in adult learning, change management and academic development, as well as a nuanced understanding of disciplinary identities and of the tensions between research, teaching and third mission activities.

Finally, an implementation and learning function is needed to ensure that the results of external review and internal evaluation are translated into action and remain visible to internal and external stakeholders. Comparative work on transparency and accountability in higher education shows that institutions often disclose large amounts of information, but in formats that are difficult for non-expert audiences to interpret, and that follow-up on identified priorities is not always clear (Pattaro et al. 2022). The implementation function therefore encompasses project management of improvement plans, monitoring of progress against agreed indicators and communication of outcomes in accessible language and formats, including how changes respond to stakeholder input and contribute to sustainability goals. It requires competences in planning and monitoring, in the design of performance narratives that combine quantitative indicators and qualitative accounts, and in engaging stakeholders in iterative cycles of reflection on what has been achieved and what remains to be done. When combined with the other functions, it helps to close the loop between external scrutiny, internal decision-making and public accountability for contributions to the twin transition.

These six functions are underpinned by a common set of transversal competences and value orientations. Across all of them, staff need technical knowledge of quality frameworks, curriculum design and stakeholder engagement; relational skills for dialogue, negotiation and feedback; and systemic competences for understanding how local initiatives connect to institutional strategies and broader societal transformations (Becket and Brookes 2008; Lackner 2023; Leal Filho et al. 2025). They also need a disposition to view quality not as compliance but as a shared, ongoing inquiry into how higher education can contribute to just and sustainable digital and green transitions. When these functions and competences are present, regardless of how they are distributed across formal roles, institutions are better positioned to use societal external review not as an additional layer of bureaucracy, but as a structured opportunity to realign programmes, partnerships and internal capacities with the evolving skills architecture of the twin transition.

7 | Discussion

The analysis developed in this article suggests that the twin transition exposes structural limitations in prevailing quality arrangements in European higher education and that these limitations are not merely technical, but conceptual. Quality assurance has largely been designed to demonstrate accountability, comparability and compliance with standards, with internal

participatory processes partially compensating for the rigidity of external frameworks. Yet the evidence reviewed on green and digital skills, on employability and on university governance shows that such arrangements have had limited impact on curriculum architectures and competence profiles. In this context, the proposal of a societal external review repositions external quality processes as sites where the alignment between programmes and the evolving skills architecture of the twin transition can be collectively interrogated, rather than assumed.

A first implication concerns how the accountability–improvement dilemma is framed. Much of the quality assurance literature has treated accountability and learning as competing logics that must be balanced or traded off (Danø and Stensaker 2007; Hybertsen and Stensaker 2024). The peer review experience in VET, especially as codified by EQAVET, points instead to a different configuration: external scrutiny can be designed as a developmental process in which self-evaluation and external feedback are mutually reinforcing and where accountability is exercised through transparent evidence and negotiated improvement plans rather than through inspection alone (EQAVET 2013, 2023; Gatt and Faurschou 2016). Translating this logic into higher education through a societal external review model suggests that the accountability–improvement tension can be addressed not only by fine-tuning indicators or procedures, but by rethinking who participates in external evaluation, what types of questions are asked and how evidence is used. The emphasis shifts from checking whether programmes meet predefined standards to examining how institutions interpret twin transition priorities and reconfigure curricula in response.

A second implication relates to the role of external stakeholders and the meaning of 'peer' in external review. Existing research on employer and stakeholder engagement in higher education highlights both increasing expectations and persistent difficulties: stakeholders are often invited into boards, committees or panels, but their contribution tends to be episodic, consultative and weakly connected to consequential decisions (Beerkens and Udam 2017; Fagrell et al. 2020; Hou et al. 2022). At the same time, work on sustainable development in higher education shows that more substantive forms of partnership—for example, in the codesign of curricula or community-based learning—can enrich institutions' understanding of societal challenges and inform curriculum innovation (Leal Filho et al. 2025). The notion of societal external review builds on these insights by assigning stakeholders an epistemic role in external evaluation: they are not only 'users' whose satisfaction is to be measured, but actors whose situated knowledge of green and digital transformations helps define what counts as quality in programmes. This does not imply an uncritical transfer of labour-market demands into curricula; rather, it positions external actors as partners in a structured interpretive process around twin transition priorities.

A third implication concerns the internal organisation of quality work. Studies of quality culture and quality work emphasise that responsibilities for educational quality are distributed across academic, administrative and leadership roles, often without clear articulation of how different activities connect (Becket and Brookes 2008; Greere and Riley 2013; Lackner 2023). Existing frameworks for quality assurance professionals focus on the competences of those working in agencies or central units (European Association for Quality Assurance in Higher Education 2016; European University Association 2022), while research on internal quality assurance in higher education has begun to outline competency requirements for institutional actors (Jingura and Kamusoko 2019). The functional perspective proposed here extends this work by identifying a set of internal functions—strategic integration, curriculum and learning design, data and evidence stewardship, stakeholder engagement, capacity building, implementation and learning—that are necessary to make societal external review operational and productive for the twin transition. The argument is not that new formal roles must be created, but that institutions need to ensure these functions are recognised, resourced and connected, so that external review is embedded in coherent cycles of organisational learning rather than managed as an isolated compliance event.

Fourth, the proposal contributes to debates on the governance of the twin transition by linking skills and curriculum questions to institutional quality governance. Studies on green and digital labour-market transformations show that new professional profiles emerge at the intersection of technological, organisational and regulatory change and that their development is strongly skill-biased, with implications for inequality and regional competitiveness (Bluedorn et al. 2023; Rollnik-Sadowska 2023). Much of this literature calls for coordinated skills strategies but pays limited attention to how higher education quality systems mediate between macro-level expectations and micro-level curriculum design. By conceptualising societal external review as a mechanism through which universities, employers, public authorities and civil society collectively scrutinise programmes in light of twin transition scenarios, the article suggests that external quality assurance can function as a meso-level interface where skills strategies become operational. Quality governance thus appears not only as an administrative infrastructure, but as a locus of sociotechnical governance in its own right.

8 | Limitations and Future Directions

Concurrently, the proposal necessitates careful consideration of its limitations and the conditions under which its applicability remains warranted. One risk is that societal external review could reproduce existing asymmetries in voice and power. Research on stakeholder engagement warns that, without explicit attention to representation and facilitation, external involvement tends to be dominated by large employers or actors with greater organisational capacity, marginalising smaller firms, unions, community organisations or environmental groups (Sheila et al. 2021). In the context of the twin transition, this could lead to narrow interpretations of green and digital priorities, privileging short-term employability or technological solutions over broader questions of justice, democracy and wellbeing. The model therefore requires careful design of panel composition, explicit criteria for stakeholder selection and procedures that ensure a diversity of perspectives is heard and weighed. It also presupposes internal competences in managing cross-sector dialogue and in negotiating tensions between different societal expectations.

A second risk relates to the potential re-instrumentalisation of external review in the name of the twin transition. The history of quality assurance in higher education suggests that new

agendas—employability, internationalisation, digitalisation—are often absorbed into existing control frameworks, resulting in the multiplication of indicators and reporting obligations rather than in substantive change (Capogna et al. 2023; Steinhardt et al. 2016). There is no guarantee that a societal external review will not follow a similar trajectory, especially in systems where external accreditation is tightly coupled to funding or reputational incentives. The functional approach proposed here is intended as a safeguard: by specifying that societal external review must be anchored in robust self-evaluation, evidence use, stakeholder dialogue and follow-up, and by linking it to internal functions that emphasise learning and capacity building, it seeks to minimise the risk that the twin transition becomes another label in a largely unchanged evaluative apparatus. However, this remains a normative orientation; its realisation depends on how agencies and institutions interpret and implement the model.

A further limitation concerns the scope of the argument and the empirical basis on which it rests. The analysis draws primarily on European literature on quality assurance, VET peer review and higher education for sustainable development and on conceptual and policy-oriented work on the twin transition. Evidence from non-European contexts, especially where regulatory frameworks and labour-market structures differ significantly, is only indirectly considered (Hou et al. 2022). Moreover, the article is predominantly conceptual and design-oriented: it reconstructs EQAVET peer review as a design pattern, translates it into a proposal for societal external review in higher education and infers functional requirements for internal quality governance. While some elements resonate with existing empirical studies on quality work, stakeholder engagement and curriculum change, the overall model has not yet been tested in practice. Future research should therefore adopt design-based and comparative approaches to examine how societal external review can be implemented in different institutional and national settings, what kinds of panels and procedures are workable, and under what conditions the model actually influences curricular decisions and student competences.

Finally, the discussion raises questions about professional development and identity for those involved in quality work. The functions identified here cut across traditional boundaries between academic, administrative and managerial roles and require combinations of expertise that are not yet widely recognised in career structures: curriculum and assessment design, data analytics, partnership building, facilitation of dialogue on green and digital transformation. Work on legitimising quality roles suggests that staff tasked with quality work often struggle to gain recognition from academics and may experience tensions between collegial and managerial expectations (Lackner 2023). Integrating societal external review into higher education quality systems will therefore require deliberate strategies for recognising and supporting these hybrid professional profiles, including opportunities for collective learning across institutions and sectors. In this sense, the proposal reinforces calls for seeing quality not as an add-on to academic work but as a domain of professional practice in its own right, central to universities' contribution to the twin transition.

Taken together, these considerations indicate that societal external review, coupled with a functional understanding of quality governance, offers a promising but demanding pathway for moving 'beyond accountability' in higher education. It invites institutions, agencies and stakeholders to repurpose external evaluation as a shared space for interrogating how programmes anticipate and shape green and digital futures, and to develop the internal competences needed to make that interrogation consequential. Whether this potential is realised will depend on the willingness of actors to use quality processes not only to prove that higher education is responding to the twin transition but to learn collectively how it might do so more substantively and more justly.

9 | Conclusions

This article has argued that the twin transition functions as a stress test for prevailing quality arrangements in European higher education. Green and digital transformations are reconfiguring labour markets and professional profiles in ways that demand new combinations of disciplinary, digital and sustainability-related competences. Yet existing constellations of external quality assurance, internal review and stakeholder involvement have only partially affected curriculum architectures and programme-level decision-making. The analysis suggests that this is not simply a matter of fine-tuning indicators or adding new references to sustainability and digitalisation in existing procedures, but of rethinking how external evaluation and internal quality work are organised and connected.

Drawing on the experience of EQAVET peer review in vocational education and training, the article has reconstructed a model of external evaluation that combines structured self-evaluation, collegial external scrutiny and monitored follow-up within a coherent quality cycle. In VET, this model has been used to align provision more closely with labour-market needs while preserving institutional ownership and a developmental orientation. A literal transfer of this model to higher education is neither feasible nor desirable, given the specificities of universities' missions, governance and professional cultures. However, the underlying logic of peer review—as a cyclical, evidence-informed, dialogue-based process—can be repurposed to address the challenges posed by the twin transition.

The proposed notion of 'societal external review' represents such an adaptation. It reframes external quality assurance as a space where institutional self-evaluations are examined by panels composed primarily of actors directly involved in green and digital transformations—employers, professional bodies, public authorities, civil-society organisations and alumni—supported by quality and curriculum experts. Rather than merely checking compliance with existing standards, these panels interrogate how programmes interpret twin transition priorities, how these are embedded in learning outcomes, teaching and assessment and how evidence on graduate trajectories and regional developments informs curricular choices. In this way, external review is repositioned from a control mechanism to a structured form of societal dialogue about the future orientation of higher education provision.

For such a model to have more than symbolic effects, internal quality governance must change as well. The article has therefore identified a set of core functions that institutions need to

perform if societal external review is to become an engine of organisational learning: strategically integrating twin transition priorities into quality agendas; developing curriculum and learning design capabilities; stewarding data and evidence; orchestrating stakeholder engagement; building staff capacity and quality culture; and ensuring the implementation and monitoring of improvement plans. These functions do not prescribe specific organisational charts but describe capabilities that can be distributed across academic, administrative and leadership roles. What matters is that they are clearly assigned and adequately supported, so that external review is prepared, lived and followed up as part of a continuous PDCA-like cycle rather than as an isolated event.

The contribution of the article is therefore threefold. Conceptually, it links debates on the twin transition and skills to the literature on quality assurance and quality work, suggesting that quality processes are not neutral infrastructures but important mediating arenas where the educational implications of green and digital transformations are negotiated. Methodologically, it uses the EQAVET peer review model as a design pattern to think across sectors, showing how lessons from VET can inform higher education without erasing contextual differences. Practically, it offers a framework for institutions and quality assurance agencies that wish to redesign external evaluation and internal governance in ways that strengthen higher education's capacity to anticipate and shape the skills architecture of the twin transition.

Finally, the epistemic role of societal peers is deliberately circumscribed and complementary to academic judgment. Rather than assessing disciplinary correctness or prescribing content, societal peers contribute situated and prospective knowledge on how green and digital transformations unfold in sectors, regions and communities, helping programmes interrogate how external signals are translated into coherent curricular choices. This separation of epistemic roles safeguards academic autonomy while reinforcing the collaborative, learning-oriented nature of societal external review.

At the same time, the proposal is normative and exploratory. Whether societal external review and function-based quality governance can be realised in practice, and with what effects, remains an open empirical question. Future study will need to examine how different national systems and institutions translate these ideas into concrete procedures, how panel composition and evidence use are negotiated and to what extent curricular decisions and student competences are affected. Attention will also be needed to power asymmetries in stakeholder participation and to the risk that twin transition rhetoric is absorbed into existing compliance-driven frameworks. Addressing these challenges will require not only technical adjustments but also sustained dialogue among universities, quality agencies, policymakers and societal partners about what counts as quality in higher education in an era of intertwined digital and green transformations.

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Conflicts of Interest

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Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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