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Toward a Process-Oriented Model of Educational Service Delivery in Higher Education

Integrating BPM, ISO 9001:2015, and ESG Frameworks

Introduction

Higher education institutions face growing pressure to demonstrate quality, efficiency, and accountability to students, employers, accreditation bodies, and public funders. In policy, this is seen in frameworks like the ESG (ENQA, 2015) and in quality management standards such as ISO 9001:2015, which more European universities now use alongside ESG compliance (Becket & Brookes, 2006; Branković et al., 2022). Despite these regulations, most HEIs have low process maturity, especially in areas where processes are often undocumented, customers are not identified, and measurement systems are basic or absent (Trkman, 2010; Antunes & Pinho, 2020). As a result, quality assurance is mostly about compliance, with improvement as an afterthought, and the true benefits of the process approach not realized.

Research on process management and higher education quality is increasing but remains fragmented. One line of research examines how ISO 9001 can operationalize ESG standards at the institutional level (Branković et al., 2022; Steed, 2015). These studies find that ISO 9001's process approach provides a practical foundation for ESG requirements, though full alignment is rare. Šliž et al. (2022) and Mendonça et al. (2023) assessed BPM methods such as governance, modeling, and process identification in the public sector and higher education. They argued that BPM governance helps institutions respond more effectively but found significant cultural and structural resistance in academia. Calvo-Mora et al. (2015) examined the European Foundation for Quality Management (EFQM)-based self-assessment to measure institutional process capability. The authors highlight leadership and stakeholder focus as essential, while noting fragmented ownership and resistance to measurement as barriers. These authors identify a missing link in this integrative model: one that combines BPM, ISO 9001, and ESG into a single framework – a framework that is process-oriented for the academic and service roles of higher education institutions.

The main research question is: *How can process management, ISO 9001:2015, and ESG principles be combined into a clear, process-based model of service delivery that fits how universities work and teach?*

This paper uses an integrative conceptual approach, synthesizing HE management literature to develop a model that organizes institutional activities into core educational processes, support services, and governance, each embedded in the PDCA cycle to support continuous improvement. This paper explains where BPM, ISO 9001:2015, and ESG differ and converge, providing a clear basis for harmonization. It introduces a theoretically based, traceable process architecture for HEIs and demonstrates how the proposed model and institutions will help align practices with recognized frameworks.

The next sections of the paper are as follows. Section 2 presents the theoretical foundations and covers process maturity in HEIs, the BPM capability framework, and the relationship between ISO 9001 and ESG. Section 3 presents the three process layers and the proposed model. Section 4 discusses the implications for institutional practice and research. Section 5 concludes with limitations and directions for future empirical work.

Theoretical Foundations

Process Approach and Process Maturity in Higher Education

Hammer & Champy (1993) and Rosemann & vom Brocke (2010) argued that value is created through a series of connected activities that cross organizational boundaries, rather than within individual departments or silos, which they describe as the process approach in organizations. Various studies

indicate that BPM applies this idea by organizing, monitoring, carrying out, and improving processes to achieve strategic goals (Bandara et al., 2007; Trkman, 2010). While BPM started as a way to address industry inefficiencies, it is now also used in public organizations like universities, where clear processes help manage complex outputs and diverse stakeholders (Šliž et al., 2022).

Trkman (2010) notes that BPM requires process documentation, performance measurement, and customer identification, but these are rarely found in academic settings. Applying BPM in higher education faces a major challenge where most institutions have low process maturity. Antunes & Pinho (2020) confirm that processes are often informal, ownership is split between faculties and administrative units, and measurement systems, if present, focus on compliance rather than improvement. Mendonça et al. (2023) emphasized that existing models do not capture the dual academic and service-oriented character of HEIs, making it difficult to transfer BPM frameworks directly from commercial to theoretical settings. Quality assurance obligations, emphasized in frameworks like ESG and ISO 9001, have not led to genuine improvements in process capability across the sector because of these structural deficits.

Based on these arguments, successful process management in higher education depends on shared ownership, leadership commitment, and reliable data (Calvo-Mora et al., 2015; Branković et al., 2022). Barriers include resistance to management ideas, unclear accountability, and missing process documentation (Steed, 2015; Šliž et al., 2022). In higher education, these factors show that BPM approaches must be tailored to the unique structure and culture of academic institutions.

ISO 9001:2015 and ESG: Convergence and Divergence.

ISO 9001:2015 and the ESG Standards and Guidelines (See Appendix A1) have shaped quality management practices in European higher education. ISO 9001:2015 is a quality management standard that can be used across various sectors. It is based on seven principles that focus on processes and continuous improvement. Organizations using this model define their inputs, outputs, responsibilities, performance indicators, and improvement methods, creating a clear operational structure (ISO, 2015). The ESG, on the other hand, is made specifically for European higher education. While ISO 9001 is broad, ESG has three parts: internal quality assurance (Part 1), external quality assurance (Part 2), and governance of quality assurance agencies (Part 3). This paper focuses only on ESG Part 1, which covers ten standards for internal quality management, including student support, program design, teaching staff, regular review, and information management (ENQA, 2015).

Researchers have different views on how these frameworks relate. Branković et al. (2022) proposed that using ISO 9001 in a meaningful way, not just for compliance, helps build the systems needed for ESG. This happens through documentation, process monitoring, and stakeholder feedback. Steed (2015) states that ISO 9001's focus on clear processes and measurable goals helps put ESG principles into practice. Still, both studies point out important differences. ISO 9001's focus on customer satisfaction and risk management does not align with the values of intellectual inquiry, broad education, and shared governance. Syed et al. (2018) raises concern that using the ISO 9001 standard without careful consideration will reduce educational quality to formal compliance and simple measures, and weaken the peer-review process meant to keep standards high. However, while they share similarities, ISO 9001 and ESG have different priorities.

Figure 1 — Comparative Analysis of ISO 9001:2015 and ESG (Part 1) in the HEI Context

Dimension	ISO 9001:2015	ESG Part 1
Scope	Universal QMS, any sector	Quality assurance in HEIs
Core principle	Process approach and continuous improvement	Student-centered learning and quality enhancement
Improvement cycle	PDCA (explicit)	PDCA (implicit, via Standards 1.9–1.10)
Stakeholder focus	Customer (general)	Students, staff, employers, society (specified)
Documentation	Documented processes, workflow discipline, and controls required	Transparency and self-assessment required
Performance indicators	Defined and measured at process, output, and outcome levels	Informational (data) use for monitoring and decision-making (1.7)
Risk approach	Explicitly required	Encouraged but not formalized
External validation	Third-party audit and certification	External review by national QA agencies
Tension points	Efficiency logic may conflict with academic culture	Abstraction may limit operational specificity

Source: Authors' synthesis based on ISO (2015), ENQA (2015), Branković et al. (2022), and Steed (2015).

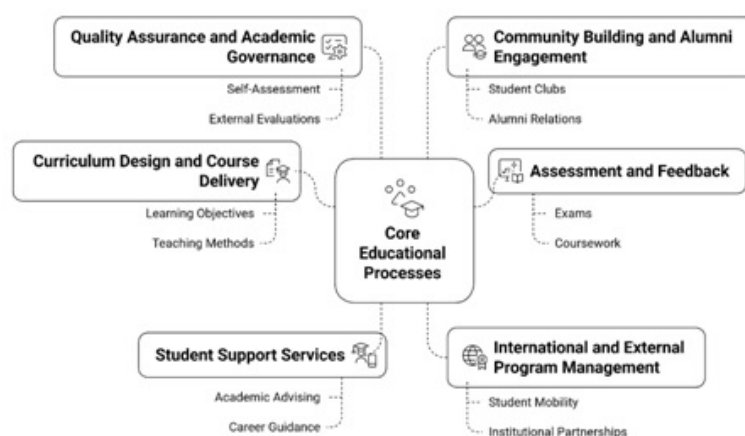
Both frameworks (see Figure 1) use a continuous improvement approach based on the PDCA cycle (Deming, 1986), which makes them structurally compatible with BPM's process improvement philosophy (Santana et al., 2011). To integrate these frameworks (Figure 1), a mediating model is needed to translate their logic into a process architecture that improves quality in higher education.

Educational Service Delivery as a System of Processes

Drawing on ideas from service management theory and BPM, we see educational service delivery as a system of processes rather than just a set of separate academic tasks (i.e., admission, lectures, final examination). The service-dominant logic view (Vargo & Lusch, 2004) suggests that value is co-created by the institution and the student, not simply given by one party. This idea is important in higher education where student involvement plays a key role in educational quality (Tóth & Surman, 2019). For process design, this means processes should be efficient (Jeston, 2014), encourage student participation, include feedback, and allow for flexible service delivery (flexible learning pathways).

Given this approach, higher education processes can be grouped into three connected layers. The first is core educational processes, which focus directly on teaching and learning. The second is support processes, such as resource management and technical services, which support the main educational work (i.e. IT, facility management). The third is governance processes, which monitor, assess, and guide the institution to ensure it stays on track, maintains quality, and remains accountable. This three-part structure is supported by process classification research (Rosemann & vom Brocke, 2010) and aligns with how value chain analysis distinguishes main and supporting activities (Porter, 1985). Similar structures have been suggested for higher education institutions (Mendonça et al., 2023; Šliž et al., 2022), but not with the specific focus on BPM, ISO 9001, and ESG that this paper offers.

Figure 2 — Core Educational Processes in Higher Education Institutions: A Literature-based Classification



Source: Authors' synthesis based on ENQA (2015), Tóth & Surman (2019), Syed et al. (2018), Santana et al. (2011), and Martin (2016).

The main educational processes in the model are:

- curriculum design and delivery,
- assessment and feedback,
- student support services,
- international and external program management,
- quality assurance and academic governance,
- and community and alums engagement.

The curriculum design and delivery process provides the basis for the model, where results are translated into assessment and feedback, which then helps improve the curriculum. Student support services work with curriculum delivery and assessment to support learning. Managing external and international programs is more complex and requires collaboration between curriculum, support, and governance teams, ensuring stakeholder involvement. Quality assurance and academic governance use the Plan-Do-Check-Act cycle to review and improve all processes regularly. By combining these six processes, a connected ESG Part 1 system is noted. Community and alumni engagement may seem less central, but it helps keep the curriculum relevant and valuable for all stakeholders.

ESG Standard 1.2 (Appendix 1) guides curriculum design and delivery, requiring stakeholder involvement and regular reviews (ENQA, 2015). ESG Standards 1.3 and 1.9 guide assessment and feedback. Martin (2016) suggests these are necessary to achieve learning outcomes. Student support services relate to ESG Standard 1.6. Syed et al. (2018) emphasize their role in retention and equity. International program management as a complex process involves many actors and fits BPM analysis, as noted by Santana et al. (2011) and Valença et al. (2013). Quality assurance and academic governance use the PDCA cycle (Deming, 1986; Harmon, 2005) to cover ESG Part 1. Community and alums engagement is not always seen as central, but Surman and Tóth (2019) note its impact on reputation and value.

A Process-Oriented Model for Educational Service Delivery.

From Theory to Model

The conceptual model in this section builds on four main ideas. First, BPM shows that service value comes not just from separate functions but from connected processes, and that effective management requires clear inputs, outputs, indicators, process owners, and improvement steps at each level

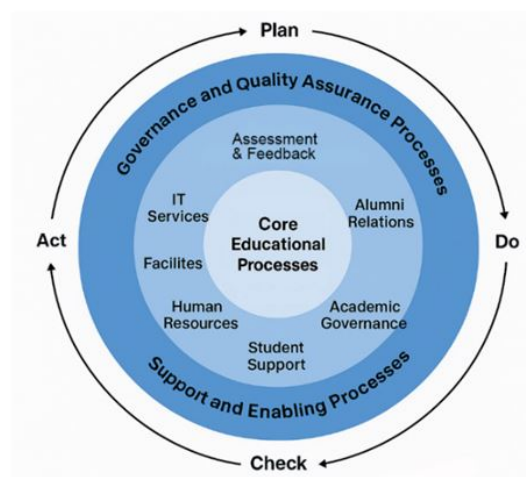
(Rosemann & vom Brocke, 2010; Trkman, 2010). Second, ISO 9001:2015 and ESG work well together as design principles for institutional process architecture because both use a PDCA-based approach for continuous improvement. Third, educational services emerged as a system of processes (Vargo & Lusch, 2004; Jeston, 2014), suggesting that educational value is created together and that processes should support student participation, flexibility, and feedback (Vargo & Lusch, 2004; Tóth & Surman, 2019). Fourth, research on process maturity indicates that a lack of measurement, documentation, and ownership is a key barrier to quality improvement in HEIs (Antunes & Pinho, 2020; Šliž et al., 2022).

Our conceptual model groups institutional activities into three connected layers: core educational processes, support and enabling processes, and governance and quality assurance processes. Each layer follows an input-process-output-stakeholder approach, and all layers use the PDCA cycle to drive continuous improvement.

The proposed model

In the visual presentation of Figure 3, the educational processes are at the core and feed into the main value-creating activities in any higher education institution (detailed in Figure 2). Enabling processes support these by providing the necessary institutional infrastructure. The outermost layer includes governance and quality assurance processes that help keep the institution accountable and aligned with its strategy. The PDCA cycle surrounds all three layers, showing that quality improvement is a responsibility shared across the whole institution and across operations (ENQA, 2015; Deming, 1986).

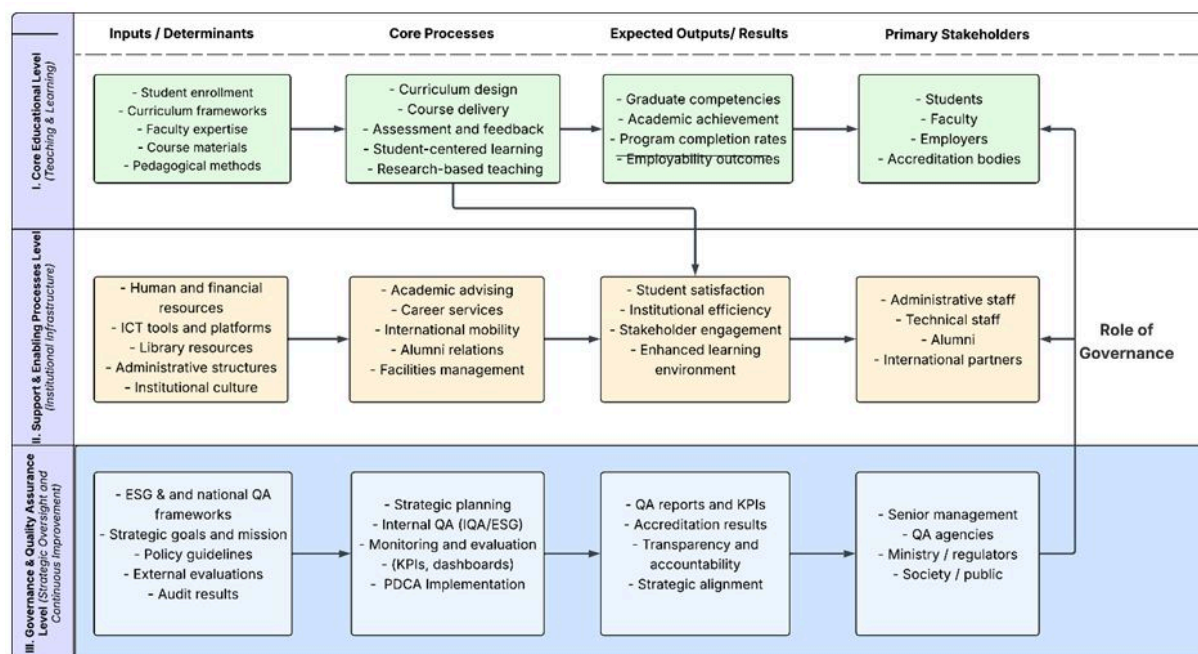
Figure 3 — The Process-Oriented Model of Educational Service Delivery – Concentric Process Architecture of the Model



Source: Own adaptation based on the PDCA cycle (Deming, 1986) and the European Standards and Guidelines (ENQA, 2015)

Figure 4. shows each layer, the inputs and determinants, the main processes, the expected outputs, and the key stakeholders. The figure presents a horizontal progression to clarify each layer's logic and a vertical dimension to demonstrate dependencies among the layers.

Figure 4 — The Process-Oriented Model for Educational Service Delivery in Higher Education Institutions



Source: Authors' original model, derived from Rosemann & vom Brocke (2010), ENQA (2015), Deming (1986), Šliž et al. (2022), and Mendonça et al. (2023).

Interpretation of the model

Layer I: Core Educational Processes

The first layer (see Figure 4) focuses on processes that are directly tied to teaching, learning, and student experiences. As described in Section 2.3, these processes are well established in ESG and higher education management literature. They include curriculum design and approval (ESG 1.2; Tóth & Surman, 2019), delivering courses in different formats (ESG 1.3), assessment and feedback (ESG 1.3, 1.9; Martin, 2016), student-centered learning (ESG 1.3; Syed et al., 2018), and research-based teaching, which is a key part of university education.

Inputs for this layer include student enrollment and background information, curriculum frameworks and learning outcomes, faculty expertise and teaching methods, and course materials and delivery tools. Layer I inputs shape the rest of the processes and affect the model's results. Examining the expected outputs, such as academic achievement, graduate competencies, program completion rates, career outcomes, and graduate employability, we observe that they are closely connected to Layer I inputs. Their alignment is measurable using the ISO 9001:2015 performance indicators and ESG Standards 1.7 and 1.9 (ENQA, 2015; ISO, 2015).

This layer does not operate independently; failures at the core, such as deficiencies in curriculum design, increase the workload for the support layer, including academic advising and remedial support. This demonstrates a cross-layer dependency, which Trkman (2010) identifies as central to the argument for integrated rather than siloed process management in service organizations. When these layers function separately, shortfalls arise because institutions are less able to anticipate and address cross-layer impacts.

Layer II: Support and Enabling Processes

The second layer (Figure 4) includes infrastructure and services that support core educational activities, which include mentoring, academic advising, mobility programs, career support, alumni networks, and facilities management. Inputs for this layer are human and financial resources, ICT tools, library and

learning resources, institutional culture and administrative structures, which, in BPM, contribute to process capability (Bandara et al., 2007; Rosemann & vom Brocke, 2010).

The outcomes of Layer II can lead to improved institutional efficiency and service quality, higher student satisfaction and retention, a better learning environment, and greater stakeholder engagement, with a significant impact on the main educational outcomes. The quality and availability of support services are key factors in predicting retention and equity, as shown in ESG Standard 1.6 (Syed et al., 2018). Because they involve many participants, international mobility programs are well-suited for BPM analysis and improvement (Santana et al., 2011; Valena et al., 2013). Alumni engagement is measurable and therefore included because it strongly affects institutional reputation and long-term value; however, it is often poorly managed despite its strategic importance (Surman & T3th, 2019).

Layer III: Governance and Quality Assurance Processes

The third layer emphasizes processes that ensure strategy consistency, regulatory compliance, and support continuous improvement. These include academic governance, strategic planning, audits, and internal quality checks aligned with ESG standards, as well as monitoring progress through KPIs and dashboards. Inputs such as national quality frameworks, ESG standards, policy guidelines, institutional goals, and external evaluation results help shape the rules and strategies for European HEIs.

Results that show mature processes to external stakeholders and strategically include the outputs of the third layer are quality assurance reports, transparency, institutional accreditation, accountability, and alignment of programs and services. The focus here is on meeting ESG Part 1 standards and following ISO 9001:2015 requirements for quality management systems (ENQA, 2015; ISO, 2015).

One main risk at this level is that quality management could become a rigid formality that follows rules rather than improving the organization (Branković et al., 2022; Steed, 2015). This may lead to missed opportunities for real improvement, less learning within the organization, and mistrust from stakeholders. Our model addresses this risk by having feedback loops between governance and the other two layers. This way, quality assurance outcomes are meaningful and actionable rather than merely formal reporting.

Stakeholder Integration Across Layers

The model shows that each process layer serves different but overlapping stakeholder groups. Their interests need to be considered in both process design and performance measurement. Figure 5 provides an overview of the main stakeholder groups, their main interests, and how they shape institutional design.

Figure 5 — Stakeholder Interests and Process-Level Implications

Stakeholder	Primary Interests	Process-Level Implications
Students	Learning quality, support access, employability, sense of belonging	Core and support layer processes designed around learning outcomes and student experience (ESG 1.3, 1.6; Syed et al., 2018)
Faculty	Academic freedom, research support, fair evaluation	Core layer design preserves collegial governance and pedagogical autonomy (Markus & Jacobson, 2010; Steed, 2015)
Employers	Graduate competencies, industry collaboration, internship opportunities	Core layer outputs align with labor market expectations; support layer must facilitate industry partnerships (Branković et al., 2022)
Government and accreditation bodies	Accountability, ESG and national QA compliance, public value	Governance layer produces transparent, auditable quality assurance evidence (ENQA, 2015; ISO, 2015)
Alumni	Continued engagement, institutional reputation, contribution opportunities	Support layer manages alumni relations as a strategic process (Surman & Tóth, 2019)
Society	Societal contribution and impact, equity, knowledge contribution	All three layers demonstrate public value beyond institutional self-interest (Calvo-Mora et al., 2015)

Source: Authors' synthesis based on ENQA (2015), Syed et al. (2018), Branković et al. (2022), Surman & Tóth (2019), Markus & Jacobson (2010), and Calvo-Mora et al. (2015).

Discussion

What the Model Contributes and Why It Matters

This paper explored how to bring together BPM, ISO 9001:2015, and ESG principles. The aim was to develop a clear, process-based model for delivering educational services that fit both the organizational and teaching needs of higher education institutions. The proposed model addresses the research question in several ways.

First, the model offers a clear way to bring the above frameworks together; the results show that ISO 9001:2015 and ESG are structurally compatible, as both use PDCA logic with a focus on continuous improvement. The challenge is that they operate at different levels and serve different audiences. BPM thus serves as the practical link between the various frameworks by requiring clear inputs, outputs, process owners, and performance indicators. This approach makes ESG standards more specific while staying aligned with ISO 9001:2015 requirements. The model's three-layer structure helps institutions implement this harmonization, an objective not fully explored in prior research.

Furthermore, the model tackles the process maturity gap discussed in Section 2.1. It defines inputs, processes, outputs, and stakeholders at each level, creating the documentation framework that Trkman (2010) and Antunes & Pinho (2020) observed as often missing. With this model, institutions can have a clear framework—one that meets the documentation needs of BPM, the process definition rules of ISO 9001:2015, and the transparency standards of ESG Part 1. This is an important step forward, as it addresses the core issue of why compliance alone has not improved process capability.

Our model directly addresses the tension between managerial goals, such as efficiency and accountability, and academic values, such as diversity, autonomy, and shared governance. This challenge is well documented as a key issue in adopting BPM in higher education. The model balances each side by designing processes that meet managerial needs without limiting academic freedom or educational aims. It treats governance and quality assurance as tools for improvement and control and bases the support layer on service-focused logic rather than industrial efficiency. This approach helps keep the creative and developmental nature of education, as Syed et al. (2018) and Markus & Jacobson (2010) advise against simply applying ISO logic to academic settings.

Implications

The model's main practical value is shifting institutional quality assurance from compliance to continuous improvement. Branković et al. (2022) and Steed (2015) note that in European higher education, ESG compliance is often a reporting task rather than a driver of real process change. The model aims to address this by using feedback across layers, connecting governance findings directly to process redesign in both core and support areas.

Another opportunity relates to digital transformation and workflow automation. Jeston & Nelis (2008) point out that having clear process documentation is necessary before automating workflows or expanding digital services. This model provides institutions with a framework to plan and assess digital transformation projects by clearly defining inputs, processes, and outputs at each level. Without this foundation, digital changes in higher education often automate and exacerbate existing problems.

Finally, an underexplored area in research is compliance management in BPM. Benedek (2012) and Benedek and Surman (2024) show that when compliance principles are built into daily operations rather than handled separately, institutions can move from simply following rules to actively managing risks and supporting integrity. The governance layer provides the structure for this, making compliance part of institutional accountability aligned with HEIs' public mission.

Conclusions

This paper aimed to determine how process management, ISO 9001:2015, and ESG principles can be combined into a clear, process-based model for educational service delivery that aligns with how universities operate and teach. The proposed answer is a three-layered process model: core educational processes, support processes, and governance and quality assurance processes. These three parts follow a consistent input-process-output-stakeholder logic embedded in the PDCA cycle as the primary improvement method.

This paper makes three main contributions. First, it compares BPM, ISO 9001:2015, and ESG, showing that they can be integrated not only in theory but also through a framework that fits the unique needs of HEIs. Second, it suggests a process structure for higher education institutions grounded in the literature at each design stage to address concerns that BPM lacks grounding or detail in academic settings. Third, it identifies the key success factors and barriers to the process approach in academia, proposing a solid starting point for future research.

The paper also has clear limitations. This model is conceptual and has not been tested in practice. It brings together established frameworks and existing research into a single structure. Its assumptions still need empirical testing. The model assumes that institutions are ready in terms of process documentation, data, and leadership commitment, which many higher education institutions do not have.

Another limitation is finding the right balance between being general and addressing specific institutions. Higher education institutions vary in governance, funding, size, focus, mission, and rules. The three-layer structure may work better for some than for others.

In conclusion, this paper suggests a new way to look at quality processes in higher education. Quality is not just about meeting fixed standards but a dynamic feature of a well-designed system of processes.

Institutions that take this view do not give up values like academic freedom or fairness in evaluations for efficiency. Instead, they use clear processes to help teaching, support, and governance work together effectively and improve over time. Future research could examine how this approach can be implemented in European higher education and what factors contribute to its success.

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Appendix*Table A1. The Standards and guidelines for quality assurance in the European Higher Education Area*

ESG Standard	Description
1.1. Policy for quality assurance	Strategy aligned with institutional goals and stakeholder needs
1.2. Design and approval of programs	Stakeholder involvement, learning outcomes
1.3. Student-centered learning	Active engagement, flexible learning paths
1.4. Student admission and progression	Transparent, fair, and supportive processes
1.5. Teaching staff	Qualified and supported educators
1.6. Learning resources and student support	Accessible, adequate infrastructure and services
1.7. Information management	Evidence-based decision-making
1.8. Public information	Accurate and accessible communication to stakeholders
1.9. Ongoing monitoring and periodic review of programmes	Continuous improvement of programs
1.10. Cyclical external quality assurance	Participation in regular evaluations

Source. ENQA. (2015) https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf