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Measuring Capabilities and Cohesion: An ESIA Framework for Sustainability-Oriented Educational Governance

Abstract

Current higher and post-secondary education evaluation privileges economic outputs while neglecting broader social value. This paper introduces Educational Social Impact Assessment (ESIA), a framework that adapts Product Social Impact Assessment to educational projects. ESIA integrates stakeholder mapping, social topics (well-being, inclusion, empowerment, skills), multi-capital outcomes (human, social, infrastructural, financial), and a three-phase project life-cycle (design, piloting, post-project). We demonstrate applicability through three cases: a VET excellence network, a school-leadership program, and a university SDG initiative. ESIA enables policymakers and managers to track how educational initiatives generate social value over time, extending accountability beyond narrow economic metrics. The framework provides a governance-ready template for evidence-based decision-making while preserving contextual nuance.

Keywords: higher education; social impact assessment; stakeholder governance; vocational education and training (VET); life-cycle model.

1. Introduction

Policy and management in higher and post-secondary education (HE) are increasingly steered by systems of indicators that render performance visible for funding, regulation, and comparison. While such systems can enhance transparency, their design has reframed institutional problem-solving, privileging immediately legible outcomes and crowding out dimensions of social value that are harder to quantify—capability expansion, inclusion, and cooperation across organizations and communities (Espeland & Sauder, 2007; Hazelkorn, 2015). The issue, therefore, is not measurement, but what becomes measurable and actionable within these systems and how that shapes governance.

Two lacks are pivotal. Routine evaluation rarely operationalizes social impact as an object in its own right, durable changes in the capabilities, relations, and opportunities of learners, staff, institutions, and communities (Nicholls, Simon, & Gabriel, 2015; Nussbaum, 2011; Robeyns, 2005). At the same time, impact is typically treated as a static end-point rather than a process that unfolds over a project's life cycle. Theory-based and realist evaluation show why these matters: in policy-dense systems, credible claims depend on explicit mechanisms, contexts, and contribution logic, not on single before-and-after snapshots (Weiss, 1997; Pawson & Tilley, 1997; Mayne,

2012). The problem is particularly acute in post-secondary and VET settings, where labor-market metrics dominate despite long-noted social benefits at individual, institutional, and regional levels (Council of the EU, 2020; OECD, 2011).

This raises a fundamental question: How can we systematically assess the social value that educational initiatives generate across different stakeholders and over time, in a way that is theoretically grounded and practically actionable for governance?

This paper addresses this gap by proposing the Educational Social Impact Assessment (ESIA), which operationalizes social impact as a multidimensional, temporally unfolding construct.

Thus ESIA is a conceptual framework designed to make social value visible, comparable, and actionable. ESIA adapts the Product Social Impact Assessment (PSIA) logic to the education domain while centering educational actors and purposes (Goedkoop, de Beer, & Indrane, 2018, 2020). The framework adopts a life-cycle view of educational initiatives, moving from design, through piloting, to post-project consolidation. It maps stakeholder-specific salient social topics such as well-being, inclusion, empowerment, skills, cooperation and outcome “capital” that clarifies what kind of value is at stake: human, social, infrastructural, and financial. Indicators are then chosen to operationalize these topics for particular stakeholders and phases, drawing where possible on validated instruments and administrative or network data without collapsing assessment into a single composite score.

Normatively, ESIA is anchored in the capability approach, and empirically, it is oriented to policy and management. The framework is intended to help policy makers, institutional leaders, and network coordinators specify what to assess, how to evidence value, and how to steer portfolios and partnerships accordingly (Coleman, 1988; Putnam, 2000; Nussbaum, 2011; Robeyns, 2005). To support implementation, we present three use cases: a VET excellence network, a school-leadership program, and a university SDG initiative, demonstrating portability across institutional types and policy settings.

Our contribution is reorganizing educational impact as multidimensional and temporally unfolding, aligning assessment with public value, and offering a governance-ready template that preserves nuance while remaining usable in policy and management contexts. We also outline a comparative research agenda to validate and refine ESIA across higher education, VET, and lifelong learning, and we note the limits of translating PSIA from industrial to educational settings that future empirical work should address.

2. Theoretical Background

2.1. Impact assessment in Higher and Post-secondary Education

Across higher and post-secondary education, prevailing approaches to assess “impact” remain narrowly anchored to proximate, economically legible outputs—graduation and completion rates, short-run employment or earnings, satisfaction scores—used as if they were sufficient to measure wider societal value. This narrowing has been amplified by performance regimes and rankings that incentivize institutions to optimize what is easily counted, often overlooking what is educationally or civically consequential (Hazelkorn, 2015; Marginson, 2011). Sociological work on reactivity to public metrics further shows how rankings and indicator regimes reshape organizational behavior and problem definitions, with unintended distortions in priorities and resource allocation (Espeland & Sauder, 2007). In short, the measurement environment exerts its own causal force, pulling evaluation toward short time horizons and private economic benefits while occluding broader public and social goods (Hazelkorn, 2015; Espeland & Sauder, 2007; Marginson, 2011).

A second limitation is the conflation of outputs with impacts and the corresponding absence of a temporal or life-cycle perspective. Much routine evaluation treats “impact” as a static end-state, for example, a snapshot at graduation or months after completion, rather than as an unfolding process in which intermediate shifts (e.g., empowerment, professional capacity, network formation, institutional cooperation) plausibly cumulate into later, systemic changes. Some scholars argue that credible claims in complex settings require an explicit theory of change linking activities to mechanisms and outcomes (Weiss, 1997), close attention to contexts and mechanisms—what works, for whom, and under which conditions (Pawson & Tilley, 1997)—and contribution reasoning rather than simple attribution when multiple actors and policies interact (Mayne, 2012). In practice, however, evaluations in HE and VET still rely on point-in-time indicators with limited use of theories of change, contextual analysis, or triangulation, leaving them insensitive to temporal lags and cumulative pathways of effect (Weiss, 1997; Pawson & Tilley, 1997; Mayne, 2012).

Third, the outcome space typically assessed is too narrow to capture social impact. A substantial body of evidence links education to civic participation, trust, health, and subjective well-being—dimensions that matter for individuals and communities but rarely appear in standard HE/VET scorecards (OECD, 2023). The capability approach offers a rigorous normative frame for widening that evaluative lens beyond human-capital proxies, focusing on what people are able to be and do (Nussbaum, 2011; Robeyns, 2005). In education, this has supported attention to agency, equity, and the quality of opportunities rather than solely to attainment or earnings (Walker & Unterhalter, 2007; Robeyns, 2005; Nussbaum, 2011). However, capability-informed metrics remain

peripheral in institutional evaluation architectures, producing a mismatch between stated social purposes and measured effects (OECD, 2023; Robeyns, 2005; Nussbaum, 2011; Walker & Unterhalter, 2007).

A fourth limitation concerns construct validity and use validity in widely employed indicators, especially student satisfaction. In the UK, the National Student Survey (NSS) has been repeatedly criticized as a weak proxy for “teaching quality” vulnerable to framing effects and institutional gaming; the TEF independent review similarly cautioned against overweighting the metric set and noted anchoring effects in panel judgments (Bennett & Kane, 2014; Pearce, 2019, 2021). More generally, the dominance of short-horizon self-report measures blurs distinctions between preferences, service quality, and educational impact, and risks performative compliance rather than substantive enhancement (Bennett & Kane, 2014; Pearce, 2019, 2021).

Fifth, in post-secondary and VET, evaluation practice has been historically compressed into labor-market insertion and certification, despite long-standing recognition that VET yields diverse social outcomes, for example, occupational identity, innovation absorption, and community cohesion, that are poorly captured by narrow economic metrics (OECD, 2010; Cedefop, 2011). Recent EU policy (e.g., the Council Recommendation on VET for sustainable competitiveness, social fairness and resilience) explicitly promotes broader ecosystemic perspectives (including Centres of Vocational Excellence), yet monitoring architectures frequently lag behind these ambitions and remain fragmented across institutions and levels (Council of the EU, 2020). The result is an under-estimation of value created outside conventional labor indicators and persistent comparability problems across provider types (OECD, 2010; Cedefop, 2011; Council of the EU, 2020). Finally, many impact assessments' design and inference foundations are thin: weak baselines, limited attention to counterfactuals, and minimal triangulation. This is especially problematic for employability, where conceptual ambiguities and heterogeneous measures hamper interpretation across contexts and cohorts (Tomlinson, 2012; Yorke, 2006; Holmes, 2013; Clarke, 2018). Without explicit theories of change and contribution analysis, claims of “impact” in multi-actor, policy-dense environments are prone to over-attribution and strategic misreading. Strengthening the evaluative frame, therefore, requires (i) a broader outcome space that explicitly includes social and capability-enhancing effects, (ii) a life-cycle perspective that tracks how outcomes emerge and consolidate across project phases, and (iii) theory-informed inference about how programs contribute to observed changes.

These constraints are not merely technical; they define the kinds of value that count. Addressing them requires an evaluative frame that widens the outcome space and follows change

over time, precisely the orientation developed in the literature on social impact and social/human capital.

2.2. Social Impact and Social Capital in Education

In education policy and management, social impact refers to durable changes in people's capabilities, well-being, and institutional relations that are plausibly caused or contributed to by an intervention, beyond immediate outputs (Nicholls, Simon, & Gabriel, 2015). Conceptual and evaluative work in the impact measurement literature emphasizes that meaningful assessment must attend to who benefits (and who does not), the depth and duration of effects, and the pathways through which outcomes emerge, rather than equating impact with short-run participation or satisfaction metrics (Ebrahim & Rangan, 2014). In other words, impact is not a single end-point but a process that unfolds across contexts and levels (individuals, organizations, communities), often with distributional and equity consequences that conventional indicators fail to register (Nicholls et al., 2015; Ebrahim & Rangan, 2014).

A central theoretical anchor for understanding educational social impact is the literature on social and human capital. Coleman (1988) showed how social capital—relations of trust, norms, and information channels embedded in networks—conditions the creation of human capital, shaping learners' attainment not merely via resources possessed but via the relational structures within which learning occurs. Putnam (2000) elaborated the distinction between bonding (within-group) and bridging (across-group) social capital, arguing that communities endowed with dense bridging ties are better able to support civic participation, collective problem-solving, and inclusive development. In educational settings, these insights imply that schools, VET providers, and universities generate impact not only by transmitting knowledge and skills (human capital) but also by producing, organizing, and activating networks that expand opportunity sets, agency, and trust (social capital) for learners and surrounding communities (Coleman, 1988; Putnam, 2000; Becker, 1993; Bourdieu, 1986).

Positioning social impact within prevailing policy discourses underscores why a broader evaluative lens is needed. Accountability regimes in higher and post-secondary education—shaped by performance funding, rankings, and quality assurance—privilege economically legible outcomes, risking the neglect of public-value effects that are inherently social and longer-term (Hazelkorn, 2015). At the same time, the Sustainable Development Goals (SDGs) provide a globally recognized frame for articulating education's contributions to health, equity, decent work, and inclusive institutions (United Nations, 2015; UNESCO, 2020). Aligning educational evaluation with the SDGs invites measurement of multi-capital outcomes (human, social, infrastructural, and financial) and life-cycle dynamics (design, piloting, post-project), moving beyond static, individual-

level indicators. In practice, this means tracing how investments in curricula, pedagogy, and partnerships translate into capability expansion, network formation, and institutional change, consistent with the theoretical link between social and human capital and the policy aspiration to evidence broader societal returns (Coleman, 1988; Putnam, 2000; United Nations, 2015).

In sum, the concept of social impact and the intertwined theories of social and human capital motivate an evaluative frame that is multidimensional and processual: impact should be tracked as changes in capabilities and relationships that accumulate over time and across institutional boundaries.

2.3. Product Social Impact Assessment (PSIA) as inspiration

The framework we develop has its roots in the Product Social Impact Assessment (PSIA) methodology, first consolidated for practice in the mid-2010s and subsequently updated in the 2018 and 2020 handbooks and companion reports (Goedkoop, Indrane, & de Beer, 2018; Roundtable for Product Social Metrics, 2020; Goedkoop, de Beer, & Indrane, 2020). In its original domain, PSIA was designed to evaluate the social consequences and sustainability implications of products and services across their entire life cycle, from raw material extraction through manufacturing, retail, and use, to end-of-life processes. The underlying premise is straightforward but powerful: decisions taken at any point in the value chain can generate positive or negative social effects for distinct groups, and a credible assessment must therefore adopt a life-cycle perspective, attend to multiple stakeholders, and rely on transparent topic-specific indicators. This places PSIA within the broader family of social life-cycle assessment (S-LCA) approaches, while distinguishing it by its pragmatic emphasis on product- and service-level decision support and a consensus basis developed through an industry–expert roundtable since 2013 (UNEP, 2020; Roundtable for Product Social Metrics, 2020).

In PSIA, four stakeholder groups are explicitly considered—workers, local communities, small-scale entrepreneurs, and users—and their relationship to the product system is traced across life-cycle stages. For each group, the method specifies social topics (e.g., health and safety for workers; community engagement or access to essential services for local communities) that must be assessed with performance indicators that fit the topic and context. Crucially, PSIA recognizes that social performance involves more than compliance risks: it also concerns the creation of value as reflected in changes to different types of capital—human (skills, knowledge, well-being), social (trust, networks, inclusion), infrastructural (access and facilities), and financial (economic security and resilience). This multi-capital lens mirrors long-standing debates in sustainability science and allows assessments to register improvements that might otherwise remain invisible if only

economic outputs or narrow risk metrics were used (Roundtable for Product Social Metrics, 2020; Goedkoop et al., 2020; UNEP, 2020).

Operationally, PSIA couples these constructs with reference scales that enable consistent interpretation across topics and cases. The standard is a five-point scale from -2 to $+2$, where -2 denotes unacceptable performance and $+2$ denotes leading practice, calibrated with topic-specific descriptors and, where possible, anchored to external statistics or evidence bases. The scale is not merely a scoring device; it encodes a direction of change that supports scenario comparison, hotspot identification, and prioritization, while also accommodating both positive and negative outcomes—an essential feature for comprehensive social impact assessment (Roundtable for Product Social Metrics, 2020).

The translational challenge—and the rationale for our adaptation—lies in moving from a product life cycle to an education project life cycle. Conceptually, education initiatives also pass through design, piloting, and post-project phases; they also act upon (and are co-produced by) multiple stakeholders; and their social impacts unfold over time and across institutional boundaries. The stakeholder definitions must be re-specified as well as the social topics salient to educational settings (e.g., empowerment, inclusion, capability expansion, community cohesion), and the performance indicators that credibly capture change at learner, organizational, and community levels. In other words, the PSIA logic—life-cycle thinking, stakeholder specificity, topic–indicator pairing, and multi-capital valuation—remains intact, while the measurement vocabulary and evidentiary standards are tuned to the education domain. This makes PSIA a rigorous and practical inspiration for building an assessment framework that is sensitive to both temporal dynamics and social heterogeneity in educational innovation (Goedkoop et al., 2018; Roundtable for Product Social Metrics, 2020; UNEP, 2020)

The above discussion point to a common conclusion. Current assessment architectures in higher and post-secondary education are underspecified in scope (over-emphasizing economic outputs while neglecting social value), ahistorical in time (treating impact as a static end-point rather than a process), and methodologically thin (weak theories of change, limited triangulation, and proxies of dubious construct validity). At the same time, work on social impact and on social/human capital makes clear that education produces multi-capital outcomes—capabilities, networks, institutional relations—that unfold across stakeholder groups and accumulate over a project life cycle. PSIA demonstrates that a life-cycle, stakeholder-specific, topic-indicator logic can be made operational and decision-relevant. These insights jointly motivate the need for a framework explicitly designed for education: one that widens the outcome space, embeds temporal

dynamics, and supports credible contribution claims across institutional levels. The Educational Social Impact Assessment (ESIA) we propose in the next section is built to meet these requirements.

3. Proposed Framework: Educational Social Impact Assessment (ESIA)

3.1. Core components

The ESIA framework rests on three interlocking components—stakeholders, social topics, and indicators linked to multi-capital outcomes. Together, they provide a coherent map from the unit(s) of action to the outcomes we seek to value and the evidence required to substantiate claims about impact.

Stakeholders: We define stakeholders as groups plausibly affected by an educational initiative and who, in turn, shape its implementation and effects. In ESIA, six stakeholder families anchor the analysis:

- Beneficiaries (learners). Adult upskilling participants, apprentices, VET students, and higher-education students.
- Trainers and faculty. Teachers, trainers, tutors, and instructional designers whose professional capacity, workload, and well-being are integral to program quality.
- Institutions. VET providers, colleges, universities, and intermediary bodies (e.g., centers of excellence, consortia) are responsible for governance, resource allocation, and quality assurance.
- Policy makers and public agencies. Ministries, regional authorities, funding bodies, and regulators that set incentives, standards, and accountability requirements.
- Enterprises and employer organizations. Firms, clusters, chambers, and sector bodies that codetermine skill needs, host work-based learning, and absorb innovation.
- Communities. Local and regional communities, civil-society organizations, and parent groups whose cohesion, trust, and opportunities are part of education's broader social value.

Stakeholder specification is not merely descriptive. It determines whose outcomes are tracked, the time horizons that matter, and the level(s) of aggregation (individual, organizational, system). ESIA requires an explicit stakeholder register and a statement of inclusion/exclusion criteria for each study.

Social topics are the substantive issues that connect stakeholder experience to social impact. ESIA distinguishes topics that recur across educational settings and can be operationalized with credible measures:

- Well-being and mental health. Learner and staff well-being, stress, burnout risk, and work-life balance (Diener, Emmons, Larsen, & Griffin, 1985; Topp, Østergaard, Søndergaard, & Bech, 2015; Tennant et al., 2007).
- Inclusion, equity, and nondiscrimination. Access, participation, and outcomes across gender, socio-economic status, migration background, disability, and other protected characteristics; perceived discrimination and belonging (Williams, Yu, Jackson, & Anderson, 1997).
- Empowerment and agency. Programs and institutional practices foster self-efficacy, voice, decision latitude, and civic or professional agency (Klassen et al., 2009; Bandura, 1997).
- Skills and capability development. Foundational, technical, digital, and green skills; transversal competencies (teamwork, problem-solving); recognition and portability of learning (Fryxell & Lo, 2003; Goffin & Woycheshin, 2006; Ones & Dilchert, 2012; Gadenne, Kennedy, & McKeiver, 2009).
- Institutional cooperation and trust. Collaboration within and across providers; strength of networks, communities of practice, and knowledge transfer (Wasserman & Faust, 1994; Borgatti, Everett, & Johnson, 2018; Provan & Kenis, 2008; Zaheer, McEvily, & Perrone, 1998).
- Community value and social cohesion. Parent/community engagement, reputation and legitimacy of providers, and local development spillovers (Chan, To, & Chan, 2006).

Topic selection must be stakeholder-specific (e.g., empowerment for learners; professionalization for trainers; cooperation for institutions) and life-cycle aware (some topics are salient at design, others at post-project). ESIA requires a short justification for each selected topic, clarifying relevance, expected direction of change, and potential adverse effects to be monitored.

Indicators and capitals are operational measures that evidence change on each social topic.

ESIA links indicators to four outcomes, “capital” to make visible different kinds of value:

- Human capital. Knowledge, skills, health, and well-being (e.g., validated short scales for self-efficacy or life satisfaction; skill assessments; completion of recognized micro-credentials) (Campbell-Sills & Stein, 2007; Smith et al., 2008; Klassen et al., 2009; Carretero et al., 2017; Redecker, 2017; Cabral & Dhar, 2019).
- Social capital. Trust, norms of reciprocity, and network structure (e.g., participation in communities of practice; social-network metrics such as degree/betweenness; perceived trust in institutions) (Wasserman & Faust, 1994; Zaheer et al., 1998; Provan & Kenis, 2008; Wenger, 1998).

- Infrastructural capital. Physical and organizational assets that enable participation and learning (e.g., access to labs and digital infrastructure; newly established centers or services).
- Financial capital. Resources and economic resilience at the individual, institutional, or regional level (e.g., continued funding, leveraged co-investment, employment stability).

For each topic–stakeholder pair, ESIA specifies: (i) indicator definition (construct, unit, and scale), (ii) measurement strategy (instrument, data source, timing across design/piloting/post-project), (iii) aggregation rules (individual to institution/system), and (iv) interpretation guidance (expected direction of change; thresholds for meaningful difference). Where feasible, indicators should draw on validated instruments and support cross-context comparability (e.g., invariant short forms for well-being; standardized rubrics for skills). Administrative records and network analytics complement surveys to reduce single-method bias and strengthen inference.

Finally, to preserve decision relevance while guarding against over-simplification, ESIA encourages topic-level dashboards that report both indicator values and their capital mapping, along with brief narrative interpretation (mechanisms, contingencies, and any unintended effects observed). This keeps the assessment transparent, multi-dimensional, and aligned with the life-cycle logic developed in the following subsection.

3.2. Life-cycle perspective

ESIA adopts a life-cycle perspective to recognize that social impact in education emerges over time and through interaction among multiple stakeholders. Rather than treating impact as a single end-point, ESIA organizes assessment around three phases—design, piloting, and post-project—each with distinct questions, measures, and decision uses. This structure draws on theory-based evaluation and contribution analysis to make explicit how activities are expected to produce intermediate outcomes and how these outcomes accumulate into system-level changes (Weiss, 1997; Pawson & Tilley, 1997; Mayne, 2012).

Design phase. The design phase establishes baselines and objectives and specifies the theory of change that will guide subsequent interpretation. Baselines should cover the salient social topics and their indicator families for the relevant stakeholders, using validated short measures where possible. For human-capital outcomes, this includes resilience (e.g., Campbell-Sills & Stein, 2007; Smith et al., 2008), job satisfaction and professional climate for staff (e.g., TALIS 2018 item families, OECD, 2019), and self-efficacy constructs for learners and educators (Bandura, 1997; Campbell-Sills & Stein, 2007; Smith et al., 2008; OECD, 2019). For skills and capability development, baseline profiling should align with DigComp/DigCompEdu for digital competence

and with recognized green skills/competencies frameworks for sustainability-related capabilities (Carretero, Vuorikari, & Punie, 2017; Redecker, 2017; CEDEFOP, 2012; Cabral & Dhar, 2019). The intervention involves organizational change, readiness for change, and technology self-efficacy, which provide valuable context indicators (Holt, Armenakis, Feild, & Harris, 2007; Compeau & Higgins, 1995). For social-capital outcomes—collaboration, trust, and network position—design-phase mapping should document the pre-existing network structure among institutions and community partners (Wasserman & Faust, 1994; Borgatti, Everett, & Johnson, 2018; Zaheer, McEvily, & Perrone, 1998). Defining target levels and expected directions of change at this stage enables credible contribution claims later on (Mayne, 2012).

Piloting phase. The piloting phase focuses on intermediate outcomes, the early signals that the mechanisms specified in the theory of change are operating as intended. Typical intermediate outcomes include engagement (participation, persistence), skills acquisition (topic-specific assessments aligned with DigComp/DigCompEdu or green-competence rubrics), and empowerment/self-efficacy gains among learners and staff. For trainers and faculty, repeated job satisfaction, efficacy, and work strain/resilience measures help detect whether delivery conditions enable quality teaching and adoption (OECD, 2019; Bandura, 1997; Campbell-Sills & Stein, 2007; Smith et al., 2008). For institutions and partnerships, network indicators, such as density, degree centrality, and betweenness, provide evidence of strengthened collaboration and knowledge flow (Wasserman & Faust, 1994; Borgatti et al., 2018). Because pilots frequently involve technology and process change, tracking readiness for change and computer/digital self-efficacy helps interpret heterogeneous take-up and performance (Holt et al., 2007; Compeau & Higgins, 1995). Data collection in this phase should be timed close to key implementation milestones and coupled with brief qualitative probes to understand mechanisms and contingencies, consistent with realistic evaluation principles (Pawson & Tilley, 1997).

Post-project phase. The post-project phase assesses consolidation and system-level impacts—effects that typically materialize after the intervention cycle. At the learner level, this includes employment stability or advancement where relevant, but also capability expansion indicators (sustained self-efficacy, continued learning, pro-social or pro-environmental behaviors aligned with green competencies). At the organizational and network levels, attention shifts to institutionalization (e.g., integration of digital/green competence frameworks into curricula; durable services or centers), and to network effects such as enduring ties, brokerage roles, or multi-party projects that persist beyond funding (Provan & Kenis, 2008; Borgatti et al., 2018). For the policy environment, evidence may include policy references, guidelines, or funding allocations that incorporate lessons from the initiative; ESIA treats these as contribution claims grounded in the

accumulated intermediate evidence rather than simple before–and–after differences (Mayne, 2012). Throughout this phase, administrative records and periodic short-form surveys reduce respondent burden while maintaining continuity with earlier measures.

Across the three phases, ESIA emphasizes consistency of constructs and timing (T0 baseline, T1 pilot, T2/T3 follow-up), triangulation of sources (survey, administrative, network data), and transparent aggregation rules (individual to institution to system) to protect interpretability and comparability. The life-cycle perspective thereby links early engagement and capacity signals to later institutional and policy outcomes, providing a coherent pathway for assessing how educational initiatives generate social impact over time (Weiss, 1997; Mayne, 2012).

Figure 1 provides a compact visual synthesis of the ESIA logic. On the left, the life-cycle unfolds through the design, piloting, and post-project phases. On the right, four nested rings show the conceptual chain that structures assessment: from stakeholders (outer ring), to social topics, to capitals, and finally to indicators (inner core). Read together, the graphic conveys two ideas. First, who is involved determines what social issues are salient; those issues map to what kind of value is at stake (human, social, infrastructural, financial), and value is evidenced through which measures. Second, these elements must be tracked over time: baselines and targets at design, intermediate change during piloting, and consolidation and system-level effects in the post-project phase.

Insert Figure 1

The figure is adapted from the SIA schema used in our prior work and reframed for education. The outermost ring intentionally begins with stakeholders to foreground inclusion and equity: learners, trainers/faculty, institutions and intermediaries, policy makers and public agencies, enterprises and employer organizations, and communities. For each stakeholder group, social topics identify the substantive issues that connect experience to social impact, such as well-being and mental health, inclusion and nondiscrimination, empowerment and agency, skills and capability development (including digital and green), institutional cooperation and trust, and community value and cohesion. Capitals make visible the kind of value generated: human (skills, health, well-being), social (trust, networks, cooperation), infrastructural (assets and services that enable participation and learning), and financial (resources and economic resilience). Indicators are selected instruments network measures that operationalize each topic for a given stakeholder at a specific phase. In practice, the figure serves as a guide: choose the stakeholder and phase, select the relevant topics, map each indicator to its capital(s), and schedule measurement at life-cycle phases.

Where Figure 1 shows the architecture, Table 1 translates it into an operational template. Rows are organized by phase × stakeholder pairs. The “Social topic” column suggests which issues typically matter in that cell (empowerment and skills for learners during piloting; cooperation and service activation for institutions during piloting; institutionalization and governance for institutions post-project). The “Capital” column clarifies the value type to be recorded, and the “Indicator” column lists theory-driven exemplars that align with Section 3.1. This alignment between the figure and the table is intentional: the figure anchors the conceptual pathway across time, while the table makes that pathway actionable for study design, data collection, and reporting.

Insert Table 1

Two practical implications follow. First, ESIA separates outputs from impacts by requiring explicit intermediate outcomes in the piloting phase and system-level outcomes in the post-project phase; this supports contribution claims grounded in a transparent theory of change. Second, by mapping indicators to capitals, ESIA prevents value from collapsing into a single economic proxy and keeps multi-dimensional social value central to evaluation. In the sections that follow, we apply this model to the illustrative cases and show how the figure and the table guide consistent, comparable assessments across contexts.

4. Applying ESIA: Use-Case Evidence

To demonstrate ESIA’s applicability, we present three pilot implementations where the framework was applied retrospectively to map social impact pathways. While full empirical validation awaits future research, these cases—spanning VET (EXCEED), school leadership (EDvance), and higher education (UrFU)—reveal consistent patterns in how social value emerges across the life-cycle. For each case, we conducted document analysis and stakeholder mapping to populate the ESIA matrix, identifying which indicators had already been collected and which gaps the framework revealed.

By doing so, we seek to show how the framework can be used to capture the unfolding of social impact across different educational contexts. The selected examples – EXCEED, Fogarty EDvance, and Ural Federal University – are deliberately diverse. They span vocational education and training in Europe, school leadership programmes in disadvantaged Australian communities, and higher education projects in Russia aligned with the Sustainable Development Goals. This heterogeneity is important because it highlights the potential of ESIA to travel across institutional

boundaries and policy environments, reinforcing its generalisability as a conceptual model. At the same time, the three cases illustrate that, despite contextual differences, educational innovation generates patterns of social impact that can be systematically analysed through a multi-capital and life-cycle perspective.

4.1. EXCEED (EU project on VET excellence)

The EXCEED project (2023–2027, Erasmus+ Centres of Vocational Excellence) was established to strengthen transnational cooperation in VET (Vocational Education and Training) through a focus on innovation, digital and green skills, and labor market responsiveness. The project mobilizes a broad consortium of partners, including VET providers, enterprises, policy actors, and universities, working together to design and implement new approaches to lifelong learning and workforce development. Within the European Commission’s vision, Centers of Vocational Excellence (CoVEs) are meant to function as training providers and regional hubs for innovation, knowledge transfer, and social inclusion. Therefore, EXCEED aims to build a sustainable ecosystem in which VET institutions operate as anchors of educational innovation and regional development.

A distinctive feature of EXCEED is its multi-stakeholder architecture, which encompasses beneficiaries (low-skilled adults, young learners, and talented students), VET trainers and institutions, enterprises and clusters, policymakers, and broader communities of practice. This diversity makes it a suitable case for illustrating how the proposed Educational Social Impact Assessment (ESIA) framework can be applied. In particular, EXCEED explicitly integrates three life-cycle phases: (i) the design phase, in which the framework and the Observatory of VET Excellence were established; (ii) the piloting phase, where training modules and network activities were tested in partner institutions; (iii) the post-project phase, which seeks to consolidate results and ensure policy uptake at both national and European levels.

The project documentation already highlights the importance of moving beyond traditional outcome measures such as certification rates or employability statistics. Instead, EXCEED seeks to capture broader social impacts: learner well-being, empowerment, gender equality, and resilience; trainer professionalization; institutional cooperation and trust within CoVEs; and policy alignment with sustainable development goals (SDGs 3, 4, 5, 8). This orientation is strongly aligned with our conceptualization of ESIA, which emphasizes the multi-dimensional capitals generated by education projects – human, social, financial, and infrastructural – and the temporal unfolding of outcomes across the life-cycle.

Insert Table 2

Table 2 in the project’s methodological documentation illustrates how EXCEED operationalizes these principles: specific stakeholders are associated with social topics and indicators, and these are mapped onto different capitals. For example, low-skilled adults are considered not only in terms of training completion but also in relation to empowerment, work-life balance, and well-being. VET trainers are evaluated in terms of capacity-building and resilience, enterprises and clusters in terms of innovation absorption and participation in networks, and communities in terms of inclusion and social cohesion. Policy makers are expected to engage with evidence generated by the Observatory, thus reinforcing accountability and governance.

By combining a life-cycle logic with a stakeholder–indicator–capital matrix, EXCEED offers a concrete illustration of how ESIA can be applied to an educational innovation project. The model allows us to distinguish between short-term outputs (e.g., training sessions delivered, partnerships established) and longer-term social impacts (e.g., community empowerment, policy changes, regional development trajectories). In this way, EXCEED exemplifies how social impact assessment in education can evolve from static metrics to a dynamic, governance-oriented process.

4.2. Fogarty EDvance (Australia)

The Fogarty EDvance programme, launched in Western Australia in 2012, represents an innovative initiative to enhance the quality and equity of schooling in disadvantaged communities. Unlike traditional interventions focused primarily on curriculum reform or student testing, EDvance is centred on capacity building for school leadership and governance, with the explicit aim of addressing systemic inequities in educational opportunities. The programme supports cohorts of school leaders through multi-year training, coaching, and peer-learning processes, and operates in partnership with government agencies, philanthropic organizations, and local communities.

Insert Table 3

As such, EDvance provides a compelling illustration of how the Educational Social Impact Assessment (ESIA) framework can be applied to non-tertiary but socially critical educational contexts. When mapped onto ESIA (see Table 3), the programme demonstrates that social impact emerges progressively across the life-cycle.

In the design phase, EDvance establishes its goals in terms of leadership development and equity outcomes, setting baselines for disadvantaged schools. During the piloting phase, leadership

training and coaching generate intermediate outcomes such as strengthened professional confidence among teachers, more inclusive governance practices, and improved collaboration across schools. At the post-project phase, outcomes extend beyond the immediate school cohort, leading to greater parental engagement, enhanced community trust, and policy discussions centered on educational equity.

The ESIA framework also highlights the multi-capital nature of these outcomes. Investments in human capital are visible in leadership training and teacher professionalization, while social capital grows through collaborative school networks, partnerships with parents, and community trust. Infrastructural and financial capital are mobilized through sustained funding and durable organizational structures that ensure programme continuity. Importantly, EDvance exemplifies how innovation in education cannot be reduced to student performance metrics alone: it encompasses broader dimensions of well-being, cohesion, and empowerment.

By applying ESIA to EDvance, it becomes clear that evaluation must adopt a dynamic life-cycle perspective. Early investments in leadership capacity and professional development (design and piloting) generate longer-term outcomes in terms of community cohesion and policy influence (post-project). This reinforces our claim that impact assessment in education must evolve from static evaluations of “what was delivered” to a process-oriented understanding of how impacts unfold over time.

4.3. Ural Federal University (Russia)

Projects developed at Ural Federal University (UrFU) provide another relevant example of how educational initiatives can be conceptualized through the ESIA framework. In recent years, UrFU has launched multiple programmes explicitly aligned with the Sustainable Development Goals (SDGs), combining academic curricula, outreach to local schools, and community engagement. These initiatives aim to build sustainability competencies among students, foster civic engagement, and strengthen the link between universities, local communities, and policy agendas. When interpreted through the ESIA framework (see Table 4), the UrFU case demonstrates how impact emerges across different stakeholders and phases of the project life cycle. In the design phase, SDG-oriented curricula and partnerships are developed, setting clear institutional goals.

During the piloting phase, student projects and joint university activities generate intermediate outcomes such as enhanced sustainability awareness and inclusion of younger cohorts. In the post-project phase, impacts extend further: communities become more engaged in sustainability initiatives, university governance embeds SDG principles in strategic plans, and regional authorities adopt elements of the model in their policy frameworks.

Insert Table 4

The ESIA perspective also clarifies the multi-capital outcomes at stake. Human capital is strengthened through student competencies and school–university knowledge transfer. Social capital grows through community engagement and regional partnerships. Infrastructural and financial capital are mobilized as universities develop lasting collaborations and attract policy support for sustainability agendas. Importantly, the UrFU case exemplifies how universities can serve as nodes of social innovation, with outcomes that transcend the academic environment and shape regional development trajectories.

Overall, applying ESIA to UrFU underscores the necessity of a multi-stakeholder and temporally sensitive approach: only by recognizing the sequential and cumulative nature of impacts can policymakers and university managers evaluate the broader contributions of higher education institutions to societal transformation.

4.4. Cross-case insights

All three cases illustrate the flexibility and robustness of the ESIA framework across diverse educational settings. The EXCEED project shows how VET networks can generate social impact through the development of skills, learner empowerment, and the alignment of training provision with policy agendas. The Fogarty EDvance programme demonstrates how investments in school leadership and professional development translate into broader outcomes of community trust and social cohesion. The Ural Federal University case highlights how higher education institutions can act as anchors for sustainability transitions, linking academic curricula to community engagement and regional policy priorities.

What emerges across these cases is a consistent pattern that underscores the value of adopting a multi-dimensional and temporal lens. Social impact in education cannot be reduced to a single measure or outcome: it spans human, social, financial, and infrastructural capitals, and it unfolds progressively across the life-cycle of a project. Early design and piloting efforts, whether in the form of leadership training, student engagement, or network creation, establish the conditions for later impacts that consolidate and expand in the post-project phase. Furthermore, each case points to the central role of governance and policy engagement in sustaining these impacts and extending them beyond the boundaries of the initial initiative.

By integrating these insights, the ESIA framework moves beyond static evaluation models and proposes a dynamic, governance-oriented approach to assessing educational innovation. It thus

provides not only a tool for mapping impacts but also a conceptual lens through which to rethink how educational initiatives contribute to societal transformation over time.

5. Discussion

The three use cases show that ESIA functions as a generalizable evaluative architecture rather than a case-bound template. Despite contrasting institutional types and policy environments, each mapping exhibits the same mechanism-based pattern. In the design phase, stakeholder specification and topic selection make the outcome space explicit and equity-sensitive (e.g., empowerment and inclusion for beneficiaries; professionalization for staff; cooperation and service readiness for institutions). During piloting, intermediate changes become visible in the form of engagement, capability gains, and network activation; these are causal waypoints that plausibly accumulate into later effects. In the post-project phase, those effects consolidate as institutionalization, partnership durability, and policy or community uptake. This phase-consistent logic appears in a VET excellence network, a school-leadership program, and a university SDG initiative—suggesting that ESIA’s life-cycle view and stakeholder–topic–capital–indicator chain travel across levels of education and governance.

Two conceptual properties explain this portability. First, ESIA separates the architecture of value (topics and capitals) from measurement choices (indicators), allowing context-fit instruments without sacrificing comparability. Second, ESIA treats networks as objects of impact, not only channels, bringing governance quality and collaboration structure into the evaluative frame. Because it can be implemented with validated short measures and existing network data, ESIA is decision-ready: it supports portfolio steering and accountability without reverting to single, reductive composites. Taken together, the cross-case regularities justify viewing ESIA as a mechanism-anchored, governance-oriented framework that reframes educational impact as multidimensional and temporally unfolding.

5.1 Implications for research

ESIA opens a cumulative empirical agenda across higher education, VET, and lifelong learning as follows.

Measurement and construct validity. A first priority is to establish the psychometric adequacy of the indicator families that operationalize ESIA’s social topics for different stakeholders and phases of the life cycle (design, piloting, post-project). Short resilience scales (e.g., CD-RISC-10; BRS), educator efficacy and readiness measures, and job-satisfaction batteries require evidence on reliability, measurement invariance, and sensitivity to change across provider types, languages, and equity-relevant subgroups (Bandura, 1997; Campbell-Sills & Stein, 2007; Smith et al., 2008;

OECD, 2019; Holt, Armenakis, Feild, & Harris, 2007). For skills, researchers should examine the validity and comparability of DigComp/DigCompEdu and green-competence frameworks as outcomes linked to educational interventions, including potential differential item functioning and cross-context calibration (Carretero, Vuorikari, & Punie, 2017; Redecker, 2017; Cabral & Dhar, 2019). Parallel work is needed on network indicators—density, degree, and betweenness—to document their interpretive range and relation to collaboration quality and knowledge flow in educational settings (Wasserman & Faust, 1994; Borgatti, Everett, & Johnson, 2018; Provan & Kenis, 2008).

Design and inference in policy-dense systems. ESIA is explicitly theory-based and thus calls for designs that test mechanisms and contexts, not only end states. Contribution analysis and realist evaluation provide appropriate scaffolds for building causal explanations when randomization is infeasible (Weiss, 1997; Pawson & Tilley, 1997; Mayne, 2012). Methodologically, researchers should combine longitudinal designs aligned with the life-cycle phases with multilevel models (individuals nested in institutions and regions) and network-analytic techniques to capture cross-institutional effects and governance dynamics. Triangulation of survey, administrative, and network data can strengthen internal validity and mitigate single-method bias; where policy changes or staggered roll-outs occur, quasi-experimental identification (e.g., difference-in-differences, synthetic controls) can complement theory-led approaches.

Comparative and translational work. Because ESIA specifies a common stakeholder–topic–capital architecture, it lends itself to a cross-country comparative program that examines how policy regimes, funding logics, and institutional architectures impact pathways across universities, VET providers, and adult-learning systems (OECD, 2011, 2019). Priorities include: harmonized codebooks and reporting standards; protocols for cultural/linguistic adaptation and open repositories of validated short forms; and meta-analytic synthesis to cumulate findings. A parallel line of inquiry should study metric reactivity, how the introduction of ESIA measures affects organizational behavior, so that governance uses remain learning-oriented rather than merely performative (Espeland & Sauder, 2007).

These lines of work would move ESIA from a conceptual framework to a well-specified empirical program, clarifying what to measure, how to infer contribution in complex systems, and how results travel across contexts and jurisdictions.

5.2 Implications for policy and governance

The ESIA framework extends accountability beyond narrow economic outputs by making visible the social value that education produces over time. By structuring assessment around stakeholders - social topics - capitals - indicators and aligning measurement with design–piloting–

post-project phases, ESIA helps policymakers and managers to report on capability expansion, inclusion, cooperation, and community value alongside graduation and employment statistics (Hazelkorn, 2015; Marginson, 2011). In practical terms, this allows quality assurance and performance systems to incorporate multi-capital scorecards that track intermediate outcomes (e.g., empowerment, network formation) and later consolidation (e.g., institutionalization, policy uptake), rather than treating “impact as a static end-point (Weiss, 1997; Mayne, 2012).

Second, ESIA provides tools to steer policy and resource allocation. Because the framework begins at T0 with explicit baselines and targets, and then links T1 intermediate outcomes to T2/T3 system effects, it supports ex-ante appraisal, mid-course correction, and ex-post evaluation. Topic–indicator pairs mapped to capitals make trade-offs visible (e.g., human vs. infrastructural investments) and enable evidence-informed budgeting and procurement strategies that prioritize interventions with credible contribution pathways (Pawson & Tilley, 1997; Mayne, 2012). ESIA’s alignment with SDG-type public value categories further eases integration into national and regional policy dashboards (United Nations, 2015; UNESCO, 2020).

Third, ESIA underpins evidence-based governance of networks and communities of practice. Many contemporary initiatives (e.g., CoVEs, school leadership coalitions, university–community partnerships) are multi-actor networks; ESIA treats the network as a target of impact in its own right and recommends social-network analysis (density, degree, betweenness) and trust/collaboration indicators to monitor governance quality and knowledge flow (Wasserman & Faust, 1994; Provan & Kenis, 2008; Zaheer, McEvily, & Perrone, 1998; Borgatti, Everett, & Johnson, 2018). This allows funders and coordinators to detect fragmentation, target brokerage, and sustain communities of practice beyond project funding. Importantly, because indicator regimes can become reactive (Espeland & Sauder, 2007), ESIA emphasizes transparent theory-of-change narratives and triangulation to mitigate gaming and keep learning, not compliance, at the center.

5.3 Limitations

Two limitations warrant caution. First, ESIA is inspired by PSIA, a methodology developed in the industrial and product domain. Although our adaptation is conceptual rather than literal, there is a risk of over-translation: educational projects are less linear than product life cycles, and their outcomes are more relational and normative. We mitigated this by centering stakeholders, social topics, and multi-capital value and by avoiding single composite scores (Goedkoop, de Beer, & Indrane, 2020; UNEP, 2020), but empirical work will need to confirm that the mapping preserves what is educationally meaningful. Second, the framework currently lacks systematic empirical validation. We have proposed instrument families and timing rules consistent with the literature, but the field still needs evidence on feasibility, burden, sensitivity to change, and robustness across

settings. Future studies should therefore treat ESIA as a testable model—iteratively refining topics, indicators, and aggregation rules based on comparative results.

6. Conclusion

This article advances Educational Social Impact Assessment (ESIA) as a theory-led framework for evaluating the social value of educational initiatives in higher education, VET, and lifelong learning. ESIA reframes impact as a multidimensional, temporally unfolding construct: outcomes emerge through the life cycle of an initiative—design, piloting, and post-project—across stakeholders whose experiences and contributions differ. By linking stakeholders to social topics and to multi-capital outcomes (human, social, infrastructural, financial), ESIA provides a coherent architecture for specifying what matters and for reasoning about how change accumulates and consolidates over time.

Conceptually, ESIA integrates insights from capability theory, social and human capital, and theory-based evaluation into a governance-oriented model. It moves beyond the reduction of educational value to short-horizon economic proxies by centering inclusion, empowerment, cooperation, and community value alongside skill formation. In doing so, it clarifies both the objects of assessment (the social topics that carry public value) and the logic of inference (mechanisms and contexts rather than point estimates treated as final effects).

From a policy and management standpoint, ESIA supports accountability that is broader and more realistic in complex, multi-actor systems. Because social value is rendered in terms of distinct capitals and stakeholder experiences, decision makers can align goals, governance arrangements, and resource choices without collapsing evaluation into a single index. Networks and communities of practice become visible as targets of impact, allowing governance to address collaboration quality and knowledge flow, not just individual outcomes.

We view ESIA as a testable framework for learning-oriented governance. Its value lies in enabling institutions and policy systems to articulate what social impact means in their context, trace how it develops across a project's life cycle, and examine whether mechanisms perform as expected. As the field undertakes comparative and mixed-method studies to refine the topics, capital mappings, and indicators, ESIA can contribute to re-aligning evaluation with the public purposes of education while preserving the analytical discipline needed for credible claims.

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Figures & Tables

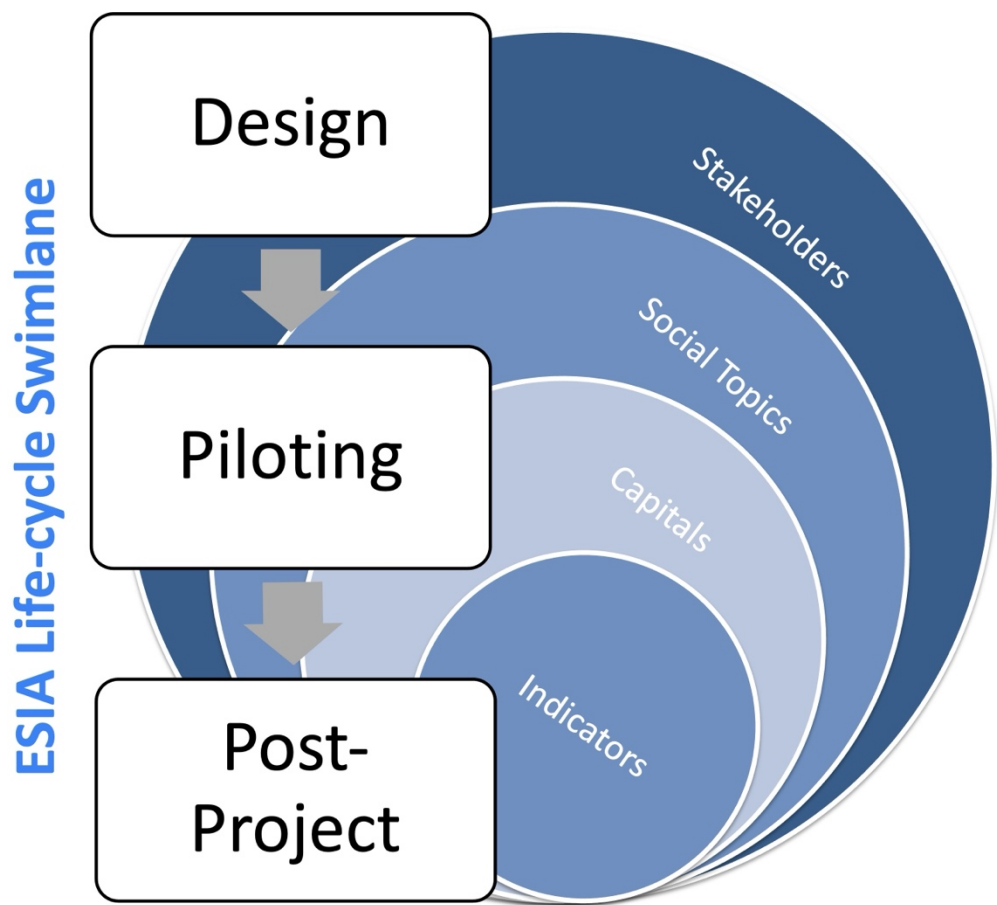


Figure 1 - ESIA conceptual architecture: From stakeholders to indicators across the project life-cycle

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
Design	Beneficiaries (learners)	Well-being, self-efficacy, baseline digital/green competence, inclusion needs	Human, Social	Baseline resilience/self-efficacy (short validated forms); DigComp/Green-competence profiling; participation barriers; belonging/discrimination screening
	Trainers/faculty	Professional efficacy, job satisfaction, readiness for change, digital self-efficacy	Human, Social	Teacher efficacy (short form); TALIS-style job satisfaction items; readiness-for-change (brief scale); computer/digital self-efficacy

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
	Institutions (providers/intermediaries)	Cooperation capacity, governance, infrastructural readiness	Social, Infrastructural	Network baseline (SNA: density, degree, betweenness); inventory of labs/digital infrastructure; presence of quality/QA processes
	Policy makers / public agencies	Policy objectives, accountability design, resource commitment	Social, Financial	Agreed theory of change; baseline policy gap analysis; earmarked budget lines; data-sharing agreements
	Enterprises / employer orgs	Skills demand articulation, work-based learning capacity	Financial, Social	Skills-needs matrix; partnership MoUs; WBL/placement slots committed
	Communities / civil society	Inclusion/cohesion priorities, trust in institutions	Social	Community consultations; baseline perceived trust/legitimacy; local access constraints mapped
	Beneficiaries (learners)	Engagement and persistence; skills acquisition; empowerment	Human, Social	Attendance/persistence; topic-aligned skill checks (DigComp/green rubrics); change in self-efficacy/resilience from baseline
	Trainers/faculty	Professional development; adoption of inclusive/digital/green practices	Human, Social	PD participation; classroom/practice adoption checklists; change in job satisfaction/strain; peer observation rubrics
Piloting	Institutions (providers/intermediaries)	Inter-organizational collaboration; service activation	Social, Infrastructural	Growth in SNA metrics (density, ties); joint modules/projects launched; new centers/services operational
	Policy makers / public agencies	Use of interim evidence; experimentation	Social, Financial	Interim briefs cited; pilot guidelines issued; small-scale policy experiments initiated
	Enterprises / employer orgs	Mentoring/WBL engagement; innovation absorption	Financial, Social	WBL placements realized; mentoring hours; co-development of modules; adoption of training outcomes in workflow
	Communities / civil society	Participation; perceived inclusion and value	Social	Event participation; volunteer hours; short inclusion/cohesion pulse surveys
Post-project	Beneficiaries (learners)	Capability consolidation; progression, and stability	Human, Financial, Social	Continued learning/micro-credentials; employment stability/advancement (where relevant); sustained pro-social/pro-environmental behaviors
	Trainers/faculty	Professional communities; career development; well-being	Human, Social	Active communities of practice; continued PD; reduced burnout/strain; role progression

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
	Institutions (providers/intermediaries)	Institutionalization, quality and governance	Social, Infrastructural, Financial	Curricula/frameworks embedded; durable services/centers; formalized partnerships; sustained financing mechanisms
	Policy makers / public agencies	Policy uptake; regulatory and funding alignment	Social, Financial	Policies/guidelines referencing evidence; budget continuity/re-allocation; data infrastructure maintained
	Enterprises / employer orgs	Partnership continuity; talent pipeline quality	Financial, Social	Multi-year MoUs; co-investment; graduate performance/retention proxies
	Communities / civil society	Social cohesion; local development spillovers	Social	Trust/cohesion indicators; new community projects; civic participation rates

Table 1 Conceptual ESIA framework (life-cycle mapping)

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
Design	Beneficiaries (low-skilled adults, young learners, talents)	Access to training, empowerment, equality of opportunities	Human, Social	Baseline survey on skills and well-being; participation intention rates
	VET trainers and institutions	Professionalisation, digital and green capacity	Human, Social	Number of training modules co-designed; self-assessment of readiness
	Policy makers / Observatory	Accountability, policy alignment	Social, Financial	Establishment of Observatory; policy briefs produced
Piloting	Beneficiaries	Well-being, empowerment, discrimination, work-life balance	Human, Social	Pre/post survey on empowerment and well-being; satisfaction rates
	VET trainers	Resilience, capacity-building	Human, Social	Training sessions delivered; self-reported competence gain
	Enterprises / clusters	Innovation absorption, participation in networks	Financial, Social	Number of enterprises engaged; cluster events organized
	Communities (local/global)	Inclusion, social cohesion	Social, Infrastructural	Community events held; survey of perceived inclusion
	Beneficiaries	Employment, long-term empowerment	Human, Social, Financial	Job placement rates; continued participation in training
Post-project	VET institutions / CoVE network	Institutional cooperation, sustainability	Social, Infrastructural	Number of lasting partnerships; continuation of modules
	Policy makers	Policy uptake, alignment with SDGs	Social, Financial	Policy documents citing project outputs; adoption of recommendations

Table 2 Mapping the EXCEED project through the ESIA framework

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
Design	School leaders	Leadership capacity, inclusive governance	Human, Social	Training goals defined; baseline self-assessment of leadership practices
	Policy makers/funders	Accountability, resource mobilisation	Financial, Social	Programme funding secured; objectives aligned with equity policy
Piloting	School leaders	Leadership development, governance practices	Human, Social	Training hours completed; implementation of inclusive practices
	Teachers	Professional development, pedagogy	Human, Social	Participation in PD workshops; self-reported competence increase
	Students (disadvantaged)	Learning outcomes, equity	Human, Social	Attendance rates; classroom engagement measures
	Students (disadvantaged)	Well-being, empowerment	Human, Social	Well-being survey results; progression to higher grades
Post-project	Communities & parents	Social cohesion, trust in institutions	Social, Infrastructural	Parental involvement in school activities; community satisfaction surveys
	Policy makers/funders	Evidence-based policy, accountability	Financial, Social	Policy reports produced; uptake of programme recommendations

Table 3 Mapping the Fogarty EDvance programme through the ESIA framework

Life-cycle phase	Stakeholders	Social Topics	Capitals	Indicators (examples)
Design	University governance	SDG alignment, institutional reputation	Social, Financial	Inclusion of SDGs in strategic plans; partnerships initiated
	University students	Sustainability competences, civic engagement	Human, Social	Baseline survey of sustainability awareness; enrolment in SDG courses
	University students	Applied sustainability learning	Human, Social	Number of student-led projects delivered; feedback from peers
Piloting	Local schools	Knowledge transfer, inclusion	Human, Infrastructural	Joint school–university projects launched; access to new teaching resources
	Local community	Awareness raising, social innovation	Social	Participation in outreach events; awareness survey responses
	University governance	Institutionalisation of the SDG agenda	Social, Financial	Curricula revised; long-term sustainability offices established
Post-project	Local community	Sustainable behaviours, civic participation	Social	Continued community involvement in SDG initiatives; impact surveys
	Policy / regional government	Policy alignment, regional development	Financial, Social	Regional policy documents referencing projects; continuity of funding streams

Table 4 Mapping Ural Federal University's sustainability projects through the ESIA framework