Lawful, ethical, and safe evaluation framework for quality digital education suppliers

EDDS
ETOILE PARTNERS

Version 1.0 October 2023

ABOUT

Etoile is a geopolitical consultancy dedicated to delivering strategic positioning advice and expert communications, research and support policy development. The organisation is uniquely positioned to assist governments, companies, organisations, and individual leaders worldwide in achieving their objectives through innovative communication strategies that shape perceptions and inspire action. It works with researchers and experts globally and across diverse domains.

Education Data | Digital Sovereignty

EDDS is a project launched at Etoile. Spearheaded by Dr. Velislava Hillman alongside a team of international scholars, practitioners, and interdisciplinary experts, champions the global governance and oversight of the EdTech sector. EDDS provides a robust, independent framework to oversee educational technologies, ensuring that children's data privacy and the integrity of educational experiences remain protected. Its mission focuses on setting standards and developing comprehensive mechanisms to navigate and secure the increasingly data-driven educational landscape.

EDDS's Mission

EDDS stands at the forefront of digital education governance, emphasizing the critical need for contextually relevant and meaningful evaluation systems to manage the edtech ecosystem effectively. We are a coalition of scholars, educators, engineers, and privacy advocates united to safeguard education systems from potential risks posed by the rapid integration of digital technologies, big data, and algorithms.

Key Focus Areas

Creating safer digitised learning environments: As active contributors to the European research consortium TRUSTEE, Etoile are developing methods that preserve data privacy while enabling secure data exchange and processing. This work, funded by the EU's Horizon programme and UKRI/Innovate UK, aims to ensure that data practices are safe and privacy- conscious. This work feeds into EDDS's efforts to better understand the technological challenges and advancements, and how these can translate into governing the digitisation of education.

Evaluating and Certifying EdTech Products

In collaboration with EdTech Impact, EDDS are pioneering the Quality Evaluation Framework, which is partly outlined in this document (with focus only on lawful, ethical and safe governance of education data, data transactions and computation). This initiative rigorously assesses EdTech products to ensure they are both lawful and safe for school environments. This global- first framework is designed to serve as a blueprint for a comprehensive, international programme that streamlines EdTech evaluation and promotes ethical and effective digital learning tools.

Our Approach

We merge research, advocacy, and practical implementation. Working with our College of Expert Reviewers, we collaborate with enlightened educators, school authorities, tech experts, legal scholars, and ethical EdTech providers to pilot systems that elevate the quality and security of educational technology.

We prioritise real-world applications and impact, integrating diverse perspectives from educators, researchers, and privacy advocates to foster a safe, effective digital future for education.

EDDS is committed to transforming the EdTech landscape to prioritise children's rights, ensure privacy, and uphold high educational standards. By providing proactive, independent oversight, we aim to empower educational institutions globally, protecting them from the pitfalls of unchecked technological dependence and advocating for sustainable, responsible digital education practices.

EDDS @ Etoile Partners Ltd.

Etoile Partners Ltd is a private limited company. Registered in England and Wales, company number 07194902

Registered office: 43 Bridge Road, Grays, Essex, England, RM17 6BU

EDDS. *Lawful, ethical, and safe assessment framework for quality digital education suppliers.* V1.0. 2023, London: Etoile Partners.

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INTRODUCTION

The rapid digitisation of education has transformed learning environments globally, yet this evolution is accompanied by complex challenges for governance and oversight of how digitisation is influencing educational processes and long-term—children's futures. Many educational technologies (EdTech) are experimental and often driven by commercial interests, creating an environment where transparency, accountability, and scrutiny are limited, leaving educators uncertain of the value these tools bring to teaching and learning (Cuban, 2003; Weller, 2020).

The EdTech sector faces significant governance gaps, as educational institutions (K-12 education/primary and secondary schools) struggle to vet technologies that meet legal, ethical, and educational standards—and now AI impact and trustworthiness assessments. In response to these challenges, EDDS at Etoile Partners, a global geopolitical consultancy group, with EdTech Impact, the leading EdTech marketplace, have introduced an innovative quality framework designed in collaboration with stakeholders across schools, industry, and policymakers. This framework aims to empower schools with a transparent, reliable assessment model that promotes trust and high standards in EdTech. This document outlines the proposed framework with regards to lawful, safe, and trustworthy technology assessment. The framework has several key objectives.

Key objectives for a lawful, ethical, and safe assessment framework

1. **Streamline EdTech Procurement and Governance to Save Costs and Reduce Redundancies**
   A unified procurement strategy for EdTech, including AI for education tools, will centralize purchasing processes, significantly lowering costs and preventing duplicated efforts across institutions. This approach minimizes unnecessary financial burdens on government and educational bodies, promoting wiser, more coordinated investment decisions.
2. **Enhance Transparency and Accountability for EdTech Suppliers**
   Establish clear mechanisms for reporting supplier non-compliance, ensuring schools can swiftly notify authorities of issues. Regulatory bodies should commit to decisive actions—such as fines or license revocations—against suppliers that violate standards, reinforcing accountability across the sector.
3. **Standardise Compliance with Data Privacy, Security, and Ethical Guidelines**
   Implement consistent standards for data privacy, security, accessibility, and ethical practices to guide EdTech suppliers. With a unified framework, educational institutions can more effectively procure from compliant suppliers, incentivizing suppliers to meet clear, established requirements and ensuring educational quality and safety.
4. **Create a Centralised Repository of Vetted EdTech Suppliers**
   Develop a public web portal or API listing verified EdTech and AIED suppliers, accessible to all educational institutions. This centralized registry will offer a transparent, up-to-date resource for institutions, helping ensure that all procurements align with the latest standards and best practices.
5. **Provide Supplier Training and Education as Part of a Licensing Regime**
   Offer standardized training for EdTech suppliers to consistently meet legal, safety, and security requirements. Regular, industry-wide training will promote uniform practices, supporting suppliers in maintaining compliance and enhancing the quality and reliability of EdTech products in classrooms.

Methodology

The development of the EDDS lawful, ethical, and safe assessment framework began with initial conceptualizations in the start of 2020, drawing from early research on the need for regulatory structures in the EdTech sector. This foundation included a study (Hillman 2022a) that examined governance efforts and challenges in the U.S. K-12 space.

Similar needs were later highlighted by others (1EdTech n.d.; 5Rights Foundation, 2023; Kucirkova, Campbell, & Cermakova, 2024). From there, the framework evolved through a phased, multi-stakeholder approach, initiated by the first round of stakeholder consultations (Hillman et al., 2021). Subsequently (see fig.1), ongoing convenings, consultations, and research (Hillman et al., 2023; Edtech Impact, 2023, 2024; Hillman 2022a; Hillman 2022b; Hillman et al., 2024) were conducted to continuously refine the framework and clarify sector needs and standards as well as to benchmark industry's advancements, efforts, and challenges.

After the generation of potential requirements with continuous recurrent updates, these were organized and prioritized based on their value and alignment with goals of school communities and leadership in mind (guided by Key Objectives 1-5). The requirements continue to be formalized and subjected to routine reviews and revisions following the agile principles of iterative refinement. For instance, the most recent online stakeholder consultation (Hillman et al., 2024) provided some updates to address the growing integration of AI technologies in schools and the further need of educational institutions to have support in evaluating such advanced products and services. This document presents an ongoing process of refinement of both requirements and the EdTech governance framework (as presented in fig.1) in line with the agile methodology.

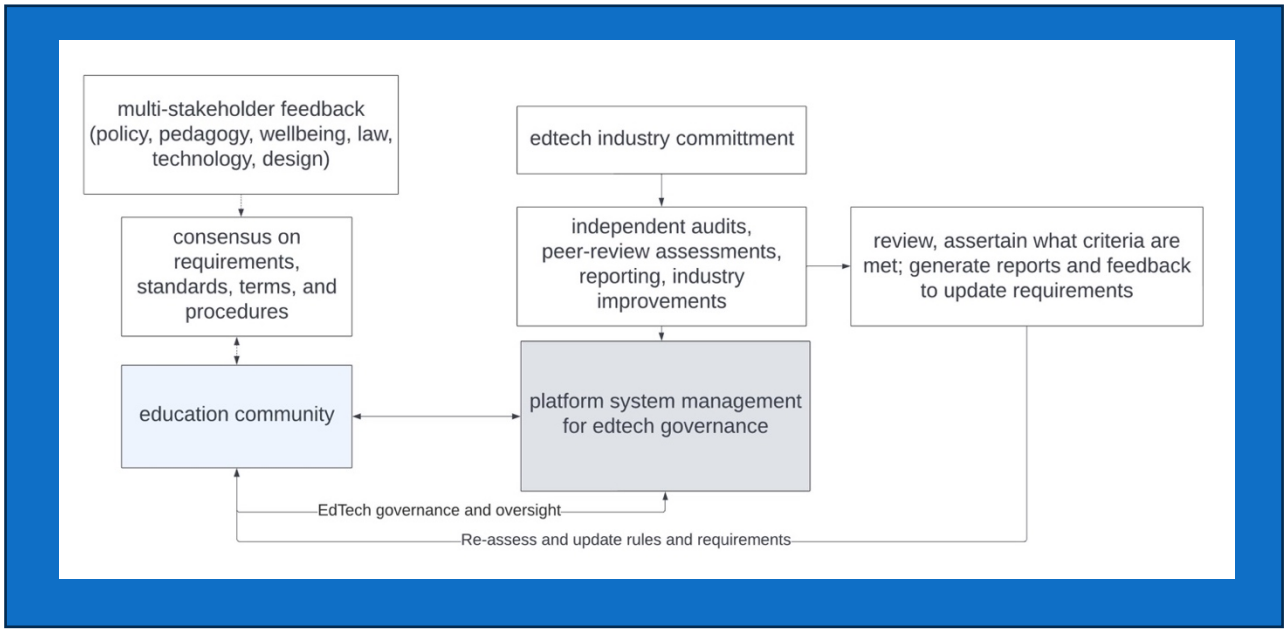

Figure 1 Agile methodology for co-designing a robust EdTech governance framework

Phase 1: Desk Research and Stakeholder Consultation

This project began with a comprehensive desk research phase to evaluate existing national and international standards related to EdTech governance, data privacy, and digital policy. Since 2020, regular consultations were held with diverse stakeholders, including EdTech industry representatives, educational institutions, and policy advisors, to gather insights into the specific challenges and requirements faced by educational communities in England (Hillman et al., 2021; Edtech Impact, 2023, 2024). These discussions illuminated the impact of digitization on educational governance, helping identify the core needs, opportunities, and challenges associated with data use, policy alignment, and EdTech adoption within schools.

Since 2020, research efforts have driven the development of a comprehensive EdTech governance framework aimed at achieving streamlined, accountable, and ethical EdTech procurement and use. This foundational work, which includes extensive multi-stakeholder consultations and collaborative convenings, has been essential in pinpointing the specific needs and challenges within the EdTech sector.

These insights have directly informed the framework's objectives (Key Objectives 1-5), such as creating a unified procurement strategy to reduce redundancies and costs, as well as establishing transparent mechanisms for holding suppliers accountable. Additionally, research findings have emphasised the importance of standardized compliance with data privacy, security, and ethical guidelines, helping to build a reliable pathway for schools to procure from reputable suppliers. The vision of a centralized, accessible repository of vetted EdTech providers is also a direct result of these efforts, providing schools with essential resources for aligned and informed purchasing.

Phase 2: Supplier Survey on Standards and Quality Assurance

Research was conducted with suppliers to understand privacy and security measures and other initiatives they engaged to understand and meet required standards and frameworks (see Hillman 2022b) and more recently, collaboratively with Edtech Impact, another survey was conducted with 145 EdTech suppliers to assess the quality standards, transparency measures, and accountability practices employed within the industry. Suppliers provided details on the evidence and assessments they use to build trust with educational institutions, particularly in terms of upholding children's rights, privacy, and educational quality.

The insights gathered helped define the expectations and requirements that would need to be standardized to support schools in assessing suppliers effectively. They also helped identify the needs suppliers themselves had in terms of being supported to meet the right standards and work towards building trust with key education stakeholders (Key Objective 5). For example, of the 145 respondents interviewed (Fig.2), 43% do not conduct concrete assessments; 27% have done

security audits; and 26% implement accessibility features. Only a few suppliers address multiple requirements simultaneously.

Which of the following has your company implemented and externally verified?		
Security Audit	39	27%
Incident Response	37	26%
Parental Consent Mechanisms	28	19%
Multiple modalities for inclusivity	38	26%
None of the above	62	43%
Total	145	100%

Figure 2 Which of the following has your company implemented and externally verified?

While it must be highlighted that the collected replies are based on self-reporting, the majority of the EdTech suppliers, or 70%, said that they mainly collected 'subjective judgements' such as user reviews as their pedagogic value evidence. Others generated case studies (61%), underwent pedagogic evaluations (37%); 11% of respondents said they provided no evidence at all (Fig. 3).

What impact evidence have you collected to date?		
Case Studies	89	61%
Theory of Change	26	18%
Subjective Judgements (user reviews, surveys, testimonials)	102	70%
Correlational Studies	18	12%
Pedagogical Evaluation	53	37%
Quasi-experimental	6	4%
Regression Discontinuity	2	1%
Randomized Controlled Trial (RCT)	6	4%
No evidence collected	16	11%
Total	145	100%

Figure 3 What pedagogic impact evidence have you collected to date?

Encouragingly, most of the respondents (Fig. 4a) self-reported that their teams include an expert in pedagogy (66 respondents) or had verified their pedagogical approach externally (50 respondents). Companies with large customer base tend to have an expert in pedagogy (Fig.4b). That said, some of them replied that they still needed to understand what pedagogical expertise means. Many also asked for support in how to adhere to other statutory requirements and standards, which brings us to the socio-technical objective behind the platform system for EdTech governance.

Have you integrated pedagogical expertise into your product development?		
No, we would need to understand this better	29	20%
Yes, our team includes an expert in pedagogy	66	46%
Yes, we have verified our pedagogical approach externally	50	34%
Grand Total	145	100%

Figure 4 Have you integrated pedagogical expertise into your product development?

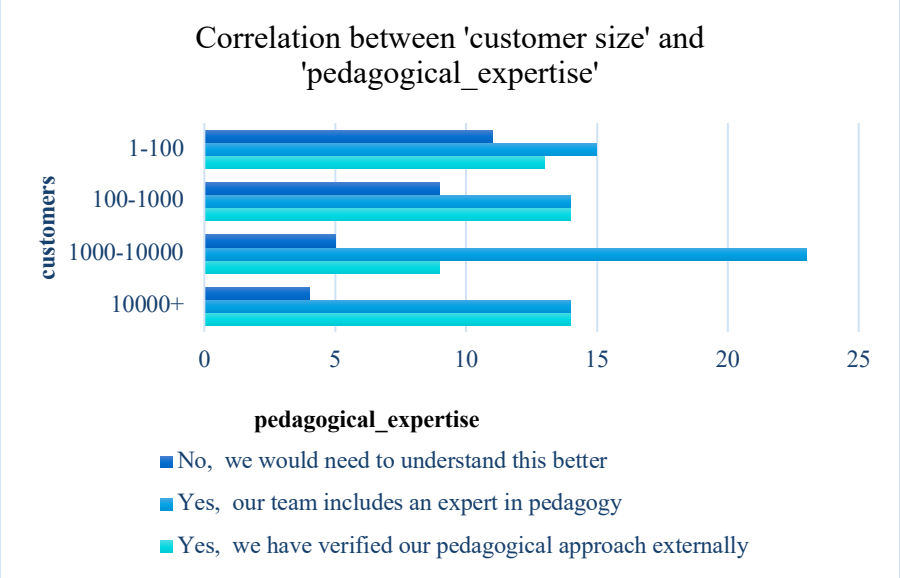

Figure 5 Relationship between pedagogical expertise and customer size the EdTech suppliers have.

Phase 3: Framework Development through Agile and Design Thinking

An agile methodology has been adopted throughout the process to create a responsive and collaborative development environment, with emphasis on regular interaction with key stakeholders, including school leaders, teachers, pupils, EdTech suppliers, data privacy officers, and policymakers since 2020. Guided by agile principles (Dybå & Dingsøyr, 2008), the EDDS

team and partners have incorporated feedback from stakeholders to iteratively refine both platform requirements and framework specifications.

To complement the agile approach, design thinking (Razzouk & Shute, 2012) was applied to center the framework around user needs. Design thinking facilitated a human-centered, iterative approach that involved prototyping solutions, gathering feedback, and refining them to ensure they were effective, usable, and directly aligned with the challenges and needs of end-users in educational settings. This combination of agile and design thinking enabled the framework to adapt continuously to stakeholder feedback and the evolving landscape of EdTech. For instance, since 2020, the framework has been updated to include web accessibility guidelines and assessments of AI trustworthiness and algorithmic fairness, following the European Commission's ALTAI (see the High-Level Expert Group on Artificial Intelligence and their Assessment List for Trustworthy Artificial Intelligence [ALTAI][1]). These updates aim to support ethical, socially responsible, and sustainable integration of AI within educational technologies and in broader secondary data processing.

[1] https://digital-strategy.ec.europa.eu/en/library/assessment-list-trustworthy-artificial-intelligence-altai-self-assessment

FRAMEWORK OVERVIEW

The EdTech assessment framework comprises a series of verticals designed to standardize and enhance transparency, accountability, and safety across educational technology solutions. Each vertical represents a distinct area of compliance and quality that EdTech products must meet, ensuring they align with both regulatory standards and the unique needs of educational settings.

Pre-Audit Checklist & Onboarding

This foundational vertical establishes baseline criteria for onboarding EdTech suppliers. The pre-audit checklist verifies initial compliance with key operational, ethical, and security standards. This onboarding phase ensures suppliers are prepared for the deeper audit phases and provides schools with an early indication of product readiness and reliability.

Data Responsibility and Privacy

The data responsibility and privacy vertical examine EdTech products' adherence to data privacy laws and best practices, ensuring that student data is handled securely and transparently. This component aligns with international data protection standards, guaranteeing that EdTech tools comply with local and global regulations.

Cybersecurity & Safety (Software Maturity of Suppliers

Focusing on digital security, this vertical assesses cybersecurity protocols and the software maturity of EdTech providers to protect against threats and vulnerabilities. Using the Global Educational Security Standards (GESS) as a guideline, this phase evaluates the robustness of suppliers' systems to ensure data protection and resilience against potential cyber threats.

Age-Appropriate Design Code (AADC) and Equity

This vertical assesses compliance with the Age-Appropriate Design Code (AADC) where relevant, and equity requirements, ensuring that EdTech products are accessible, safe, and developmentally appropriate for students of all ages. It emphasizes inclusivity and equity, ensuring products are designed with diverse user needs in mind and safeguard against biases.

Know the Student (Duty of Care)

Duty of care standards in this vertical aim to ensure that EdTech providers understand and support the unique needs of students. It emphasizes student welfare and safety by validating that suppliers actively contribute to the well-being of students, meeting standards for ethical design, transparency, and inclusivity.

AI & Socio-Ethical Requirements

This vertical focuses on the responsible use of artificial intelligence and considers broader socio-ethical impacts. It examines the transparency, fairness, and accountability of AI-driven features in EdTech products, addressing ethical concerns such as bias, data transparency, and the influence of AI on educational outcomes.

Each vertical contributes to a comprehensive framework that aids educational institutions in selecting EdTech tools that prioritize student safety, data privacy, and effective learning outcomes. This framework is designed for ongoing adaptation, supporting schools as they navigate the evolving landscape of EdTech and AI.

These modules collectively allow an EdTech provider to demonstrate a comprehensive adherence to quality, lawful, ethical and safety standards. The framework's adaptability enables it to operate in diverse markets and respond to specific regulatory requirements but also in respect to socio-cultural and market contexts through partnerships with local experts, setting a globally recognized benchmark for EdTech.

FRAMEWORK: FOUNDATIONAL CONTROLS

Table 1 shows the 'vertical templates'[2] comprising the Framework. These are the result of research, multi-stakeholder engagement for several years[3] as outlined above, continuous updates and mapping of necessary legislature, standards, directives, and frameworks. Some of the relevant literature and resources are outlined in the footnotes.

VERTICALS	FRAMEWORK TEMPLATES
PRE-AUDIT CHECKLIST & ONBOARDING	1. Initial document request list 2. Supplier name, registered address, country of operation and data management facilities; contacts 3. HR (background and qualifications)
CYBERSECURITY & SOFTWARE MATURITY OF SUPPLIERS (see GESS)[4]	1. Security (encryption, digital certificates, database controls etc.) 2. Functionality 3. Software and data maturity (on the supplier's side)[5] 4. Interoperability 5. Logging 6. Data and security controls 7. Expected control – access security 8. EC – network and infrastructure security 9. EC–information security incident management/compliance
DATA RESPONSIBILITY	1. Data collection type 2. De-identifiable information (DII) 3. Data sharing 4. Data governance 5. Data capability assessment 6. Data activities 7. Accountability governance 8. Privacy by design/default 9. DPIA 10. Records of processing 11. Data subject right 12. Consent & notices 13. Breach management 14. Data processors and data transfers

[2] A template consists of several further requirements for the supplier to present on their part.
[3] Hillman, V., Hwang, Y., Walker, S. & Wilson, P. (2024). AIED and EdTech Procurement: Challenges for Policy and Governance. Working Paper, LSE Social Policy Department, Data Science Institute, Eden Centre, and Policy Connect Online Consultation Webinar. London School of Economics and Political Science.
[4] Framework developed through global working group, full framework across existing enterprise frameworks can be viewed here: https://sdpc.a4l.org/gess/gess_standards.php - mapped NIST 800-53, which comprise NIST 800-171, CIS, AUISM, UKCE, NZISM, and ST4S frameworks. Also see https://www.ncsc.gov.uk/cyberessentials/overview; https://www.enisa.europa.eu/publications/pseudonymisation-techniques-and-best-practices/@@download/fullReport and https://eurlex.europa.eu/eli/dir/2016/1148/oj
[5] Unlike the data maturity assessment the UK Department for Education launched in 2024 (https://sites.google.com/danesedtrust.org.uk/dataleaderscollective/project-outputs?authuser=0), which focuses solely on the institutions' side, this framework assesses the EdTechs' software and data maturity.

AND PRIVACY[6,7,8,9]	
AADC AND EQUITY[10]	1. Best interests of the child 2. Age-appropriate user prompting 3. Provisions of privacy information 4. Provisions of options & choice 5. Policies & community standards 6. Privacy and default settings 7. Data minimisation and data sharing 8. Geolocation 9. Profiling 10. Nudge techniques 11. Online connection communication options with third parties 12. Text-based content and supportive audio etc (WC3 criteria)
KNOW THE STUDENT (DUTY OF CARE)[11,12]	1. PII collection, storage, and processing 2. Age verification system 3. User account security 4. User password retrieval system 5. Information maintenance regarding user activity (user activity, passwords, history etc.) 6. User complaints

[6] Should be carried out 'prior to the processing' (articles 35(1) and 35 (10), recitals 90 and 93 of the GDPR and where this law applies, unless it concerns an existing process that has already been reviewed by a supervisory authority, in such cases, any data privacy impact assessments should be conducted prior to making substantial alterations.)

[7] EDDS asks suppliers to provide a detailed account of the data and metadata they collect and their level of awareness and responsibility towards data. This was developed following research and assessment of the state and national data privacy agreements developed by partner Student Data Privacy Consortium (A4L Community) https://privacy.a4l.org/national-dpa/. These are additionally regularly reviewed and updated. Full mapping of EU GDPR 27 has been assessed with regards to data privacy, processing and transactions.

[8] Benchmarks template informed through the review of some of the following resources: https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/artificial-intelligence/guidance-on-ai-and-data-protection/ai-and-data-protection-risk-toolkit/; https://www.irishstatutebook.ie/eli/2019/act/5/enacted/en/html; https://ico.org.uk/privacy-design; https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/; https://gdpr-info.eu

[9] See https://www.cnil.fr/sites/cnil/files/atoms/files/171019_fiche_risque_en_cmjk.pdf; https://www.cnil.fr/sites/cnil/files/atoms/files/20171013_wp248_rev01_enpdf_4.pdf

[10] https://www.w3.org/WAI/standards-guidelines/wcag/ and https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/childrens-information/childrens-code-guidance-and-resources/age-appropriate-design-a-code-of-practice-for-online-services/

[11] Duty of care principles and frameworks, some of the resources mapped are from gaming industry https://www.egba.eu/uploads/2022/02/Consumer-Protection-in-Online-Gambling-Regulation-Jan31-EGBA-Final.pdf and OCHA https://resourcecenter.undac.org/wp-content/uploads/2021/01/OCHA-Duty-of-Care-Framework_PSMC-endorsed.pdf, https://meae.gov.mt/en/public_consultations/opm/documents/legal%20overhaul%20consultation%20with%20annexes.pdf

[12] This will undergo significant updates based on ongoing EU-funded research. This objective is based on the Digital Education Action Plan (DEAP) and tools such as DigComp, DigCompEdu and SELFIE are used to map and develop this new framework. It will be an update of the EDDS vertical template on 'know the student'. European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Digital Education action Plan 2021-2027, COM(2020) 624 final; 2020. Available from: https://op.europa.eu/en/publication-detail/-/publication/c8eef67f-0346-11eb-a511-01aa75ed71a1/language-en/format-PDF/source-284787570

	7. Student protection measures (log-on and log-off times, application activity history, etc.) 8. Student assessment (system records and maintenance of such information) 9. Information available to users about the system operator 10. Reality Check (duty of care)
AI & SOCIO-ETHICAL REQUIREMENTS[13]	(organisational) 1. Cultural reflection – recognition of cultural distinction 2. Design integration (design and engineering team; user focus groups; product reiteration on ethical and cultural metrics) 3. Dialogues sophistication 4. Internal access (suggestion box, anonymous issue reporting system, open forum, internal ombudsman service) 5. Method awareness (internal) 6. Stakeholder participation 7. Substantive transparency (e.g., explicit digital ethics principles) (software functionality) 1. Adhering to fundamental human rights 2. Explainability, accountability, transparency of algorithmic use 3. Prevent harm 4. Ethical requirements through technical and non-technical implementation 5. Communication, documentation, and reporting 6. Cyclical internal assessments of diversity, ethics, and equity in AI-infused functionalities

Table 1 Main verticals of requirements and assessments

[13] Developed by mapping socio-ethical and legal requirements in advancing software including the new legislative packages of the European Union, as well as: https://osf.io/preprints/socarxiv/gj2kf/, https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai, https://doi.org/10.1007/978-94-6265-531-7,https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ethics-by-design-and-ethics-of-use-approaches-for-artificial-intelligence_he_en.pdf, https://standards.ieee.org/industry-connections/ec/autonomous-systems/, https://www.oecd-ilibrary.org/docserver/6ff2a1c4-en.pdf?expires=1690979884&id=id&accname=guest&checksum=9D06D22A9FF2801ABCB80DE5A10CB19A (on OECD's AI principles see also https://oecd.ai/en/ai-principles)

ENHANCED AUTOMATED REPORTING DATABASE

An integral part of the framework is the Enhanced Automated Reporting Database (Fig. 6 and 7). This online platform facilitates real-time tracking and reporting, enabling transparent oversight for EdTech stakeholders, including schools, data protection officers (DPOs), and regulatory authorities. By allowing each stakeholder group access to the same framework templates and assessment outcomes, the database promotes consistency and minimizes redundant efforts, thereby streamlining the vetting process across different contexts and regions. Schools benefit from easy access to up-to-date information on product compliance, while suppliers gain a transparent platform to display improvements and maintain certification records of all audited EdTech suppliers.

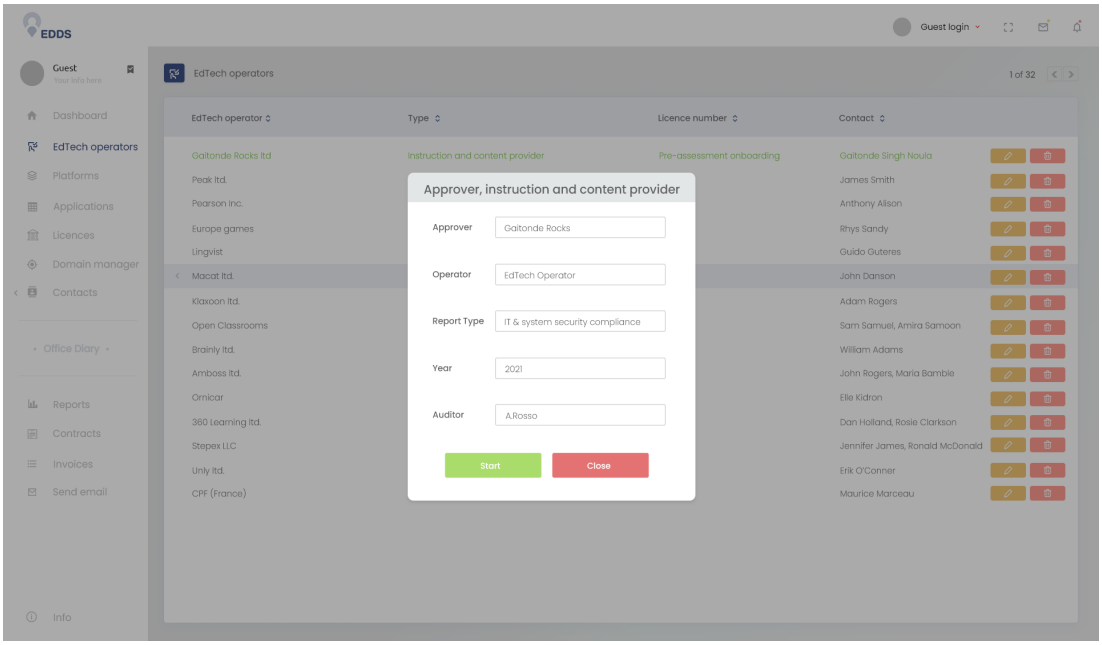

Figure 6 Edtech supplier assessment on a collective database where authority, EdTech supplier, schools, data managers, and reviewers see the same criteria and requirements. EdTech supplier is assessed by 1) reviewer (including school data manager and/or DPO), 2)

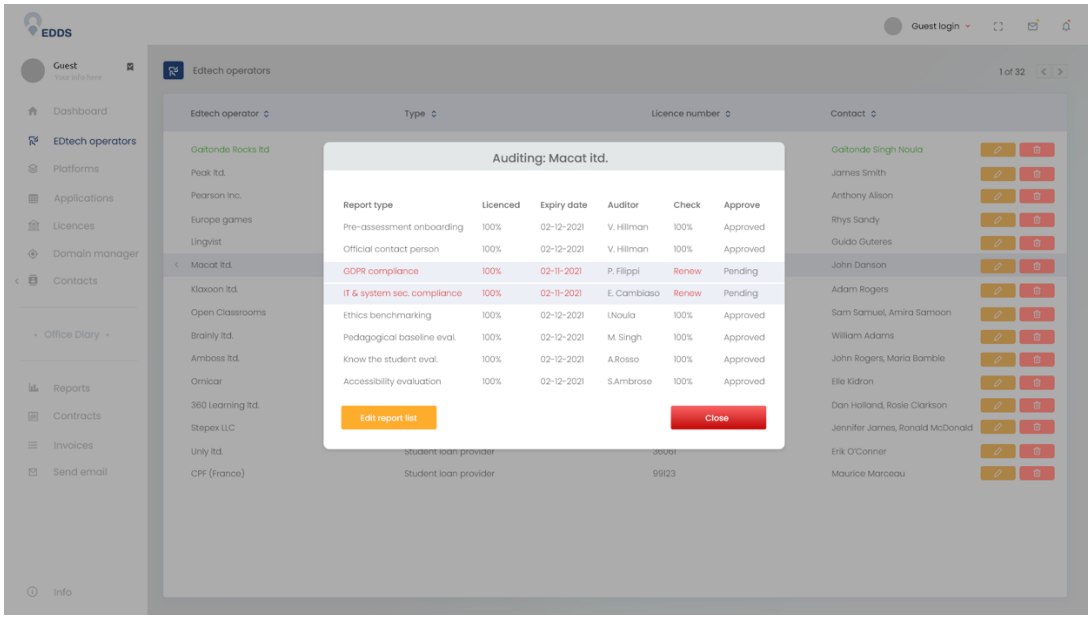

Figure 7 The online Database is a technological solution to monitoring the digital transformation of public education. The system is intelligent and enables regular updates and contextual application of requirements and standards—all stakeholders clearly see who

The assessment framework represents a significant advancement toward establishing reliable standards for EdTech procurement and governance, focusing on transparency, data security, and ethical AI practices. Through close collaboration among EDDS, EdTech Impact, industry stakeholders, and educational institutions, this framework is evolving as a trusted foundation that aligns supplier practices with educational needs. Suppliers are increasingly engaging in this collective effort, recognizing the value of these standards in building trust and accountability within the education ecosystem. Together, these collaborations are setting the stage for a more secure, transparent, and impactful use of technology in education.

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