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List of acronyms

Acronym	Description
4Cs	Creativity, Critical Thinking, Collaboration, and Communication
AI	Artificial Intelligence
API	Application Programming Interface
augMENTOR	Augmented Intelligence for Pedagogically Sustained Training and Education
B2B	Business-to-Business
B2G	Business-to-Government
BMC	Business Model Canvas
CHAT	Cultural and Historical Activity Theory
DPO	Data Protection Officer
EdTech	Educational Technology
EU	European Union
GA	Grant Agreement
GDPR	General Data Protection Regulation
GPU	Graphics Processing Unit
IP	Intellectual Property
IPR	Intellectual Property Rights
KER	Key Exploitable Result
LLM	Large Language Model
LMS	Learning Management System
ML	Machine Learning
MOOC	Massive Open Online Course
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
NLP	Natural Language Processing
OPEX	Operational Expenditure (or Operating Expenditure)
PeDeMET	Pedagogical Design Model with Emerging Technologies
PESTLE	Political, Economic, Societal, Technological, Environmental, and Legal
SaaS	Software-as-a-Service
SRL	Societal Readiness Level
STEAM	Science, Technology, Engineering, Arts, and Mathematics
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TESA	Technology-augmented Educational Scenarios and e-Activities
TETPACK	Technological Emerging Technologies Pedagogical Content Knowledge
TPACK	Technological Pedagogical Content Knowledge
TRL	Technology Readiness Level
UX	User Experience
VET	Vocational Education and Training
XAI	Explainable Artificial Intelligence

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Executive summary

The D7.8 report presents the finalized exploitation and bridge-to-market strategy for the augMENTOR project, transitioning the initiative from a research prototype to a commercially viable educational ecosystem. Building upon the 'Hybrid Lean Startup' methodology established in earlier deliverables (D7.7), the consortium has validated a comprehensive solution that combines an AI-boosted platform with a robust pedagogical framework and a practical implementation toolkit. Market analysis confirms a critical demand for 'Trustworthy AI' in the European education sector, driven by regulatory requirements like the EU AI Act and the need to mitigate educator 'technostress'.

In response, the commercial strategy pivots from selling pure innovation to offering 'Compliance-as-a-Service,' positioning the platform not as a competitor to existing Learning Management Systems, but as an interoperable intelligence layer that integrates seamlessly with dominant market players. The business model adopts a freemium pricing strategy to drive widespread adoption while monetizing advanced enterprise features and specialized training services. Governance is structured around a collaborative ecosystem where technical partners act as the operational commercial leaders for technical maintenance and compliance, while consortium partners serve as a value added reseller network, generating revenue through localized training and onboarding. This financial structure ensures sustainability by balancing immediate service based cash flow with scalable revenue. Finally, the report outlines a concrete roadmap to mature the technology from TRL 5 to TRL 9, bridging the gap to full market entry and ensuring the long term impact of human-centric AI in education.

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1 Introduction

This document, D7.8 'Exploitation and Bridge-to-Market Activities Final Report', represents the culmination of the commercialisation and sustainability strategy for the augMENTOR project. It builds directly upon the foundational work established in D7.7 Exploitation and Bridge-to-Market Activities Plan (delivered in M6), moving from the definition of potential to the concrete planning of market entry.

While D7.7 laid the methodological groundwork introducing the 'Hybrid Lean Startup' approach, defining the initial twelve Key Exploitable Results (KERs) and the three augMENTOR bundles, as well as mapping the broad EdTech landscape, this final report focuses on execution. It synthesizes the data gathered during the project's lifecycle, to present a finalized roadmap for the project's assets.

1.1 Structure of the Deliverable

This report is structured to guide the reader logically from the validation of project results to the execution of a concrete commercial strategy. Section 2 begins by detailing the final project outcomes, reviewing the KER bundles presented in D7.7 and value propositions that constitute the commercial offer. This is followed in section 3 by an updated market analysis, which contextualizes these results within the accelerating AI landscape and refines the target market segments. Section 4 outlines the application of the hybrid lean methodology used to validate these findings, while section 5 presents the strategic environmental analysis derived from the PESTLE (Political, Economic, Social, Technological, Legal, Environmental) and SWOT (Strengths, Weaknesses, Opportunities, Threats) workshops.

The core of the business strategy is detailed in section 6, which presents the final business model canvas and dissects it through the analytical lenses of desirability, feasibility, and viability. To ensure the operational stability of this model, section 7 defines the Intellectual Property Rights (IPR) management principles and the post-project governance structure. Section 8 translates this into financial reality, defining the partner ecosystem roles, the cost structure (OPerating EXpenditure - OPEX), and the pricing strategy. Finally, section 9 establishes the execution timeline, providing a phased bridge-to-market roadmap to mature the solution from prototype to full commercial launch, leading to the final conclusions in section 10.

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2 Project outcomes

2.1 The complete augMENTOR solution

Since the submission of the initial exploitation plans in D7.7, the augMENTOR consortium has successfully transitioned from conceptual design to the delivery of a fully integrated, evidence based educational ecosystem. The complete augMENTOR solution now stands as a coherent synthesis of a robust pedagogical framework, that includes advanced creative pedagogy strategies, and a functional AI-boosted platform.

2.1.1 augMENTOR pedagogical framework

At the heart of the solution lies the augMENTOR pedagogical framework, which has been rigorously defined and refined through the work reported in deliverables D3.1 and D3.2. This theoretical foundation is operationalized through a two level structure that ensures coherence from high level design to classroom practice. At the macro level, the Pedagogical Design Model with Emerging Technologies (PeDeMET) serves as the blueprint for designing comprehensive pedagogical activities, identifying the necessary interactions between learners, tutors, and AI tools. PeDeMET draws on three theoretical cornerstones to achieve its holistic, human centered approach, namely 'Cultural and Historical Activity Theory' (CHAT), the enriched pedagogical triangle and the extended Technological Pedagogical Content Knowledge (TPACK) framework. The project team extended the established (TPACK) framework into the Technological Emerging Technologies Pedagogical Content Knowledge (TETPACK) model, thus moving beyond traditional models. This critical evolution explicitly accounts for the unique affordances and challenges of integrating emerging technologies, such as Artificial Intelligence (AI), into the curriculum.

At the micro level, the Technology-augmented Educational Scenarios and e-Activities (TESA) model provides educators with a step by step guide to implementing these designs in real-world settings, ensuring that every digital intervention is pedagogically grounded.

2.1.2 Creative pedagogy

Complementing this structural framework is a deep commitment to creative pedagogy, developed within WP4 and detailed in deliverables D4.1, D4.2, and D4.3. The consortium has adopted a holistic approach that intertwines creative teaching, teaching for creativity, and creative learning. This approach is specifically designed to develop the transversal competencies essential for the 21st century, defined in the project as the '4Cs': Creativity, Critical Thinking, Collaboration, and Communication. To make these abstract competencies measurable and actionable, the team developed specific assessment rubrics for each of the 4Cs. These rubrics allow educators to move beyond subjective observation to concrete, data driven assessment, enabling precise monitoring of how learners develop these critical skills over time.

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2.1.3 The augMENTOR platform

These pedagogical and theoretical advancements are brought to life by the final augMENTOR platform, the technical realization of the project's vision described in D5.2. The platform is not merely a repository of content but an intelligent partner in the learning process. It integrates the aforementioned pedagogical framework, complex data schemas and knowledge graphs developed in D5.1 with the dynamic learner model defined in D3.3. By capturing and analysing data from Learning Management Systems (LMSs) like Moodle, the platform constructs detailed learner profiles and is able to track individual learners' cognitive states, and progress in the 4Cs. This allows the system to offer feedback, recommendations and guidelines for learners boosting the teaching and learning process and paving the way for the generation of personalized learning paths.

2.1.4 Training materials and work methodologies

To ensure adoption, the consortium delivered workshops and resources like the 'augMENTOR Solution' user guide, empowering stakeholders to become competent participants of AI-augmented learning. The solution's innovation lies in embedding the pedagogical framework directly into the platform's logic; rather than offering generic advice. The recommendation engine utilizes the TESA framework and learner model to generate pedagogically sound, context specific guidelines. This alignment ensures a unified, scientifically robust approach that effectively enhances pedagogical practice.

2.2 Review of Value Propositions

The value propositions initially outlined in D7.7 have not only remained relevant but have been reinforced and validated through project implementation. By aligning the original exploitation plans with concrete outcomes from WP3, WP4, WP5 and WP6, it is clear that augMENTOR delivers on its objective of transforming educational practice through the integrated use of pedagogy and technology.

1. Adopt an 'Augmented Intelligence' approach where humans and machines collaborate to address pedagogical and social issues: This remains the core philosophy of the project and is fully realised through the platform's human-in-the-loop architecture (D5.2). Rather than automating education, the system supports educators by translating complex data into actionable insights that remain under human control. The TESA framework (D3.1) explicitly frames AI as a pedagogical support tool, ensuring it augments rather than replaces professional judgment.

2. Balances pedagogical and technological dimensions using structured data to promote interaction and critical thinking: This proposition is strongly validated. All technical developments are grounded in the pedagogical framework (D3.1), avoiding a technology-first approach. Structured data, including Moodle logs and 4Cs assessment

rubrics (D4.3), are directly aligned with pedagogical objectives. The explicit integration of critical thinking and the other 4Cs as measurable competencies ensures technology advances higher-order skills.

3. Supports interdependent individual and organizational learning, validated in real settings: This interdependence is embedded in the final platform design (D5.2). Individual learning is supported through learner profiles (D3.3) and personalised recommendations, while organisational learning is enabled via augMENTOR profiles and the educational policy recommendations system. Aggregated insights inform decisions at course, institutional, and policy levels, with validation across diverse pilots confirming real world effectiveness (D6.2).

4. Advances state-of-the-art AI, Machine Learning (ML), and Natural Language Processing (NLP) to build a scalable mechanism for adaptive education: This proposition is achieved through the integration of advanced technologies such as knowledge graphs for semantic modelling and Large Language Models (LLMs) for feedback generation (D5.2). Scalability is ensured through a microservices architecture, while methods such as Gaussian Mixture Models support adaptive profiling. The use of LMS agnostic knowledge graphs further enables integration and large scale deployment.

5. Enables individual learning via advanced learning analytics and informs policy making through explainable recommendations.

and

6. Leverages pedagogical design and explainable AI to foster collaboration among all educational actors.

These propositions directly reflect the platform's core functionality. augMENTOR applies advanced learning analytics to track progress and generate personalised, pedagogy driven recommendations. All outputs, from individual study paths to institutional policy guidance, are transparent and explainable, supporting informed decision-making. This shared interpretability supports collaboration among learners, educators, and leaders through a common, data informed understanding of learning outcomes.

7. Enables tracking of data provenance and monitoring of learning process evolution to promote 21st century competencies.

The platform's knowledge graph architecture ensures traceable data provenance, strengthening trust in system outputs. Continuous monitoring of learning evolution is achieved by tracking the development of 21st century competencies, particularly the 4Cs, over time using the assessment rubrics developed in WP4 (D4.3).

2.3 Review and update of augMENTOR KER bundles

The exploitation strategy for augMENTOR is organised around a set of Key Exploitable Results (KERs), bundled to maximise market impact and adoption. Initially defined in D7.7, these bundles have been refined based on final project outcomes, including the

operational pedagogical framework, the fully functional AI-driven platform, and validated pilot results. This review ensures continued alignment with both project achievements and evolving EdTech market needs.

The **augMENTOR Pedagogical Framework** bundle remains a foundational asset, covering the theoretical and practical models guiding AI integration in education. Formerly presented as guidelines, it is now substantiated through the PeDeMET macro model and the TESA micro model, as well as the creative pedagogy dimension. Successful validation across diverse pilots (D6.2) confirms its robustness and effectiveness in developing 21st century skills, strengthening its value proposition through empirical evidence. It acts as a scientific validation layer for the platform that is freely available, to build trust and market authority. It validates the platform but is not a commercial product.

The **augMENTOR Tool's suite** bundle has evolved from a planned toolkit into a complete, functional ecosystem, now the **augMENTOR platform** itself. Its key differentiator is the provision of explainable recommendations supported by a human-in-the-loop mechanism, allowing educators to validate AI outputs. This addresses concerns around AI autonomy and teacher agency and positions the platform as an intelligent partner for personalised learning, validated through technical testing and pilot feedback.

The **augMENTOR approach** bundle has transitioned from a conceptual methodology into a practical implementation toolkit, supported by educational materials developed through pilot workshops and training events. Given strong market demand for structured guidance, this bundle is now formalised as the **augMENTOR Implementation Toolkit**, offering institutions a turnkey roadmap for adopting AI-augmented pedagogy. It is free for institutions to use, however, partners may use the *expertise* gained from creating it to offer paid consultancy and premium training services that go beyond the free materials.

Finally, the **Policy Briefs** bundle has been consolidated into the **Policy and Strategy** bundle to support institutional leaders and policy makers. It combines project policy briefs with the platform's aggregated data capabilities to deliver evidence based strategic insights. This bundle enables impact at institutional and systemic levels, addressing governance needs in digital education. The inclusion of the augMENTOR solution user guide ensures stakeholders can effectively apply these strategies.

In summary, the reviewed KER bundles demonstrate enhanced relevance and market readiness. Their evolution from conceptual outputs to validated solutions has strengthened their exploitation potential, resulting in a coherent, evidence based, and commercially viable suite ready for deployment.

2.4 Exploitation strategy and commercialisation mechanisms

Building on the redefined KERs and validated customer needs, the consortium has developed a focused exploitation strategy that clearly separates dissemination from

post-project exploitation. While dissemination during the project aimed to raise awareness and share scientific outcomes, the strategy outlined here concentrates on the sustainable use of results beyond the project's lifetime. It comprises a commercial track centred on the augMENTOR platform leveraging pedagogical and policy assets to support adoption and institutional impact.

The main driver of economic value is the commercial exploitation of the augMENTOR platform. In response to the reviewer's request for clarity on the difference between dissemination and exploitation, business modelling workshops have been held to outline the team's exploitation strategy. Outcomes have confirmed that a licensing and Software-as-a-Service (SaaS) model is the most viable route to market. The project's technical partners will act as vendors, offering the platform to educational and vocational institutions through tiered subscriptions. This approach ensures ongoing maintenance and support by partners with existing market access. The platform is positioned as a premium 'Augmented Intelligence' service, differentiated by its explainable, AI-driven recommendations that are largely absent from competing solutions.

Complementing this commercial core is the exploitation of the 'Implementation toolkit' and 'Pedagogical framework' bundles through service based models. While the augMENTOR platform serves as the primary commercial vehicle, the consortium leverages the open-access nature of bundles 1 and 3 to drive adoption. Partners may generate service revenue not by selling these open bundles, but by offering specialized, value added services (e.g., customized workshops, onsite integration, 'train the trainer' certification) that utilize the open resources as a foundation. This strategy positions the platform as the central revenue engine, supported by a rich ecosystem of expert led services. These activities create a secondary revenue stream while lowering adoption barriers for new customers. Crucially, they ensure that institutions not only acquire the use of the platform but also embed AI-augmented pedagogy effectively, strengthening customer retention and long-term platform sustainability.

The final pillar focuses on exploiting the 'Policy and Strategy' bundle alongside the Pedagogical Framework. Although not intended for direct sale, these assets are used to build market authority and drive systemic change. Academic and institutional partners will employ them to advance research, secure future funding, and position augMENTOR as a scientific reference point. At the same time, they support policy advocacy by informing national and European educational standards, enhancing a regulatory climate conducive to AI adoption and indirectly stimulating demand for the commercial platform.

2.5 Non-commercial exploitation and societal impact

While the commercial strategy ensures the platform's financial longevity, the augMENTOR project creates substantial non-commercial value through its open-access assets. These outcomes are strategically exploited to advance European science, influence policy, and bridge the digital divide.

2.5.1 Scientific and academic exploitation

The project's knowledge legacy is anchored in the augMENTOR Pedagogical Framework (Bundle 1) and the data derived from its pilots. The PeDeMET and TESA frameworks as well as the Creative pedagogy framework are released as open methodologies, contributing directly to the open science ecosystem. Academic partners, including UPATRAS, UDE, and UCA, will exploit these assets to publish high-impact papers and secure follow up research grants, such as Horizon Europe or Erasmus+, positioning the consortium as leaders in human centric AI.

Specific partner actions reinforce this legacy. UCA plans to conduct ongoing analysis of augMENTOR data to assess its impact on educational outcomes and facilitate workshops for educator acculturation. UDE will leverage its university network, such as the Ruhr Alliance, for dissemination while holding trademarks for unique models and conducting research for testing and validation. KTU and IASIS contribute by collecting user engagement data to perfect the solution from a user experience perspective. This longitudinal data allows the research community to study the long term effects of AI on 'technostress' and 21st century skills, supporting the EU's evidence based EdTech goals. Furthermore, KT and ACP intend to use these findings for future research proposals, with ACP specifically exploring unique applications within the European Security and Defense College to expand the research scope beyond traditional education.

2.5.2 Policy and systemic exploitation

In the realm of governance, the consortium exploits the 'Policy and Strategy' assets (Bundle 4) to establish a governance standard. By actively disseminating "Policy Briefs" to national Ministries of Education and EU working groups, the project aims to shape the practical integration of emerging technologies in education. NVCR aims to establish strategic alliances with national policymakers. Simultaneously, IASIS commits to involving relevant stakeholders directly in policy making processes.

The project provides policymakers with concrete evidence on implementing Human-in-the-loop mechanisms effectively, moving policy from abstract theory to validated practice. EASD contributes to this evolution by updating their frameworks related to ethics and conditions for developing courses on environmental issues. This collective approach strengthens European digital sovereignty by promoting an open, transparent pedagogical framework, offering a validated alternative to "black box" non EU algorithms.

The project team has already taken actions towards this direction by leveraging the policy briefs and outcomes produced, to conduct seven (7) national workshops for policy makers and education stakeholders (informing 119 participants in total) as well as one (1) international workshop in collaboration with augMENTOR's sister project (more information in D7.2 and D7.6). In addition, the team has already introduced the project and its outcomes to members of the Commission's Directorate General for Education and Culture

(DG EAC)[1] underscoring the project's strategic alignment with European priorities for the digital transition as well as with the EU STEM Education Plan[2].

2.5.3 Social and educational exploitation

Finally, the project drives social and educational exploitation through capacity Building, utilizing the 'Implementation Toolkit' (Bundle 3) and open educational resources to reduce the AI digital divide. By making training materials freely available, the project enables underfunded schools and NGOs in rural or remote areas to upskill staff without immediate commercial investment. IASIS plays a pivotal role here, demonstrating social inclusion by offering free access to vulnerable groups and certifying provided training materials.
To mitigate technostress, the widespread dissemination of the "augMENTOR Solution" user guide helps demystify AI for the general teaching population. SciCo and CSI facilitate this by distributing free trials to educators and connecting with Open Universities to introduce the platform. CSI further leverages its network for community building and 'train the trainer workshops to ensure effective use. Complementing this, EASD provides free training on environmental and climate change issues, while KT promotes the methodologies to partner organizations. This establishes a community of practice that supports peer to peer learning and creates a self sustaining ecosystem of AI-literate teachers.

3 Market Trends and segmentation update

In updating the market analysis originally presented in Deliverable 7.7, we have reviewed the European EdTech, AI in education, and corporate training markets as of late 2025. The analysis confirms that the original projections remain valid and have accelerated due to the rapid mainstreaming of AI. The following sections update key market trends and segmentation strategies, reflecting the finalized augMENTOR solution and its alignment with current market dynamics.

3.1 Market Trends

Since the initial analysis, the European EdTech landscape has shifted markedly, with AI evolving from an emerging trend into a core infrastructure requirement.

AI as essential infrastructure: Market data for 2025 show that AI is now a foundational element of learning ecosystems, with strong growth driven by personalized learning and automated administration [1]. Demand has moved beyond digitization toward intelligent, adaptive systems, directly validating augMENTOR's recommendation engine and core value proposition.

Rise of 'EdTech 2.0' and workforce integration: Boundaries between education and workforce productivity are increasingly blurred, driving demand for 'just in time' learning

[1] https://knowledge4policy.ec.europa.eu/organisation/dg-eac-dg-education-culture_en

[2] https://education.ec.europa.eu/sites/default/files/2025-03/STEM_Education_Strategic_Plan_COM_2025_89_1_EN_0.pdf

embedded in work processes [2]. This trend aligns with augMENTOR's training pilots (IASIS), which demonstrated value in continuous professional development, particularly for soft skills and the assessment of the 4Cs.

Demand for explainability and trust: The EU AI Act has heightened sensitivity around high-risk AI in education [3]. Institutions increasingly seek transparent, compliant solutions that retain human oversight. augMENTOR's explainable AI and teacher mediated design provides a clear competitive advantage over opaque, fully automated systems [4].

Hybrid and blended learning permanence: Hybrid learning is now standard across higher education and corporate training [5]. This favours cloud based, interoperable platforms supporting synchronous and asynchronous delivery, requirements met through augMENTOR's Moodle integration and blended learning pilots.

3.2 Market segmentation strategy update

Based on project results and updated market conditions, the segmentation strategy has been refined to prioritize sectors with needs for soft skills assessment and AI explainability.

Schools and universities (K-12): K-12 remains a major market segment, representing around 42% of education software revenue [6]. Growth is driven by device proliferation and 1:1 programs, with higher education increasingly adopting K-12 style analytics and dashboards.

Pedagogical public organizations and policy makers: Governments invest in EdTech infrastructure, focusing on connectivity, standardization, and compliance. Demand is driven by the need for trustworthy AI solutions aligned with regulatory frameworks [7].

Digital learning ecosystem (LMS and MOOCs): The LMS market remains dominant and deeply embedded in corporate training, while Massive Open Online Courses (MOOCs) are projected to grow rapidly and potentially surpass LMSs in scale [8]. This shift reinforces demand for interoperable intelligence layers rather than standalone platforms.

EdTech Community: Market consolidation is accelerating, with AI-driven platforms scaling faster than traditional tools[9]. By 2030, AI is expected to underpin most EdTech products, acting as a force multiplier for smaller, innovation driven teams.

augMENTOR is positioned not as a replacement platform, but as an 'intelligence and compliance layer' for the European EdTech ecosystem. The commercial strategy focuses on augMENTOR as a high value, interoperable plug-in for dominant LMS platforms. Differentiation lies in its pedagogically grounded, explainable, and compliant design. While K-12 remains a long term opportunity, immediate exploitation prioritizes corporate training and higher education, where budgets, regulatory pressure, and demand for advanced skills assessment are strongest.

Primary segment: Corporate training, professional development and Vocational Education and Training (VET): The European corporate training market is expanding rapidly due to reskilling pressures from automation[10]. Organizations are investing heavily in power skills that conventional LMSs struggle to assess [11]. VET providers require practical,

scenario-based learning aligned with problem based approaches. The 4Cs assessment framework and non-cognitive skills tracking uniquely position augMENTOR in this segment, while the 'Implementation Toolkit' supports digitization of hands-on training scenarios. The IASIS pilot validated its effectiveness in a high stakes professional context.

A key strategy will be to position augMENTOR as a premium addon to existing corporate LMSs, enabling advanced soft skills analytics while also offering consultancy led adoption using the implementation toolkit to support transition to AI-augmented training models.

Strategic Business-to-Business (B2B) segment: LMS providers and EdTech platforms: Many LMS providers lack advanced pedagogical intelligence and seek AI-driven differentiation without rebuilding core systems. augMENTOR's modular, interoperable architecture supports white label or API-based integration, enabling explainable recommendations and 21st century skills assessment. The aim is to establish licensing and partnership agreements with LMS vendors to embed augMENTOR and scale through existing user bases.

Secondary segment: Higher education institutions: Universities face pressure to personalize learning while navigating strict privacy regulations and faculty resistance [12]. augMENTOR's human-in-the-loop design, privacy by design architecture, and evidence-based pedagogy directly address institutional concerns. Targeting teaching and learning centres, positions augMENTOR as a faculty empowerment tool.

4 Methodology Application

To ensure that the augMENTOR solution effectively bridged theoretical research and market value, the consortium applied the 'Commercialisation, Validation, Acceleration' methodology defined in Deliverable 7.7. This hybrid lean framework guided the project through four phases: customer validation, solution and partner alignment, business model selection, and go-to-market strategy. Adherence to this process ensured that the final outputs were both scientifically robust and commercially viable, while remaining closely aligned with end user needs.

4.1 Customer validation

The augMENTOR commercialisation strategy was grounded in a systematic understanding of its users, developed throughout the pilot phase. Rather than relying on assumptions, the consortium conducted structured validation across four pilots, each representing a distinct market segment: Adult Education and Lifelong Learning (IASIS), Pre-service Teacher Training (University of Patras), STEAM-based Environmental Education (EASD), and Industry 4.0 competencies for Civil Society (KTU). Analysis of these diverse contexts enabled the team to move beyond generic user profiles. A key insight was that user 'pain points' stemmed primarily from a lack of pedagogical guidance in applying AI, rather than from limited access to technology. This finding directly informed the platform's focus on explainable AI and pedagogical support, ensuring strong market fit.

4.2 Solution and partner alignment

Following customer validation, the methodology focused on achieving a robust problem-solution fit. This phase involved continuous interaction between technical partners and pilot partners, with pilot feedback actively driving platform refinement. As documented in D6.2, insights from real world testing informed iterative adjustments to functionality. For example, early concerns regarding the complexity of AI recommendations led to interface simplification and the introduction of a human-in-the-loop approval mechanism. This process ensured that the final augMENTOR bundles were not only technically sound, but also validated in operational settings.

4.3 Business model selection and analysis

With a validated solution, the consortium turned to defining a sustainable post project business model. This phase was supported by targeted business modelling workshops, including PESTLE and SWOT analyses to assess external market conditions and internal capabilities. A subsequent Business Model Canvas workshop mapped the project's KER bundles to concrete market opportunities. These exercises enabled refinement of the initial value propositions outlined in D7.7, translating them into clearly exploitable assets. The analysis also clarified market segmentation, distinguishing institutional buyers from individual educators and learners, and informing differentiated exploitation approaches. The outcome was a hybrid business model combining open-access components with revenue-generating services, such as tailored pedagogical training and advanced analytics.

4.4 Go-to-market and growth trajectory

The final phase focused on preparing for large-scale adoption of the augMENTOR solution. Beyond internal planning, partners actively positioned the project within the European EdTech ecosystem. Alignment with the EU Digital Education Action Plan, together with the release of a comprehensive augMENTOR Solution user guide, lowered adoption barriers and established a clear pathway for sustained post project growth.

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5 Business model selection and analysis

With the PEST analysis presented in the grant agreement as its starting point, the project team performed a PESTLE/SWOT analysis during the 3rd plenary meeting to systematically evaluate the augMENTOR's capabilities and external macro environmental factors, providing a comprehensive foundation for informed strategic planning and effective decision making.

5.1 PESTLE analysis

In the PESTLE analysis, the project team provided input as to the external Political, Economic, Social, Technological, Legal and Environmental factors that could affect the growth of augMENTOR beyond the project's lifetime. Input from partners was collected through a brainstorming session and then the different entries were grouped together to meaningful factors which were then further elaborated by the team. The workshop was concluded by discussing each of these factors, assigning an impact factor and outlining the implications for the augMENTOR platform. The detailed matrix produced is presented in Annex I. Below we present the summary for each section of PESTLE along with a summary of findings and key outcomes.

5.1.1 Summary of findings

Political factors

The political landscape presents a highly positive outlook due to active EU funding and strategic government support for digital transformation in education. This creates a subsidized market and a clear revenue opportunity for the platform, which should be positioned to qualify for public procurement tenders and target national/regional education ministries. However, a significant negative factor is regulatory fragmentation, as differing interpretations of EU policies across member states create a complex compliance landscape. This necessitates a modular development approach to adapt to specific national compliance standards and suggests that the market rollout should be staggered rather than a simultaneous EU wide launch.

Economic factors

The economic outlook is highly positive given the booming AI EdTech market, which is driven by demand for efficiency and personalization. This market potential supports a strong growth narrative for securing funding and allows for premium pricing models for advanced features like predictive analytics. Conversely, the primary negative challenge lies in economic disparity and rising operational costs. Economic inequality means wealthy regions can afford advanced AI while poorer regions cannot, threatening market

penetration. The implication mandates a tiered pricing structure and a technical architecture optimized for cost efficiency to protect margins against rising hosting prices.

Societal factors

Societal factors pose a highly negative challenge primarily through resistance and well-being concerns from educators who fear AI replacement or increased workload ('technostress'), making the 'human vs. machine' narrative a major barrier to adoption. The UX design must therefore prioritize simplicity and focus the value proposition on 'augmenting' (empowering) teachers, not replacing them. Additionally, the negative impact of the infrastructure gap, including poor internet in rural areas and the hardware/software mismatch in schools, requires a technical requirement for an 'offline mode' or low bandwidth capability to ensure viability in less wealthy regions.

Technological factors

Technological factors present a mixed (risk/opportunity) scenario centred on trust and ethics. Concerns about data bias and fairness in AI models can lead to immediate rejection by public bodies. This risk, however, is a massive competitive opportunity: by proving that models are 'fairness audited' and incorporating 'explainability elements' as a core feature, the platform can gain an advantage over 'black box' competitors. A positive trend is the growth of LMS use in schools, which means the platform must prioritize seamless interoperability via API/LTI standards with major LMS platforms like Moodle.

Environmental factors

The environmental landscape is seen as negative due to increasing sustainability pressure related to the high energy consumption and carbon footprint of training large AI models. Since public procurement increasingly includes 'green' criteria, the platform must prioritize infrastructure hosted by providers with renewable energy and focus on optimization strategies to lower the carbon footprint per query.

Legal factors

Legal factors set an environment, driven by regulations like the EU AI Act and GDPR. Education AI is classified as 'High Risk' under the EU AI Act, mandating rigorous conformity assessments. Furthermore, data sovereignty requires that data must reside strictly within the EU. This necessitates budgeting for legal counsel and Data Protection Officers (DPO), and strictly avoiding reliance on non-EU cloud providers for public school data. The risk of cyber-attacks and data breaches on schools requires that 'privacy by design' be the architectural standard and cyber insurance a mandatory operational cost.

5.1.2 Key outcomes

The detailed PESTLE analysis reveals a polarized landscape for the augMENTOR platform:

1. Addressing educators needs: Success requires overcoming the highly negative societal resistance (technostress) by ensuring the product focuses entirely on educator augmentation and reducing administrative workload. This necessitates coupling with the specialized training/change management approach (augMENTOR implementation toolkit) to secure adoption.

2. Legal and architectural constraints: The EU AI Act and data sovereignty rules impose challenging mandates, making 'trustworthy AI' (fair, explainable, compliant) a commercial necessity. The architecture must strictly comply with EU data residency and 'privacy by design'. These are dealbreakers for public procurement.

3. Technical differentiation strategy: To satisfy ethical concerns and gain a competitive edge, the platform must prove fairness and embed explainability as a core feature, moving past 'black box' solutions. High LMS adoption requires seamless API interoperability with major platforms like Moodle, positioning the product as an integration partner.

4. Operational readiness: To balance market opportunity against economic disparity and infrastructure gaps, implementation requires a tiered pricing structure and a cost optimized backend. Functionality must include a low bandwidth/offline mode capability for viability in rural areas and must be modular to handle national compliance fragmentation.

Overall, the platform must be an augmenting, highly compliant, and modular product, with success relying on embedding all legal, ethical, and market mandates directly into the architecture and maintaining strategic alignment with reducing teacher workload and ensuring robust interoperability.

5.2 SWOT analysis: strategic positioning of the augMENTOR platform

Based on the workshop data and the PESTLE findings, the team moved on to perform a SWOT analysis. PESTLE outcomes were added in the Opportunities/Threats sections while internal strengths and weaknesses were identified alongside external opportunities and threats. Following input collection, the team finalized the workshop by discussing and outlining strategic relevance (for strengths), mitigation strategies (for weaknesses and threats) and exploitation strategies (for opportunities). The detailed input from the workshop is presented in Annex II. Below we present the summary of findings and the key outcomes. Our analysis prioritizes commercialization of the augMENTOR platform, leveraging the remaining bundles as critical support assets to mitigate risks and enhance value.

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5.2.1 Summary of findings

Primary strength: The platform's interoperability and pedagogical backing, allowing rapid market penetration as a high value 'plug-in' to existing systems, backed by unique scientific justification.

Main weakness: Low Maturity (Technology Readiness Level (TRL) 5) must be mitigated by pilot-driven validation and establishing a clear IPR Strategy and dedicated maintenance Budget.

Key opportunity: The exploding AIED Market, which can be exploited by B2B API Licensing to smaller competitors and deploying a 'Lite' version to capture structural funds aimed at rural/remote areas.

Dominant Threat: Regulatory and ethical compliance (EU AI Act) and societal resistance from educators. These must be mitigated by turning compliance into a feature ('Compliance-as-a-Service') and making training based on the 'Implementation toolkit' bundle available in commercial contracts.

5.2.2 Key outcomes

1. The combination of open-source strength and commercial competition weakness points to an open core business model. The basic tools remain free to drive adoption (leveraging the 'Scalability' strength), while advanced features (analytics, support) are monetized.
2. The other bundles (besides the augMENTOR platform) are essential assets. Bundle 1 (pedagogical framework) protects against the 'Lack of frameworks' opportunity/gap, giving the software scientific credibility. Bundle 3 (Implementation toolkit) protects against the 'AI Illiteracy' threat, ensuring customers actually use and renew the software.
3. In a landscape with 'EU AI Act' and 'Bias' concerns, the platform's ability to offer explainable, fair, and compliant AI is its strongest commercial asset against US/Chinese Big Tech competitors.

5.2.3 Synthesis of findings

The last step of this analysis is to synthesise the findings from the PESTLE and SWOT workshops to generate strategic options for the commercial launch (TOWS matrix):

Strengths (S) to seize Opportunities (O) Strategies (Maxi-Maxi)

SO1: Plug-n-play approach

(S2 + O1): Do not compete with LMS giants. Market the platform as the 'missing pedagogical layer' for Moodle and other LMSs, targeting the booming market that already has infrastructure but lacks intelligence.

SO2: Lite version for rural/remote areas

(S3 + O2): Leverage the platform's scalability to deploy a cloud-optimized 'Lite' version specifically for rural/remote regions, qualifying for EU structural funds (PESTLE) allocated for digital cohesion.

Weaknesses (W) to be fixed by Opportunities (O) Strategies (Mini-Maxi)

WO1: Freemium commercialization - (W3 + O1): Address the commercial vulnerability by adopting a freemium approach. Keep the base open (to drive adoption) but monetize enterprise features (analytics, recommendations) to fund the 'long-term maintenance plan' (W2).

WO2: Training courses availability - (W1 + O3): Use the lack of frameworks market gap to sell early access programs. Monetize training courses for project partners who agree to offer training and customer support.

Strengths (S) to avoid Threats (T) Strategies (Maxi-Mini)

ST1: Compliance-as-a-Service - (S1 + T1): Position the platforms pedagogical validity and compliance as an asset in line with the EU AI Act. Market it as a pre-audited tool for fairness and educational safety, differentiating from 'black box' big tech tools (T3).

ST2: Teacher Empowerment - (S1 + T2): Use the scientific backing to counter teacher resistance. Rebrand the AI not as an 'automaton' but as an 'evidence based assistant' that reduces 'technostress.'

Minimizing Weaknesses (W) to avid Threats (T) Strategies (Mini-Mini)

WT1: Bundling the bundles - (W1 + T2): Do not release the beta (TRL 5) platform without the Implementation toolkit. Unsupervised use of immature tools will confirm teacher fears. Training to ensure the tool is used correctly, protecting the brand while maturity improves.

WT2: Define governance - (W2 + T1): The definition of an IPR/Governance strategy is imperative. Establish a legal entity (Spin off or Joint Venture) to hold liability and manage compliance, rather than leaving it to a loose consortium.

5.2.4 Key outcomes

The TOWS analysis defines four distinct pillars for the business model:

1. **Value proposition:** In a market flooded with unregulated AI (Big Tech threats), augMENTOR's primary asset is trust. The strategy is to sell compliance-as-a-service (ST1), not just software features.
2. **Market entry:** Use interoperability (S2) to enter the market as a high-value plugin for existing ecosystems (SO1), reducing sales friction.

3. **Revenue model:** To balance open source (S4) with sustainability (W2), we will monetize advanced features and support, while using the freemium to capture a wider market (SO2).
4. **Operational safety:** To protect the immature product (W1) from societal backlash (T2), the commercial offer will strictly bundle the platform (bundle 2) with the Implementation toolkit (bundle 3).

6 Final business model canvas

The project team operationalized the strategic options defined in the TOWS matrix as well as the input delivered from and by partners during the business canvas model workshop done in the 5th plenary meeting (which aimed to revise and update the canvas presented in the grant agreement), so to deliver a coherent business model. The entire canvas is available in Annex III. Below we present a brief summary. The core exploitation strategy is built around four synergistic bundles, designed to sell augmented intelligence while providing compliance-as-a-service:

Table 1. *augMENTOR core exploitation bundles*

Core Bundle	Primary Value Proposition	Exploitation Mechanism
augMENTOR platform (Bundle 2)	Software-as-a-Service, delivering Intelligent Analytics and Explainable AI (XAI).	Freemium core, monetizing advanced features via subscriptions.
Pedagogical Framework (Bundle 1)	Provides scientific validity, ensuring all interventions are human centric and compliant with the 4Cs (21st century skills) methodology.	Supports the high end value proposition.
Implementation toolkit (Bundle 3)	The essential training package that mitigates 'technostress' and guarantees correct AI adoption.	Free to lower entry barriers. Revenue is generated via partner led consultancy, where partners sell *customized* training, courses and integration services *based on* the methodology.
Policy and strategy (Bundle 4)	Delivers systemic impact by leveraging project data to influence governance and regulation.	Secures endorsements and access to public tenders.

The market focus prioritizes high-value segments like corporate and VET training, LMS providers, and higher education, employing a partner reseller network for sales and delivery. Operational expenditure is heavily dedicated to mitigating technical risks through maintenance and continuous EU AI Act and GDPR compliance auditing. This shifts the business model from purely technological innovation to a holistic service ecosystem tailored for a risk-averse market. By synthesizing environmental constraints with internal capabilities, the architecture prioritizes trust, compliance, and pedagogical validity to ensure robustness and sustainability.

6.1 Desirability analysis: Aligning value with market needs

The primary challenge validated through the strategic workshops was the necessity to solve the correct problem for the right customer. The PESTLE analysis highlighted a highly challenging legal landscape, alongside significant societal resistance regarding educator 'technostress.' Validated by our workshops, the business model pivots from selling 'innovation' to 'safety,' positioning the augMENTOR Platform (Bundle 2) as a 'compliance-as-a-service' solution. By leveraging the Pedagogical Framework (Bundle 1), and the ethical auditing necessary it addresses scientific validity, legal challenges and educator 'technostress.' To reach high-value segments without the friction of direct sales, the strategy integrates the platform as a plug-in within LMS marketplaces, utilizing existing procurement pathways. Furthermore, training is redefined as a core product feature; commercializing the Implementation Toolkit (Bundle 3) as well as new courses that can potentially be designed by project partners ensuring correct adoption and encouraging sticky customer relationships that raise switching costs and reduce churn.

6.2 Feasibility analysis: Operationalizing trust and scale

Delivering trustworthy AI requires functioning as a tech enabled service, not just a software product. The operational model leverages a 'reseller network' of consortium partners for local market penetration and support, transforming a dispersed structure into a strength. This can be supported by resources like certified training packages and digital curricula that lower entry barriers. By integrating academic validation with technical management, the model creates a robust loop of maintenance and verification difficult for competitors to replicate.

6.3 Viability analysis: A hybrid financial engine

The financial viability of the business model rests on a collaborative ecosystem where revenue streams are distinct yet commercially inseparable. While service revenue from training packages remains exclusively with reseller partners to incentivize local adoption, these packages are contractually bundled with platform subscriptions, ensuring that every service sale automatically triggers revenue for the platform use. This structure allows the

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technical team to fund centralized compliance and infrastructure costs through predictable software fees, while resellers absorb marketing expenses, effectively distributing financial risk and aligning incentives.

7 IPR management and governance

To ensure the integrity and maximal exploitation of the augMENTOR platform and all KERs beyond the project lifecycle, our approach to IPR and governance is founded upon adherence to the principles outlined in the Horizon Europe Grant Agreement.

7.1 IPR management

The management of IPR is governed by clear principles established in the GA, which the consortium is fully committed to upholding:

Background IP: Ownership of all intellectual property and proprietary data contributed to the project at the outset (Background IP) remains with the originating partner.

Foreground IP: All results generated during the execution of the project (Foreground IP), are jointly owned by the partners who generated them, as stipulated by the GA. The exploitation of commercial IP will be a collective decision among the IP-generating partners, ensuring maximum commercial and societal impact.

Access Rights for Partners: All original consortium partners retain perpetual, royalty-free access to their Foreground IP for their own internal, non-commercial research, validation, and educational use, ensuring the long term academic legacy of the project.

7.2 Governance

The transition from a research consortium to a commercial operation will be formalized through a 'Memorandum of Understanding' (MoU) document. This agreement solidifies the business model and defines the structure for post project collaboration:

Formalizing exploitation roles: The MoU will designate the commercial entity responsible for maintenance and liability, and formalize the operational roles of all other partners as part of the reseller network and service providers. The consortium shall establish a clear, centralized governance model that creates a symbiotic relationship between the technical developers and the educational partners. An operational commercial lead will be assigned to act on behalf of the technical co-owners (UNIGR, MSX, and NVCR). In this capacity, the lead will be mandated to manage the day-to-day operations, including infrastructure maintenance acting as the custodian of the group's shared technical assets. Other consortium partners will act as authorized resellers. They will promote the platform in their respective regions and sectors, earning a sales commission (seller's fee). This incentivizes local market penetration without requiring a massive central sales force. Partners are encouraged to utilize the

open-access resources of the other bundles to develop proprietary training courses and educational materials. These partner created assets and services are their sole intellectual property and revenue sources. The commercial governance focuses strictly on the augMENTOR platform, where partners act as resellers earning a commission on platform subscriptions, while retaining 100% of the revenue from their own added value services.

a) **Post-project steering committee:** The MoU will mandate the establishment of a steering committee composed of representatives from the key partners. This committee will hold clearly defined authorities essential for long term viability including setting the pricing strategy and approving changes, vetting and onboarding new resellers/partners into the commercial ecosystem and managing the high level policy for interaction with B2B and Business-to-Government (B2G) customers.

b) **Pilot legacy and continued use:** The MoU will contain specific clauses to manage the long-term relationship with the project's original pilot institutions.

8 Financial sustainability and pricing strategy

Sustaining the commercial operation of the augMENTOR platform in a volatile market requires a flexible financial model. Instead of relying on static projections that are vulnerable to market shifts, the strategy is based on dynamic pricing and a cost-as-investment approach. This ensures viability despite fluctuations in cloud or AI-related costs. Project expenditures are treated as strategic Operational Expenditure (OPEX) essential to delivering trusted AI and addressing the high-risk regulatory classification of educational AI under the EU framework. Investment priorities focus on three core areas:

- **OPEX – Compliance and legal:** Costs for DPO services and algorithm audits, enabling compliance-as-a-Service with GDPR and the EU AI Act.
- **OPEX – Technical and hosting:** Infrastructure, Graphics Processing Unit (GPU) computation, and technical staff, with cost control critical to defining viable Freemium sales levels.
- **OPEX – Commercial and training:** Funding variable reseller commissions and certified pedagogical training packages that directly support revenue generation.

Pricing will be finalised closer to market launch due to several interrelated factors. AI cost volatility makes current LLM inference and GPU hosting expenses unpredictable, risking prices that are either unprofitable or uncompetitive. Delaying pricing allows partners to benefit from expected reductions in computing costs. In parallel, rapid change in the

EdTech market could quickly erode fixed pricing or limit the ability to capture a premium for features that may soon become standard.

Final pricing tiers will be defined based on continuous competitor benchmarking to track both direct and indirect competitors on a quarterly basis to position augMENTOR in the 'premium value' segment—above generic tools but below enterprise suites, reflecting its compliance and pedagogical certifications. Cost-structure analysis will also be done to model per-learner technical costs based on token usage and storage, establishing a minimum price that covers infrastructure and a 20% maintenance margin.

As mentioned above, final price-setting for the paid enterprise edition is deferred until the pre-launch phase due to market volatility. The planned tentative tiers are presented below:

Table 2. *Pricing strategy*

Tiers/ Services	Capacity	Included features	Freemium status

Tier 1 (Basic)	Up to:
	• 50 learners
	• 2 educators
	• 250 queries
		• Queries details
		  ○ Feedback
		  ○ Recommendations
		• Course details (all features)
		• Learner details (all except profile features)
			Free

Tier 2 (Standard)	Up to: • 50 learners • 2 educators • 250 queries • 1 course	• Queries details (all features) • Course details (all features) • Learner details (all features) • augMENTOR profiles (all features) • Policy recommendations based on course	Paid
Tier 3 (Advanced)	Up to: • 300 learners • 10 educators • 1500 queries • 3 courses	as Tier 2	Paid (-15% compared to Tier 2)

*Tiers are priced per year; The cost covers a 12 month period.

Revenue distribution

Revenue collected from the augMENTOR platform Fee is distributed as follows:

80% → Royalties (IP owners): Paid to NVCR for use of their augMENTOR platform (includes compliance and legal, technical maintenance and hosting fees)

20% → Commission (the reseller): Paid to the partner (any consortium member) who sourced and closed the contract.

Services Fee (training course and onboarding services) will be set and retained 100% by the partner performing the work.

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9 Bridge-to-Market roadmap

The consortium has defined a strategic roadmap designed specifically to bridge the 'valley of death' between the current TRL 5 research prototype and a fully commercialised TRL 9 product. The go-to-market approach is structured into four distinct phases.

Phase 1: Foundation building (months 1-6 post project) The immediate focus is on consolidating the technical infrastructure and formalizing the governance structure. The consortium will finalize the IPR agreements required to transfer the necessary background and foreground IP to the commercialization vehicle. During this period, the partners will maintain the current infrastructure to ensure service continuity for the existing pilot partners, adhering to the terms of the Consortium Agreement.

Phase 2: Early market testing (months 6-12) Once the legal foundation is secure, the strategy shifts to early market testing. The consortium will identify early adopters from the networks of the pilot partners (e.g., the Eco Schools network via EASD or training centres via IASIS). A 'free trial' or beta program will be launched to gather systematic user feedback on the commercial-grade features. This phase is critical for refining the value propositions for specific segments and developing the initial library of case studies and success stories necessary for broader marketing.

Phase 3: Initial market entry (months 12-24) The commercial launch will introduce the freemium SaaS model. This involves releasing an edition with basic features alongside paid tiers. The sales strategy will focus on direct B2B engagement with schools and training centres, supported by channel partnerships with LMS providers to list augMENTOR on marketplaces like the Moodle Plugin Directory.

Phase 4: Growth and scaling (months 24-36) The final phase focuses on scaling operations. This includes expanding into EdTech marketplaces, pursuing B2G licensing deals for regional deployment, and exploring joint ventures with large training providers. International expansion will target the Balkans and Southern Europe initially, leveraging the consortium's specific strengths in supporting multilingual and underserved educational ecosystems.

The solution is positioned as a trustworthy, personalized, and explainable EdTech layer. For schools and universities, the acquisition strategy relies on direct sales and partnerships with public sector decision-makers, emphasizing learning outcome improvements. For the EdTech community, the approach focuses on complementary partnerships and technology licensing, positioning the augMENTOR as a 'white label' engine that can power third-party applications.

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10 Conclusions

This report marks the definitive transition of augMENTOR from a research initiative to a commercially viable innovation ecosystem. Through the application of the hybrid lean methodology, the consortium has validated that the market demands not merely as another educational AI tool, but a robust 'Software-as-a-Service' solution grounded in compliance that guarantees adherence to the strict regulatory landscape of the European Union. The exploitation strategy crystallizes the augMENTOR platform as the primary commercial vehicle, underpinned by the scientific validity of the 'Pedagogical Framework' bundle and secured by the inclusion of the 'Implementation Toolkit' bundle. This bundled approach directly addresses the critical barrier of educator resistance by repositioning training from a support function to a core product feature, ensuring that technology adoption is pedagogically sustained rather than disruptive.

Strategically, the solution avoids direct competition with established giants by adopting a market entry that enables it to function as a certified, high-value intelligence layer integrated seamlessly within dominant LMSs. This positioning is supported by a collaborative financial architecture where revenue streams are distinct yet interdependent; reseller partners drive local adoption through high-touch service delivery, while technical partners sustain the centralized infrastructure through recurring platform licensing. Governance is anchored by a dedicated steering committee and a specialized legal unit, ensuring that the platform evolves in lockstep with the EU AI Act. Moving forward, the consortium will execute a phased roadmap to mature the technology from TRL 5 to TRL 9, securing the project's legacy as a benchmark for trustworthy, human-centric artificial intelligence in education.

Ultimately, the project delivers a dual-impact legacy: a commercially viable platform for sustainable scaling, and a permanently open pedagogical foundation that advances the scientific and social understanding of AI in education.

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Annex I – PESTLE workshop input

Political factors

Grouped factors	Analysis	Impact	Implications for augMENTOR platform
Funding and strategic support *(Structural funds, operational strategy plans, national integration plans)*	Governments across the EU are actively funding digital transformation in education. There is a concerted push via structural funds to integrate AI into public services, creating a subsidized market for EdTech.	**Highly Positive**	**Revenue opportunity:** The platform should be positioned to qualify for public procurement tenders funded by these structural funds. **Sales strategy:** Target national/regional education ministries as key B2G clients.
Regulatory fragmentation *(Different interpretation of policies, algorithm audits)*	While the EU sets high level directives, individual member states interpret policies differently. The requirement for algorithm audits varies, creating a complex compliance landscape for cross border sales.	**Negative**	**Development cost:** The platform must be modular to adapt to specific national compliance reporting standards. **Market entry:** Rollout may need to be staggered country by country rather than a simultaneous EU wide launch.

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Economic factors

Grouped factors	Analysis	Impact	Implications for the augMENTOR platform
Market potential *(Market expansion, high profit potential)*	The AI EdTech market is booming, driven by a demand for efficiency and personalization. Investors perceive high return of investment potential, increasing the likelihood of securing private funding or venture capitals.	**Highly positive**	**Investment:** Strong narrative for the 'growth trajectory' section of the business plan to attract venture capitals and funding. **Pricing power:** High demand allows for premium pricing models for advanced features (e.g., predictive analytics).
Economic disparity and costs *(Economic inequality, digital divide, Rising operational costs, financial leveraging)*	Economic inequality creates a split market: wealthy regions can afford advanced AI, while poorer regions cannot. Rising operational costs (energy/hosting) threaten margins.	**Negative**	**Pricing model:** A tiered pricing structure is essential (e.g., a 'Lite' version for underfunded schools). **Technical architecture:** The backend must be optimized for cost-efficiency to protect margins against rising energy prices.

Societal factors

Grouped factors	Analysis	Impact	Implications for the augMENTOR platform
Resistance and well-being *(Burnout, technostress, fatigue, dehumanization fears, teacher adoption time)*	There is significant resistance from educators who fear AI will replace them or add to their cognitive load ('technostress'). The 'human vs. machine' narrative is a major barrier to adoption.	**Highly negative**	**UX design:** The interface must prioritize simplicity and automation of administrative tasks to reduce workload, rather than adding complex new tasks. **Marketing:** The value proposition must center on 'augmenting' (empowering) teachers, not replacing them. **Bundle synergy:** The 'augMENTOR implementation kit' (training) bundle is critical here to mitigate this resistance.
Infrastructure gap *(Digital divide, internet speeds, hardware vs. software gap)*	Advanced software often outpaces the hardware available in schools. Poor internet connectivity in rural areas limits the viability of cloud-heavy AI solutions.	**Negative**	**Technical requirement:** The platform needs an 'offline mode' or low-bandwidth capability to be viable in rural/less wealthy markets. **Hardware agnostic:** Ensure compatibility with older hardware/devices often found in public schools.

Technological factors

Grouped factors	Analysis	Impact	Implications for the augMENTOR platform
Trust and ethics *(Bias of data, fairness of AI models, algorithm audits)*	Trust is the currency of AI in education. Concerns about bias (gender, racial, socioeconomic) in AI models can lead to immediate rejection by public bodies.	**Mixed (Risk/Opportunity)**	**Competitive advantage:** If augMENTOR can prove its models are 'fairness-audited' and 'explainable,' it gains a massive advantage over 'black box' competitors. **Feature:** Explainability elements must be a core feature of the platform.
Integration and growth *(Expansion of AI, Increase of LMS use)*	Schools are increasingly adopting LMSs. This pre-existing infrastructure makes it easier to plug in new AI tools.	**Positive**	**Interoperability:** The platform must seamlessly integrate (via API/LTI standards) with major LMS platforms (Moodle, Blackboard) rather than trying to replace them.

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Environmental factors

Grouped factors	Analysis	Impact	Implications for the augMENTOR platform
Sustainability pressure *(Data center energy consumption, carbon footprint of AI training)*	The environmental cost of training large AI models is coming under scrutiny. Public procurement increasingly includes 'green' criteria.	**Negative**	**Infrastructure:** Select hosting providers with 100% renewable energy (e.g., green cloud regions) to meet public tender requirements. **Optimization:** Focus on 'TinyML' or efficient model inference to lower the carbon footprint per query.

Legal factors

Grouped factors	Analysis	Impact	Implications for the augMENTOR platform
Data protection and sovereignty *(GDPR, EU AI Act, Gaia-X, data sovereignty)*	The regulatory environment is strict. The EU AI Act classifies education AI as 'high risk,' requiring rigorous conformity assessments. Data sovereignty (Gaia-X) pushes for European cloud solutions.	**Negative (Constraint)**	**Compliance:** The business plan must budget for legal counsel and DPOs. **Hosting:** Data must reside strictly within the EU. Reliance on non-EU cloud providers (like US-based servers) could be a dealbreaker for public schools.
Security risks *(Cyber attacks, data breaches, liability for bias)*	Schools are soft targets for cyber attacks. A data breach involving minors would be catastrophic for the commercial entity's reputation and finances.	**Negative**	**Security:** 'Privacy by design' must be the architectural standard. Cyber insurance is a mandatory operational cost.

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Annex II – SWOT analysis input

STRENGTHS (Internal)

Strategic relevance: Leveraging competitive advantages for market entry.

Key strength	Strategic relevance for commercialization
Interoperability and modularity *(Add-on to existing LMS, tailorable to different systems)*	**Rapid market penetration:** Position the platform not as a competitor to established LMS giants (Moodle, Blackboard) but as a high value 'plug-in.' This lowers barriers to entry and utilizes existing infrastructure.
Scalability and replicability *(Scalable platform, adjusts to any language)*	**Pan-European expansion:** The ability to handle multiple organizations and languages directly addresses risk of 'regulatory/cultural fragmentation,' allowing a single core product to serve diverse EU markets.
'Pedagogically sustained' AI *(Beyond state-of-the-art tech coupled with modern pedagogy, 4Cs support)*	**Unique selling proposition:** Unlike generic AI tools, this platform is grounded in the augMENTOR pedagogical framework (Bundle 1). This scientific backing builds the trust required to overcome societal resistance identified in the PESTLE analysis.
Open source foundation	**Adoption velocity:** Reduces initial cost barriers for public schools, fostering a user base that can later be monetized through premium support or advanced features (open core model).

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WEAKNESSES (Internal)

Mitigation strategies: Addressing internal gaps to ensure viability.

Key weakness	Mitigation strategy
Low maturity (TRL 5) *(Still at prototype stage)*	**Pilot driven validation:** Utilize the augMENTOR implementation kit (Bundle 3) to run additional pilots. Use these pilots to advance TRL before commercial launch.
Sustainability gaps *(Lack of long-term maintenance plan, no IPR strategy for public actors)*	**Business model definition:** Establish post-project management to hold IPR and manage licensing, resolving the 'many partners' decision making complexity.
Open source trade-off *(Vulnerability to competition)*	**Dual licensing strategy:** Keep the core platform open but proprietary license the advanced enterprise features that schools/governments are willing to pay for.

OPPORTUNITIES (External)

Exploitation strategies: Capturing market potential.

Key opportunity	Exploitation strategy
Exploding AIED Market *(Growing demand, realization of AI as force multiplier)*	**B2B Sales:** Target EdTech startups and smaller publishers who need AI but lack R&D budgets. Offer the platform via API licensing.

Demand in rural/remote areas *(Need for massive courses in remote areas)*	**'Lite' Version Deployment:** Leverage the tool's scalability to offer a low bandwidth, cloud optimized version specifically for rural regions, tapping into 'structural funds' (PESTLE) allocated for digital cohesion.
Lack of supportive frameworks	**Bundled value proposition:** Market the software not just as a tool, but as a compliance solution. Leverage the other three bundles to reassure educators that the AI is safe, effective, and scientifically valid.

THREATS (External)

Mitigation strategies: Defending against risks.

Key threat	Mitigation strategy
Regulatory and ethical compliance *(EU AI Act, fair AI models, bias)*	**'Compliance-as-a-Service':** Turn this threat into a feature. Market the platform as the 'safe choice' that comes pre-audited for fairness and EU AI Act compliance, unlike non-EU competitors.
Societal resistance *(AI Illiteracy, student dependency, teacher fear)*	**Training bundle:** Never sell the service alone. Accompany it with the augMENTOR implementation toolkit and pedagogical framework to reduce technostress, and ensure proper usage.
Big tech competition *(Big R&D companies taking over)*	**Specialization:** Do not compete on general AI. Compete on specialized, explainable, pedagogical AI. Big tech offers 'black boxes'; augMENTOR offers 'transparent, teacher centric tools'.

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Annex III – Business Model Canvas

1. Value proposition

The bundles serve as the precise mechanism through which the project's high-level value proposition activities (as detailed in section 2.4) will be realized:

The augMENTOR Pedagogical Framework (Bundle 1): This bundle provides the foundational scientific validity, ensuring all technology interventions are human-centric and pedagogically sound. It contains the core theoretical models and the assessment strategy for the 21st century competencies (4Cs).

The augMENTOR platform (Bundle 2): This is the freemium commercial core, comprising the integrated technical components. It synthesizes the Knowledge Graph, the ML pipelines, the Explanation Generator, and the Decision/Policy Making algorithms into one functional service.

The augMENTOR Implementation toolkit (Bundle 3): Designed as the essential layer for adoption and risk mitigation, this bundle packages the innovative work methodologies. Its availability and exploitation ensures customers overcome resistance ('technostress') and successfully integrate the solution into their organizational culture.

Policy and strategy (Bundle 4): This bundle delivers the strategic and systemic impact of the project, leveraging the policy briefs and accumulated data insights to inform and influence institutional governance and public policy on digital education and AI compliance.

2. Customer segments

The final market segmentation (also presented in section 3.2), strategically prioritizes high-value customers where the augMENTOR platform offers a unique competitive edge.

Corporate training, professional development, vocational education and specialized Training (VET): This is the highest value entry point, capitalizing on the urgent market need for upskilling in 'power skills' (the 4Cs) which traditional systems fail to measure. Our strategy positions the platform as a premium, analytical add-on, leveraging the verified use cases from the pilots. This is a consultancy led opportunity, utilizing the augMENTOR Implementation toolkit to align scenario based training with the rigorous TESA model.

LMS providers and EdTech platforms (strategic B2B segment targets): This aims for rapid scaling by licensing the platform as an embeddable 'intelligence engine' via API. This strategy is designed to bypass platform competition barriers and quickly access existing user bases, fulfilling the strategic alliances sought by our technical partners.

Higher education institutions and schools: Which demand compliant, evidence-based tools. The platform's human-in-the-loop design and the credibility of our academic partners directly address institutional resistance and stringent data privacy regulations.

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3. Channels

The channels selected are precisely aligned with the high value customer segments, focusing on direct market entry and leveraging partner networks to ensure efficient scaling.

Corporate training, professional development, and VET

Consultancy and direct sales: Utilize partner networks and existing training certifications for direct contract acquisition.

Training workshops: The augMENTOR Implementation toolkit (Bundle 3) can be leveraged by partners to design new content and training workshops to be delivered, serving as the primary sales for them and as a demonstration channel.

Thematic content: Offer specialized, paid content (e.g., environmental sustainability) and certification, and position the platform for specific corporate reporting needs.

LMS providers and EdTech platforms (Strategic B2B)

API first delivery and strategic alliances: Distribute the augMENTOR platform as a cloud API, with technical partners establishing direct alliances with major EdTech companies and publishers.

Tech Events: Engage in specialized technical forums and exhibitions to showcase interoperability and advanced features.

Higher Education Institutions (HEIs) and schools

LMS marketplaces: Direct listing as a verified plugin on platforms like Moodle.

Policy forums and public tenders: Channel the policy and strategy material to ministries of education and public administrations to secure systemic adoption and endorsements.

Academic Networks: Leverage the research credibility of academic partners to promote the freemium model and secure research use.

4. Customer relationships

Customer relationships are grounded in trust and ethical enablement, converting regulatory demands into a core value proposition.

Trust and compliance (GDPR/AI Act): Relationships are built on the augMENTOR platform's privacy-by-design architecture, ensuring adherence to GDPR and the EU AI Act. It is a 'safe choice,' mitigating legal and ethical risks for institutions.

Transparency and explainability (XAI): User trust can be nurtured via transparency. The core is the Explainable AI (XAI), featuring a human-in-the-loop mechanism that ensures educators maintain autonomy, verify recommendations, and understand the platform's logic.

Pedagogical Enablement: The augMENTOR Implementation toolkit (Bundle 3) is integrated as an essential support care package. This provides structured training and onboarding to reduce 'technostress' and guarantee sustained, correct adoption of AI-augmented

pedagogy. The freemium community is supported by accessible documentation and automated self-service.

5. Revenue streams

The Freemium model is the pillar of our revenue:

- **Free tier:** A basic version remains free, supporting wide market adoption and driving users into the sales funnel.
- **Paid Enterprise Edition**: Subscription revenue derived from premium features.
- **Licensing Fees:** Collecting API usage fees from B2B partners embedding our AI models.
- **Service revenue:** Generated by partners delivering customized training, consulting, and onboarding. This revenue stream supports the ecosystem but is distinct from the platform's central revenue. The financial sustainability of the central commercial entity relies primarily on platform subscriptions (SaaS).

6. Key Resources

The augMENTOR platform: Leveraged as a Software-as-a-Service (SaaS) solution, representing the project's core Intellectual Property (IP), seamlessly integrating AI/ML models, a Knowledge Graph, and the Explanation Generator, all rigorously validated by the overarching augMENTOR Pedagogical Framework. This commercial core is designed for widespread adoption via a freemium model that reduces barriers to entry while monetizing advanced features and supporting the entire ecosystem.

Certified pedagogical training packages: These are paid, accredited training courses for educators that go beyond the core of the augMENTOR Implementation toolkit (Bundle 3). Led by the specialized pedagogical experts, these programs may explicitly train teaching professionals to master the rigorous pedagogical framework and effectively design curricula and optimize their use of the platform's advanced features.

Pre-designed digital curricula: This comprises a library of ready-to-be-used courses. They may significantly shorten client onboarding time and reduce the barrier to adoption for institutional buyers, directly enabling the platform's rapid market entry.

7. Key Activities

To ensure the long term viability of the augMENTOR platform, key activities are focused on four interdependent pillars:

Technical maintenance and product development: Continuous Continuous Integration/Continuous Delivery (CI/CD), model retraining, and cloud optimization to manage high AI OPEX costs.

Commercial operations and revenue generation: Actively managing the freemium model conversion, securing API licensing deals with B2B partners, and executing targeted sales and marketing via the reseller network.

Capacity building and customer success: Developing and delivering structured certified pedagogical training packages. This is paramount for mitigating societal resistance ('technostress') and ensuring long-term adoption and retention.

Legal compliance and strategic governance: Continuous compliance auditing against the EU AI Act and GDPR, and actively engaging policy bodies to secure endorsements.

8. Key partners

The augMENTOR platform's sustainability relies on a strategically aligned ecosystem:

LMS providers and technology integrators: Critical for distribution, they provide the necessary APIs and marketplaces (Moodle) to deploy the platform as a certified plugin, enabling rapid, large scale user acquisition.

Academic and pedagogical experts: Pedagogical partners may use the validated augMENTOR Pedagogical Framework (Bundle 1) to develop certified pedagogical training packages. This ensures scientific credibility and the creation of essential revenue generating services.

Government, policy bodies, and certification providers: Key for the B2G segment, they secure systemic adoption. We leverage them to gain Endorsements and access Public Tenders through our Policy and strategy material (Bundle 4).

Specialized training and NGO networks: These partners are part of the reseller network. Their role is operational: securing direct sales to VET/corporate clients, delivering the on-site training and onboarding (service revenue), and using their expertise in areas like civilian missions.

9. Cost Structure

The cost structure prioritizes investments required to deliver Trustworthy AI:

- **OPEX - compliance and legal:** Costs for DPO services and the technical infrastructure needed for algorithm auditing.
- **OPEX - Technical and hosting:** Cloud hosting (using 'reserved instances' for cost control), GPU costs for AI model retraining, and dedicated maintenance/DevOps staff.
- **OPEX - Commercial and training:** Marketing and sales budgets, and the costs associated with developing and delivering the training.